

Influence of Technology Adoption on the Procurement Performance at Kenya Ports Authority

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Abstract: *The main objective of the study was to assess the influence of technology adoption on procurement performance at Kenya Ports Authority. Organizations today continue to face business related problems like collection of timely reliable and accurate information, processing, storing, and retrieval for decision making and control of the organization. The application of technology on procurement performance will change the way work is performed, the number and skills of contracting personnel, and the procurement organization's structure. Procurement plays a major role in organizations, which can significantly influence a company's success. As a core function it is, however, subjected to the mega trends of the market. Its day to day existence is very much defined by growing procurement volumes due to greater concentration of business on core competences, globalization of procurement markets, growing market dynamics as well as the ever shorter product lifecycle.*

Suppliers have a positive attitude towards technology whereas the study showed that there was a close relationship between suppliers and the organization. ICT application was found to be closely related technology adoption as well as individual user factors and information system. The study concluded that technology adoption was the way to go in as far as procurement was concerned and that paper transactions should be modernized. The study recommended that technology should be adopted in procurement to reduce both costs in operations and items and services offered

1. INTRODUCTION:

Internet technology has provided organizations with vast opportunities to operate beyond their traditional physical boundaries MacGregor and Vrazalic (2005). More specifically electronic (e)-procurement has provided manufacturing and service firms with more efficient solutions to drive significant value into their business Neef (2001). Indeed in 2001 one of the major advocates of internet-based business strategies, Michael Porter, professed that if firms were intent on remaining competitive they would have to adapt their business models to accommodate more effective and efficient internet based business approaches. Such adaptation has however, produced both positive and negative effects for firms in relation to commercial relationships and e-procurement deployment.

Procurement includes activities and events before and after the signing of a contract as well as the general management activities associated with a range of contracts; Pre-contract activities such as planning, needs identification and analysis, and sourcing, Post-contract activities such as contract management, supply chain management and disposal, and; General activities such as corporate governance, supplier relationship management, risk management and regulatory compliance.

The use of ICT is a key component that government catalyzes the development process by stimulating the economy, lowering the digital gap, modernizing the public sector, and improving government performance as it is evident in the use of IFMIS. Bringing together government and private industries in a virtual environment, ICT systems are sustainable only on the condition of a win-win situation. In providing improved transparency and a huge potential of efficiency gains for both, government and suppliers, ICT offers two major benefits that help to create such a situation. Moreover, political return from the public in general due to transparency and efficiency in spending taxpayers' money can contribute to enhancing the image of good governance. In processing and documenting procurement information and transactions online, ICT offers by far more transparency and fairness. To this end, ICT helps reduce opportunities and incentives for fraud (anti-corruption), to