

Determinants of Procure-to-Pay System Adoption in the County Government of Bomet, Kenya

Geoffrey Kiprotich Chepkwony, Barrack Okello

School of Entrepreneurship, Procurement & Management, Jomo Kenyatta University of Agriculture and Technology, Juja, Kenya

Email address:

gkiprotich@gmail.com (G. K. Chepkwony), obrackz@gmail.com (B. Okello)

To cite this article:

Geoffrey Kiprotich Chepkwony, Barak Okello. Determinants of Procurement-to-Pay System Adoption in the County Government of Bomet, Kenya. *Journal of Investment and Management*. Vol. 5, No. 6, 2016, pp. 140-150. doi: 10.11648/j.jim.20160506.17

Received: September 18, 2016; **Accepted:** September 26, 2016; **Published:** October 25, 2016

Abstract: The purpose of this paper was to examine the determinants of effective adoption of procure-to-pay system in County Government of Bomet. The study was steered by the following research objectives: to examine how Information Communication Technology infrastructure influence effective adoption of procure-to-pay system; to evaluate how staff training influence effective adoption of procure-to-pay system and to find out the influence of management on effective adoption of procure-to-pay system. The study used two theories namely; the theory of innovation diffusion and technology adoption model. The study population comprised of 57 employees working in County Information Communication Technology, procurement and finance office and the county director of procurement. Owing to the limited number of employees in the three departments, all the employees were involved in the study making the study a census survey. The study used structured questionnaires in data collection. A pilot study was conducted in Bomet County to determine validity of the research instruments where Cronbach's alpha coefficient was used. For the purpose of establishing the relationship between the independent and dependent variable, chi square test and regression analysis was carried out. The study revealed that ICT infrastructure, staff training and management support are all critical determinants of procure-to-pay system. The study recommends that the government policy makers should come up with written guidelines in development of ICT infrastructure in public organizations. Management of county governments should identify training needs, develop training strategies and conduct regular and effective training on adoption of innovative strategies like procure to pay system. Further studies should be conducted to assess the role of the national government in adoption of procure to pay system. Studies should be conducted to assess the challenges faced by public organizations in adoption of procure to pay system and suggest possible solutions to the challenges. Lastly, further studies should be conducted to assess the benefits of adoption of procure to pay system.

Keywords: Determinants of Adoption, Procure to Pay System, County Governments in Kenya

1. Introduction

Procurement is a crucial element in the working functions of any state. It refers to the purchasing of goods and services in the right quality, from the right source and the right price all to meet a specific need. Every government has the obligation to provide essential services to its citizens. In Kenya, Government has been noted to be the single largest purchaser of national economy; procurement consumes 45% of the national budget, excluding county government procurement [30]. Currently, county government under the new constitution is consuming not less than 15% of the last audited financial budget [32]. Thus taking lion share of the last audited account of Kshs 210 billion

this is 43% of the budget [11]. The close relationship between procurement and development demonstrates that there is need for transparency and accountability in the manner in which procurement is conducted.

Public procurement in Kenya has evolved over a long period of time. In the 1970s and 1980s the government used supplies manuals which was characterized by manual, paper based activities mainly in defining suppliers or vendors of materials or services purchased by an organization. However, as noted by [2] this has often resulted in inefficiencies, low transparency and low service quality as well as weak oversight

roles, delays, poor linkages between procurement and expenditures, and poor record management. However, this was supplemented by treasury circulars in 2001 which introduced procurement regulations to address challenges experienced under earlier procurements systems. The promulgation of the Exchequer and Audit (Public Procurement) Regulation of 2001 were issued under the unified circulars that governed the procurement system. This saw the abolition of the Central Tender Board (CTB) and establishment of Ministerial Tender Committee, Procurement Appeal Board which now called Public Procurement Administrative Review Board (PPARB) and Public Procurement Directorate as oversight agencies [33].

1.1. Statement of the Problem

The prime reason for the enactment of PPADA, 2015 was to enhance the legal regime in public procurement administration and to introduce a legal framework that could help to seal the corruption loopholes that the PPDA, 2005 did not address. This Act would enhance transparency, accountability and prudent utilization of public resources and thus improve service delivery. It introduced other procurement processes such Reverse Auction and the use of internet tools in the procurement processes such as advertisement of bid to be in line with the use of IFMIS system by the government institutions. The introduction of IFMIS P2P in 2014 was aimed to enhance accountability and reduces inefficiencies of procurement system and reduces corruption in procurement. Since then public institutions and county governments have adopted a number of systems to enhance service. Such systems include e-procurement, ERP and P2P system. It appeared that adoption of such systems is influenced by a number of factors. However, no research had been conducted in Kenya to identify the determinants of such systems. It was against this background that this study will be undertaken to investigate the determinants of effective adoption of procure-to-pay system in county governments in Kenya with a specific reference to County Government of Bomet. The choice of the study unit was informed by various reasons among them are the location of the study which was within the proximity of the researcher.

1.2. Objective of the Study

- i. To examine how Information Communication Technology infrastructure influence adoption of Procure-to-Pay system in County government of Bomet, Kenya.
- ii. To evaluate how staff training influence adoption of Procure-to-Pay system in County Governments of Bomet, Kenya.
- iii. To establish the influence of top management support on adoption of Procure-to-Pay system in County government Bomet, Kenya.

1.3. Research Hypothesis

H01: Information Communication Technology (ICT)

infrastructure does not have significant influence on adoption of Procure-to-Pay system in County Government of Bomet, Kenya.

H02: Staff training does not have significant influence on adoption of Procure-to-Pay system in County Government of Bomet, Kenya.

H03: Top management does not have significant influence on adoption of Procure-to-Pay system in County Government of Bomet, Kenya.

1.4. Conceptual Framework

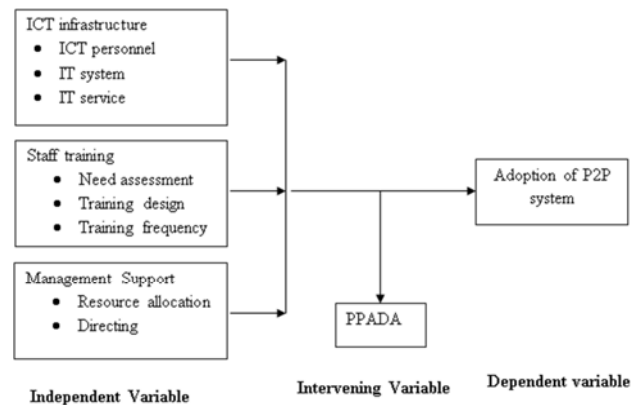


Figure 1. Conceptual Framework.

2. Literature Review

2.1. Theory of Innovation Diffusion

Diffusion research examines how ideas are spread among groups of people. Diffusion goes beyond the two-step flow theory, centering on the conditions that increase or decrease the likelihood that an innovation, a new idea, product or practice, will be adopted by members of a given culture. In multi-step diffusion, the opinion leader still exerts a large influence on the behavior of individuals, called adopters, but there are also other intermediaries between the media and the audience's decision-making. One intermediary is the change agent, someone who encourages an opinion leader to adopt or reject an innovation [22].

Innovations are not adopted by all individuals in a social system at the same time. Instead, they tend to adopt in a time sequence, and can be classified into adopter categories based upon how long it takes for them to begin using the new idea. Practically speaking, it's very useful for a change agent to be able to identify which category certain individuals belong to, since the short-term goal of most change agents is to facilitate the adoption of an innovation. Adoption of a new idea is caused by human interaction through interpersonal networks. If the initial adopter of an innovation discusses it with two members of a given social system, and these two become adopters who pass the innovation along to two peers, and so on, the resulting distribution follows a binomial expansion. Expect adopter distributions to follow a bell-shaped curve over time [17].

The criterion for adopter categorization is innovativeness.

This is defined as the degree to which an individual is relatively early in adopting a new idea than other members of a social system. Innovativeness is considered "relative" in

that an individual has either more or less of it than others in a social system (Jarunee *et al.*, 2005).

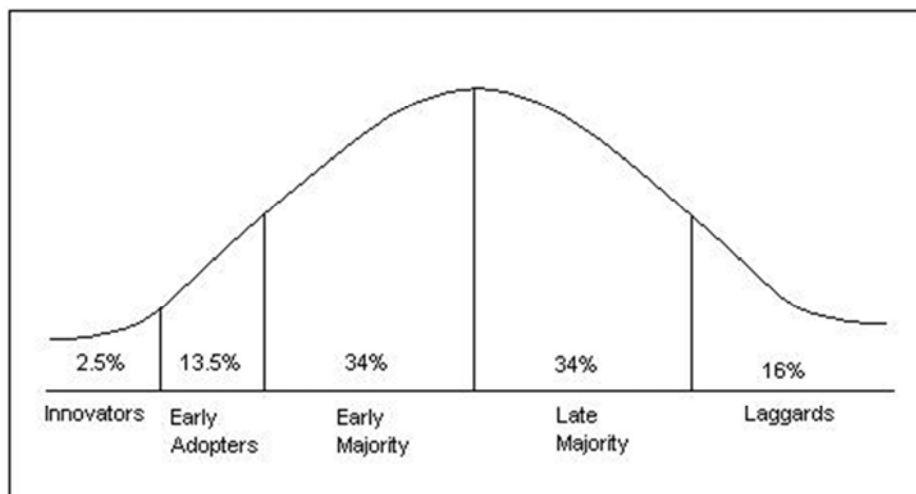


Figure 2. Theory of Innovation Diffusion.

Adopter distributions closely approach normality. The above figure shows the normal frequency distributions divided into five categories: innovators, early adopters, early majority, late majority and laggards. Innovators are the first 2.5 percent of a group to adopt a new idea. The next 13.5 percent to adopt an innovation are labeled early adopters. The next 34 percent of the adopters are called the early majority. The 34 percent of the group to the right of the mean are the late majority, and the last 16 percent are considered laggards [3].

The above method of classifying adopters is not symmetrical, nor is it necessary for it to be so. There are three categories to the left of the mean and only two to the right. While it is possible to break the laggard group into early and late laggards, research shows this single group to be fairly homogenous. While innovators and early adopters could be combined, research shows these two groups as having distinctly different characteristics. The categories are exhaustive, in that they include all units of study, mutually exclusive, excluding from any other category a unit of study already appearing in a category, and derived from one classificatory principle. This method of adopter categorization is presently the most widely used in diffusion research [41].

Innovators are eager to try new ideas, to the point where their venturesomeness almost becomes an obsession. Innovators' interest in new ideas leads them out of a local circle of peers and into social relationships more cosmopolite than normal. Usually, innovators have substantial financial resources, and the ability to understand and apply complex technical knowledge. While others may consider the innovator to be rash or daring, it is the hazardous risk-taking that is of salient value to this type of individual. The innovator is also willing to accept the occasional setback when new ideas prove unsuccessful [4].

Early adopters tend to be integrated into the local social

system more than innovators. The early adopters are considered to be localities, versus the cosmopolite innovators. People in the early adopter category seem to have the greatest degree of opinion leadership in most social systems. They provide advice and information sought by other adopters about an innovation. Change agents will seek out early adopters to help speed the diffusion process. The early adopter is usually respected by his or her peers and has a reputation for successful and discrete use of new ideas [10].

Members of the early majority category will adopt new ideas just before the average member of a social system. They interact frequently with peers, but are not often found holding leadership positions. As the link between very early adopters and people late to adopt, early majority adopters play an important part in the diffusion process. Their innovation-decision time is relatively longer than innovators and early adopters, since they deliberate some time before completely adopting a new idea. Seldom leading, early majority adopters willingly follow in adopting innovations [10].

The late majority are a skeptical group, adopting new ideas just after the average member of a social system. Their adoption may be borne out of economic necessity and in response to increasing social pressure. They are cautious about innovations, and are reluctant to adopt until most others in their social system do so first. An innovation must definitely have the weight of system norms behind it to convince the late majority. While they may be persuaded about the utility of an innovation, there must be strong pressure from peers to adopt [5].

Laggards are traditionalists and the last to adopt an innovation. Possessing almost no opinion leadership, laggards are localite to the point of being isolates compared to the other adopter categories. They are fixated on the past, and all decisions must be made in terms of previous generations. Individual laggards mainly interact with other

traditionalists. An innovation finally adopted by a laggard may already be rendered obsolete by more recent ideas already in use by innovators. Laggards are likely to be suspicious not only of innovations, but of innovators and change agents as well [8]. The theory of innovation diffusion is adopted in this study since it provides an explanation on how organizations adopt innovative strategies like Procure-to-Pay systems and how such items are diffused into internal systems of the organizations. It explains why the organizations adopt such strategies and the conditions under which such systems are adopted. In this study, the theory of innovation diffusion helps in conceptualizing the adoption of Procure-to-Pay systems in the county government outlining the motives and providing understanding on strategic determinants for adoption of the system.

2.2. Empirical Review

2.2.1. Influence of Information Technology (IT)

Infrastructure on Adoption of Procure-to-Pay System

E-procurement application requires good and supportive soft and hard technological infrastructure across the country for it to be effectively applied [28]. To mention a few, there should be stable power supply, undisputed network infrastructure, e-procurement software, adequate servers and backups. A country e-procurement readiness report evidenced that few of these do exist in the country but the Government is trying to make changes such as the installation of the national broadband. Therefore, adequate funds should be set aside in the Government budget that will be specifically utilized for capital investment on e-procurement technological soft and hard infrastructure in the country [43]. Hypothetically, it is believed that there is a direct relationship between supportive technological infrastructure and the application of e-procurement in the country, hence priorities towards capital investment should be changed and be channeled towards constructing e-procurement technological infrastructure.

The development and implementation of electronic commerce business models, such as a procurement portal in organizations is a challenge that goes beyond mere technological functionality [23]. Top management support, organizational adaptation, and training of employees are examples of critical issues for the successful implementation of any ICT-system [24]. For the implementation of e-procurement in the public sector, an extra set of factors is considered to be influential. These include financial risk, risks of building the portal, and legislative issues [44]. Most purchases in public sector institutions require that a bureaucratic procedure be followed. The majority of items are bought on requisition. This means that a great deal of effort is put into sending forms back and forth in the system. The internal coordination costs are therefore high with respect to the contracting procedure for commodities. As pointed out by [47] electronic procurement of commodities represents the greatest potential for savings. E-procurement simplifies work procedures and automates processes, for example in order processing and the handling of invoices and

payments. This, combined with the regulated tendering processes, makes the idea of automating procurement an attractive option compared to the status quo.

E-procurement application requires good and supportive soft and hard technological infrastructure across the country for it to be effectively applied. To mention a few, there should be stable power supply, undisputed network infrastructure, e-procurement software, adequate servers and backups. A country e-procurement readiness report evidenced that few of these do exist in the country but the Government is trying to make changes such as the installation of the national broadband. Therefore, adequate funds should be set aside in the Government budget that will be specifically utilized for capital investment on e-procurement technological soft and hard infrastructure in the country [14]. Hypothetically, it is believed that there is a direct relationship between supportive technological infrastructure and the application of e-procurement in the country, hence priorities towards capital investment should be changed and be channeled towards constructing e-procurement technological infrastructure.

In order for e-procurement to be effectively applied in the country, there should be a common system that will be harmonizing the procurement transactions between the buying organizations and the selling organizations. Therefore, both ends of the procurement system should be adequately equipped with the necessary e-procurement technology and techniques [22].

In times of informatization and building efficient e-government systems, handling procurement and tendering of ICT solutions is of significant importance to ensure effective operation of underlying IT infrastructure as well as management of public finances. Public procurement is associated with high risks and many public authorities face immense problems with handling procurements of ICT services [31].

Most organizations adopting or looking to adopt e-procurement software already have significant investments in the relevant technology systems; failure to integrate these technologies with existing platforms creates duplicative work steps and jeopardizes the reliability of e-procurement information [13]. E-procurement implementation can suffer performance handicaps due to incomplete technological development of the virtualization platforms [19]. The World Bank blames the inadequate access and connectivity to limited absorption and usage of e-procurement technologies [45]. E-procurement implementation is affected by the lack of a widely accepted and standardized solution and this blocks the integration of different e-procurement software across the supply chain. Without widely accepted standards for coding, technical, and process specifications, e-procurement technology adoption will be slow and will fail to deliver much of the benefits expected [38]. Companies fear buying into a “closed” technology that cannot communicate with other technologies and thus limits access to a broader network of supply chain constituencies. The European Commission (EC) states that the level of

information technology infrastructure and usage in developing countries still remains an impediment to a full integration of e-procurement [40].

A study conducted by [30] to establish pertinent issues in the e-procurement implementation process. The global research established that common important drivers for e-procurement adoption are process design, international operational efficiency, and cost reduction and organizational leadership. The research indicated that the organizational factors including user-related variables affect the successful implementation of e-procurement. Other factors highlighted by the research as affecting e-procurement implementation are: variations in e-procurement adoption based on industry differences, business size differences and complexity of products.

A research by [19] on the e-procurement adoption by European firms. The quantitative research established that technical factors are very key in determining the successful implementation of e-procurement. According to the research, companies that faced technical compatibility issues and those that lacked information technology expertise tended to reap minimally from the e-procurement implementation. These research findings tend to dovetail with [12] who indicate that the common important drivers for e-procurement adoption are technical process design, international operational efficiency, and cost reduction and organizational leadership. The research pointed to the e-procurement technical architecture as very critical in the e-procurement implementation.

2.2.2. Influence of Staff Training on Adoption of Procure-to-Pay System

The implementation of e-procurement techniques requires personnel who are experts in the e-procurement issues at the country level and organizational level both in the procuring entities and the supplier entities [27]. Hence, to be successful in the application of e-procurement at the country level there is a need of having adequate e-procurement experts at PPRA, supplier organizations and PEs who will be in charge of the day to day implementation activities and harmonization of the e-procurement system. The country has inadequate experts on the subject matter; therefore efforts should be taken by the government and the respective entities to train their experts on e-procurement techniques and technologies so that they may become competent and conversant on e-procurement and in return participate actively on the whole process of installing e-procurement infrastructure

Training of staff in procurement practices and the use of e-Procurement tools are critical to the success of an e-Procurement initiative [21]. The staffs of an organization need to acquire the necessary skills that can enable them to operate effectively and efficiently while using the new e-procurement system. If staff is not adequately trained, they may not be able to own the e-procurement system and this may contribute to failure. The success of e-Procurement initiative depends on users and buyers making use of the new process and system. The solution must attract end users to

view e-Procurement as the preferred means by which to purchase goods and services [15]. The success of e-procurement also depends on communication to the users [10]. The organization adopting an e-procurement system must be able to communicate this information to the users. Distorted communication of information may lead to failure of the system. Study by [39] suggests that developing an e-Procurement system in an open environment allows it to link to other systems for interoperability and simplifies upgrading the system.

Compliance with best practices equally leads to successful e-procurement. E-Procurement initiatives only deliver the planned benefits if the users and buyers make changes to the way they work, which requires championing the system and senior management sponsorship. The business case processes for e-Procurement include identifying drivers, understanding the starting point, benefits, approaches, affordability, risks, and benefit realization. To ensure achievement of the e-Procurement objectives, the adoption project should proceed, as far as possible, in alignment with the business case [15]. It is significant for the organization to continuously measure the key benefits since it is vital to the successful delivery of a business project. Measurement drives behavior and is a key to making the change a success. Establishing goals and baselines is very important. These established goals will enable the organization measure how much has already been achieved as far as e-procurement system adoption is concerned. It is important to define Key Performance Indicators (KPIs) early in the process to enable successful benefits tracking and distil the business case into measurable KPIs [44].

Over the years, a dramatic increase in procurement volume raised the profile of procurement as an important organizational function that should be treated on a par with other organizational functions, such as finance and human resources management. Therefore the importance of adequate human resources capacity in procurement cannot be stressed enough. The number and professional qualifications of procurement staff are of utmost importance in ensuring effective and efficient procurement processes. Competent staffs are key to improving the procurement function. The complex nature of procurement operations requires staff to have a broad range of generic procurement skills and special expertise in many technical areas [29].

A study by [3] found out that in the organizations there are problems with staffing level and skills to handle complex procurement operations and workload peaks and to support reform initiatives. During the interviews there were complaints that the staffing level does not match the dramatic increase in procurement volumes and complexity. Without adequate staffing and skills, it will be difficult to achieve best value for money

Increasing procurement knowledge and expertise across the organizations could be one of the most effective ways to improve the procurement function. Staffs need regular training to update their knowledge and capabilities in order to be able to cope with fast-developing procurement challenges

in a dynamic environment. Given that procurement involves substantial amounts of resources and complex situations that require competencies in a wide variety of areas (i.e. market and cost-benefit analysis, evaluation, negotiation, quantitative and qualitative methods, ethics, etc.) it is necessary to have highly qualified staff so as to avoid any unnecessary waste of resources [16].

Rapid changes in the type and complexity of procurements call for regular professional training of procurement staff. To that effect organizations should have a dynamic training plan based on a training needs assessment, and it should be regularly updated. Executive heads should consider increasing procurement staffing and training opportunities as an investment capable of providing a relatively quick payback in terms of financial savings and best value for money. The organizations also need to design more training programmes covering ethics, corruption and anti-fraud issues. Only the United Nations and UNDP offer specific training on ethical issues in procurement. E-learning, such as the initiative of the United Nations Procurement Division's online training campus, should be widely encouraged and emulated. Training programmes should focus not only on the headquarters level, but also on the country/regional levels, where specific environments may expose staff members to a greater risk of fraud. It is important that both requisitioners and procurement officials participate in these training programmes [24].

Whereas adequate recruitment practices should be a standard in ensuring that qualified staffs are employed in the procurement function, training is imperative in order to maintain and develop skills, based on needs assessment. Staff without proper training should not be placed in positions of responsibility over procurement matters. Staff employed in key procurement posts should have completed or should be working towards advanced certification on procurement. Training opportunities should be available to all staff that has procurement responsibilities. Given its strategic role, procurement training should also be included as a core skill in training programmes for managerial staff. The organizations should assess their procurement capability on a regular basis and develop strategies to ensure that their procurement capacity can achieve best value for money [36].

End-users can realize the immediate benefits of the e-Procurement system once they understand the operational functionalities. This means that training should be given a high priority, alongside the need for public sector agencies to identify the skills required by all those engaged in procurement [52]. According to [52] good IT skills are not only useful tools for researching and presenting ones work; they also reduce stress, save time and save money. As technology alone does not ensure successful adoption, the success of a public sector e-Procurement initiative depends on users and buyers making use of the new process and system [49]. Enough ICT qualified staff, readily available ICT support for e-procurement, ICT helpdesk readily available and well trained staff to use e-procurement system amongst other are all relevant to ICT skills for e-procurement

adoption [20].

2.2.3. Influence of Management Support on Effective Adoption of Procure to-Pay System

The purchasing of goods and services in the public sector is central because it supports all functions of government; each governmental unit needs supplies and equipment to accomplish its mission [39]. As they emphasized, one of the most important challenges in government procurement is how to best utilize information technology in an age of communications revolution. The management of public procurement function is vested in the hands of all stakeholders involved throughout the implementation of the procurement cycle [37]. These stakeholders include: Supply chain management officers, Authority to Incur Expenditure (AIE) holders, Suppliers, Finance, Audit, Development Officers and Technical Support Staff. Effective management of the function would require joint /collaborative efforts of all of these stakeholders. Effective management of the procurement function is a precursor to the performance of the system in achieving its intended objectives in both the public and the private sector. Different procurement functions and responsibilities such as selection, quantification, product specification, pre-selection of suppliers and adjudication of tenders should be properly managed for the function to realize its objectives [42]. Procurement should be planned properly and procurement performance should be monitored regularly; monitoring should include an annual external audit. A reliable Management Information System (MIS) is one of the most important elements in planning and managing procurement. Lack of a functioning MIS or the inability to use it appropriately is a key cause of programme failure. There are reports of stalled and abandoned projects, poorly implemented works, and returns of unutilized project funds in various parts of the country. This trend shows that there are factors affecting the management of the procurement function. A Properly constituted and managed procurement should be able to detect the possibility of such occurrences and prevent them [28].

Top management support has been identified as a critical factor that leads to the success of e-procurement adoption from the sorted component matrix. If an organization wants to adopt e-procurement successfully then top management has to support the adoption of the system into their business and integrate it into its overall goal. The executive team is responsible for setting the vision and goals, bringing about collective commitment for change in process and organizational structures, and formulating the policies and strategies necessary to put an e-procurement initiative in place. If top executive levels support the adoption of e-procurement, the companies can successfully adopt e-procurement systems [41]. On the other hand, if the e-procurement systems do not have the full support of the top management team, there is every reason for that system to fail. Good procurement governance requires an organizational structure and staffing levels commensurate

with the procurement volume and its relative importance for each organization. Procurement plays a strategic role in helping organizations achieve their goals; thus, organizations should ensure that they have a dedicated and adequately staffed procurement unit. The Director of Procurement should report to a senior official at the highest level of the organization, or, in the case of large organizations, to the executive head [52].

A good organizational structure is important, but not sufficient, for good governance. Heads of organizations should understand the importance of the e-procurement function and treat it accordingly. The procurement function should be considered as equally important as other major functions such as finance and human resources. Procurement should be an integral part of the corporate decision making and planning of each organization. Most of the organizations have a dedicated procurement function and a procurement chief or above reporting to a higher-level official. Although there are no major problems with respect to the structural location of the procurement function, there are concerns regarding the recognition of its importance and access to top level officials and meetings. In most of the organizations, the procurement units are housed under Management and Administration or are considered a Central Supply Services function. The procurement functions are generally divided into purchasing and contracts, by funding sources through regular budget and technical cooperation, or by type of goods [33]. Even if technological requirements are met and the implementation of e-procurement systems seems feasible, from a managerial point of view implementation has proven to be a challenging venture [38] pinpoints the managerial challenges by listing critical success factors of e-procurement implementation. These include the definition of an e-procurement strategy, reengineering of procurement processes and management of expectations. Re-engineering of processes in the public sector is in itself a very demanding process [2] which, at times, tempers the enthusiasm for implementing e-procurement. Study by [35], confirmed this belief in their empirical analysis of e-procurement adoption in Greece. Their conclusion was that implementation must be achieved in a manner of “incremental change” where technological solutions apply to regulations and policies.

The United Nations conducted a research on the efficiency and transparency levels in public procurement covering sub-Saharan Africa and Asian countries [37]. The research findings indicated that the update of the e-procurement systems across private sector and public sectors was dependent on the top management support and technical knowledge of the chief executives. The United Nations research findings tend to echo the Swiss research where it was found that management played a critical role in the successful implementation of e-procurement [53]. Study by [20] to develop a predictive model for e-procurement implementation. The research pointed to management support and knowledge as the key drivers of successful e-procurement implementation.

3. Research Methodology

3.1. Research Design

Research design is a plan for collecting and utilizing data so that desired information can be obtained with sufficient precision or so that a hypothesis can be tested properly [32]. This study employed a case study research design to assess how the internal factors affect adoption of P-2-P system in a public entity in County Governments in Kenya. Bomet County was used as a case in the study. This design was used because the county governments are sparsely distributed and it may be impractical. In addition, the study was a census survey.

3.2. Target Population

The target population in this study consisted of all the employees working in County procurement and finance office and director of Procurement Bomet County government. According to data from Bomet County government office, there are 57 employees working in finance and procurement offices. The total target population thus was 57.

3.3. Research Instruments

Structured questionnaires were used to collect research data. The opinion of the expert (supervisor) played a very significant role in determining the validity of the research instrument. Pilot study was conducted in Kericho County to test the validity and reliability of the instruments. The study used 10 individuals who filled the questionnaires for reliability test. The Cronbach's alpha coefficient was used to measure the internal consistency of the questionnaire. As a general rule a value of $\alpha > 0.7$ determined reliable enough for each of the data sets where α is the item being tested for reliability. The values of Cronbach alpha obtained in this study; 0.768, 0.778, 0.811 and 0.781, all greater than 0.7 for ICT infrastructure, Staff training, Management support and adoption of procure to pay system respectively indicated that the research instruments were reliable.

3.4. Data Collection and Analysis

Data was collected through drop and pick techniques. Data collected were organized, coded and entered directly into SPSS version 23. Descriptive statistics; mean and standard deviations were used to describe research variables while regression analysis was used to relate the independent and pendent research variables. Chi-square test was conducted to test the research hypotheses.

4. Findings and Recommendations

4.1. Correlation Analysis

Correlation analysis was conducted to determine the relationship between ICT Infrastructure, Staff Training, Management Support and adoption of Procure to Pay System.

The findings were as presented in table 1

Table 1. Correlation Analysis.

		P2PAoption
ICT Infrastructure	Pearson Correlation	.615**
	Sig. (1-tailed)	.000
	N	48
Staff Training	Pearson Correlation	.750**
	Sig. (1-tailed)	.017
	N	48
Management Support	Pearson Correlation	.636**
	Sig. (1-tailed)	.000
	N	48
P2PAoption	Pearson Correlation	1
	Sig. (1-tailed)	
	N	48

** . Correlation is significant at the 0.05 level (2-tailed).

The Pearson correlation values indicate the nature and strength of relationship while the significance values indicate whether the relationship is statistically significant. The values; $r=.615$ and $p=.000$ (<0.05) indicates that the relationship between ICT Infrastructure and Adoption of P-2-P System strong, positive and statistically significant. The values; $r=.750$ and $p=.017$ (<0.05) indicates statistically significant positive relationship between Staff Training and Adoption of P-2-P System. Lastly, $r=.636$ and $p=.000$ (<0.05) indicates that there is significant positive relationship between Management Support and Adoption of P-2-P System.

4.2. Hypothesis Testing

The study conducted Chi square test to test the research hypotheses. The study used 0.05 significance level; values less than 0.05 implied statistically significant relationships and formed the basis of failing to accept null hypotheses.

Table 2. Chi square Test.

Variables	Pearson Chi-Square Values	df	Asymp. Sig. (2-sided)
ICT infrastructure	37.333 ^a	4	0.000
Training	42.556 ^a	4	0.000
Management Support	22.057 ^a	4	0.000

4.2.1. ICT Infrastructure on Adoption of Procure-to-Pay System

The first hypothesis was; H_{01} : Information Communication Technology (ICT) infrastructure does not have significant influence on adoption of Procure-to-Pay system in County Government of Bomet, Kenya. The values; $\chi^2=37.333$ and $p=0.000$ (<0.05) indicates that Information Communication Technology (ICT) infrastructure has significant influence on adoption of Procure-to-Pay system. The first hypothesis was rejected and conclusion was made that ICT infrastructure is a key determinant of adoption of

Procure-to-Pay system. Adoption of Procure-to-Pay system requires good and supportive soft and hard technological infrastructure across the country for it to be effectively applied [18].

4.2.2. Staff Training on Adoption of Procure-to-Pay System

The second hypothesis was; H_{02} : Staff training does not have significant influence on adoption of Procure-to-Pay system in County Government of Bomet, Kenya. The values of $\chi^2=42.556$ and $p=0.000$ (<0.05) indicated statistically significant influence of Staff training on adoption of Procure-to-Pay system. The second objective was therefore rejected and conclusion was made that staff training is a significant determinant of adoption of Procure-to-Pay system. These findings are in agreement with the sentiments of [22] that training of employees are examples of critical issues for the successful implementation of Procure-to-Pay system. The complex procure to pay system requires staff to have a broad range of generic procurement skills and special expertise in many technical areas [29].

4.2.3. Top Management Support on Adoption of Procure-to-Pay System

The last hypothesis of the study was; H_{03} : Top management support does not have significant influence on adoption of Procure-to-Pay system in County Government of Bomet, Kenya. The findings; $\chi^2=22.057$ and $p=0.000$ (<0.05) indicates that top management support is a significant determinant of adoption of Procure-to-Pay system. The last hypothesis was equally rejected and conclusion was made that top management support has significant influence on adoption of Procure-to-Pay system. These findings concur with the findings of [21] management support and knowledge as the key drivers of successful implementation of e-procurement strategies. Top management support is a critical factor that leads to the success of e-procurement adoption [41].

4.3. Regression Analysis

Regression analysis was conducted to establish the combined effect of ICT Infrastructure, Staff Training and Management Support on adoption of Procure-to-Pay system. The findings were as presented in table 3

Table 3. Model Summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.751 ^a	.565	.545	.60592

a. Predictors: (Constant), Management Support, ICT Infrastructure, Staff Training

From table 3, R-square of 0.565 indicates that ICT Infrastructure, Staff Training and Management Support collectively explain 56.5 % of successfulness of adoption of Procure-to-Pay system.

ANOVA test was used to test the significance of collective

effect of ICT Infrastructure, Staff Training and Management Support on adoption of Procure-to-Pay system. The findings were as shown in table 4.

Table 4. ANOVA Table.

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	32.361	3	10.787	29.381	.000 ^a
Residual	24.965	44	.367		
Total	57.326	47			

a. Predictors: (Constant), Management Support, ICT Infrastructure, Staff Training

b. Dependent Variable: P2PAdoption

From table 4, the significance value; 0.000 (<0.05) implies statistically significant influence of ICT Infrastructure, Staff Training and Management Support on adoption of Procure-to-Pay system. These results imply that the three factors are critical determinants of adoption of Procure-to-Pay system. The findings are in agreement findings of [36]. identified management support, staff training and ICT infrastructure as key determinants of successful adoption of Procure-to-Pay system.

Table 5. Coefficients Table.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.046	.432		.107	.915
1 ICT Infrastructure	.403	.083	.424	4.840	.000
Staff Training	.804	.098	.100	1.060	.043
Management Support	.672	.132	.517	5.086	.000

a. Dependent Variable: P2PAdoption

This study was guided by a multiple regression model. From table 5, the following model was developed.

$$Y = 0.046 + 0.403X_1 + 0.804X_2 + 0.672X_3 + \varepsilon$$

Where; Y – P2P Adoption

X₁ - ICT infrastructure

X₂ - Staff training

X₃ - Management Support

ε - Error term

From the above model, 0.046 represents the level of adoption of Procure-to-Pay system achieved assuming there are no ICT Infrastructure, Staff Training and Management Support. 0.403 is the level of adoption of Procure-to-Pay system achieved assuming there is ICT infrastructure while other factors are held constant. 0.804 is the level of adoption of Procure-to-Pay system achieved assuming there is Staff Training while other factors are held constant while 0.672 is the level of adoption of Procure-to-Pay system achieved assuming there is management support while other factors are held constant.

5. Conclusions

ICT infrastructure significantly influences adoption of P-2-P system. Organizations can therefore consider development of ICT infrastructure as a strategy to enhance adoption of P-2-P system. Staff training is a significant determinant of adoption of P-2-P system. Organizations adopting procure to pay system must train employees on adoption of P-2-P system since it is the employees who take part in the actual implementation. The study also concluded that management support is required for successful adoption of P-2-P system

Government policy makers should come up with written guidelines in development of ICT infrastructure in public organizations. County Governments must have vibrant human resource function to identify training needs, develop training strategies and conduct regular and effective training on adoption of innovative strategies like procure to pay system. Lastly, management must also create enabling organizational culture and change management to facilitate adoption of procure to pay system.

Further studies should be conducted to assess the role of the national government in adoption of procure to pay system. Studies should be conducted to assess the challenges faced by public organizations in doption of procure to pay system and suggest possible solutions to the challenges. Lastly, further studies should be conducted to assess the benefits of adoption of procure to pay system.

References

- [1] Bittner, R. (2006). Management concepts. Radiologic Technology. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=jlh&AN=106288513&site=ehost-live>
- [2] Aboelmaged, M. (2010). Predicting e-procurement Adoption in a Developing County. An empirical integration of technology acceptance model and theory of planning behaviour, 2 (2) 392-414.
- [3] Beauvallet, G., Boughzala, Y., & Assar, S. (2011). E-Procurement, from Project to Practice: Empirical Evidence from the French Public Sector. India: Pradesh.
- [4] Bomet County Government (2016). General Information, retrieved from; <http://www.bomet.go.ke/> on 12/6/2016
- [5] Chin-Fu, H., Yi-Ming, T., & Wen-Hsiung, W. (2008). Exploring the Impacts of Web-Based E- Procurement on Organizational Performance. UK: Ahmedabad: IIM.
- [6] Commission, E. (2012). EU public procurement legislation: delivering results Summary of evaluation report. Brussels: EU.
- [7] Davila, A., Gupta, M., & Palmer, R. (2002). Moving Procurement Systems to the Internet: The Adoption and Use of E-Procurement Technology Models. EU: Brussels.
- [8] Done, A., Liao, C., and Maedler, M. (2011). Technology in Purchasing: Impacts ofn Performance and Future Confidence. IESE: IESE Business School.

- [9] Edebe, I. (2000). Managing and developing the strategy for Africa's information in global computerization. Library management. London: Brussels.
- [10] Fred D. Davis, R. P. (1989). User Acceptance of Computer Technology. A compromise of two theoretical models, 2 (1), 982-1003.
- [11] Friedman, T. (2006). The World is Flat (1st Edition). London: Penguin.
- [12] Gates, B. (2009). Business @ the Speed of Thought. London: Procurement Fraud in e-Business: Dispute, Analysis and Investigations. London: Penguin Group.
- [13] Goldstein, I. (1993). Training in Organizations. Needs assessment, Development, and Evaluation, 2 (2), 356-364.
- [14] Hamilton D, M. (2006). Additional contextual specificity to the technology acceptance model. Computers in Human Behaviour, 1 (2), 427-447.
- [15] Hanool Choi, S. K. (2010). Industrial Marketing Management. Role of Network Structure and Network Effects in Diffusion of Innovations, 1 (2), 170-177.
- [16] Henriksen, H., Kerstens, D., & Andersen, K. (2004). Public Procurement in Denmark: Measurements of Suppliers' E-maturity. Bled: Slovenia.
- [17] Jarunee Wonglimpiyarat, Napapord Yuberk. (2005). Government Information Quarterly. In support of Roger's Innovation Diffusion Theory. 2 (5), 411-422.
- [18] Kalakota, R., & Whinston, A. B. (2006). Frontiers of Electronic Commerce. New York: Addison-Wesley Publishing Company.
- [19] Kalianna, A. H. (2009). The Journal of Knowledge Economy and Knowledge Management. Government Purchasing: A review of E-Procurement System in Malaysia, 2 (5), 112-121.
- [20] Kaliannan, M., Awang, H., & Raman, M. (2009). Government Purchasing: A Review of E-rocurement System in Malaysia. The Journal of Knowledge Economy & Knowledge Management 2 (3), 112-121.
- [21] Kaplan, S., & Sawhney, M. (2010). E-Hubs: The New B2B Marketplaces. Harvard: Harvard Business Review.
- [22] Kawalek, P., Wastell, D. and Newman, M. (2003). Problematisation and Obfusca-tion in E- Government. Second International E-Government Conference. Czeck Republic: Prague.
- [23] Kenya Gazette Spplement No. 207. (2015). The Public Procurement and Assets Disposal Act. Nairobi: Kenya Gazette.
- [24] Kishor Vaidya, S. S. (2006). Journal of Public Procurement. Critical factors that influence E-procurement Implementation success in the public sector, 70-99.
- [25] Kombo, D. (2006). Proposal and Thesis Writing: An Introduction. Nairobi: Nairobi Publications.
- [26] Kothari, C. (2007). Research Methodology, Methods and Techniques. Mumbai: Gupta.
- [27] Kumari, K., & Sundarraj, R. (2013). Electronic Procurement Systems in India: Importance. India: Aventure.
- [28] Marianne Bradford, J. F. (2003). International Journal of Accounting Information Systems. examining the role of innovation diffusion factors on the implementation success of enterprise resource planning systems, 1 (2) 205-225.
- [29] McFarland, D., & Hamilton, D. (2006). Adding Contextual Specificity to the Technology Acceptance Model. Computers in Human Behavior, 22 (3), 427-447
- [30] Michael Morris, A. D. (1997). How User Perceptions Influence Software Use. Texas: IEEE.
- [31] Morris, M. and Dillon, A. (1997). How User Perceptions Influence Software Use. IEEE Software, 14 (4), 58-65.
- [32] Mugenda, O. M. (2008). Research Methods: Qualitative & Quantitative Approaches (1st Edition). Nairobi: ARTS Press.
- [33] Mukhopadhyay, T., & Kekre, S. (2002). Strategic and Operational Benefits of Electronic Integration in B2B Procurement Processes. Nairobi: Management Science Publications.
- [34] Oliveira, L., & Amorim, P. (2001). Public E-Procurement, International Financial Law Review. London: Mukhopadhyay.
- [35] Panayiotou, A. (2005). An E-Procurement System for Governmental Purchasing. International Journal for Production Economics, 2 (3)91-104.
- [36] Price water house Coopers. (2010). Are Hubs the Centre of Things? E-Procurement in the Automotive Industry. Nairobi: Price water house Coopers.
- [37] Public Procurement Oversight Authority (2015). The Public Procurement and Asset Disposal Act, 2015, Kenya Gazette Supplement No. 207 (Acts No. 33)
- [38] Rajkumar, M. (2010). "E-procurement: Business and technical issues. Information Systems Management, 3 (4), 34-44.
- [39] Reddick, C. (2004). The Growth of E-Procurement in American State Governments: A Model and Empirical Evidence. Edinburgh: Chambers Harrap Publishers Ltd.
- [40] Rogers, M. (2003). Diffusion of Innovations, Fourth edition. NewYork: The Free Press.
- [41] Serem, D. (2013). Understanding Research: A Simplified Form. Nairobi: Utafiti Publishers.
- [42] Simon Croom, A. B. (2007). Journal of Purchasing and Supply Management. Supplier Development and cost management in Southeast Asia, 1 (12), 228-244.
- [43] Talluri, W (2008). Benchmarking the performance of English Universities, Benchmarking International Journal, 14 (1), 102-122.
- [44] Tan, K., Chong, S., & Uchenna, C. (2009). Factors influencing the adoption of internet -based ICTs: evidence from Malaysian SMEs. International Journal of Management and Enterprise Development, 4 (2)111-119.
- [45] Thai, K. (2001). Public Procurement Re-Examined. Journal of Public Procurement, 1 (1), 9-17.
- [46] Thai, K. V., & Grimm, R. (2000). Government Procurement: Past and current developments. Journal of Public Budgeting, Accounting & financial Management, 2 (5), 222-231.
- [47] V Venkatesh, M. M. (2003). User acceptance of Information Technology. Toward A Unified View, 425.
- [48] Vaidya, K., Sajeev, K., & Callender, G. (2006). Critical Factors That Influence E-Procurement Implementation Success in the Public Sector. London: Axes.

- [49] Vasarelyi, M. (2012). Designing Continuous Auditing for a Highly Automated Procure-To-Pay Process. *Journal of Information Systems*, 3 (5), 153-166.
- [50] World Bank (2014). *Strategic Electronic Government Procurement*. New York: The Free Press.
- [51] World Bank. (2014). *Strategic Electronic government Procurement*. New York: The Free Press.
- [52] Zakareya, I. Zahir, E. (2005). Business Process Management Journal. E-government adoption architecture and barriers 2 (1) 589-611.
- [53] Zuppo, M. C. (2012). Defining ICT in a Boundary less World: The Development of A Working Hierarchy. *International Journal of Managing Information Technology* 4 (3), 13-23.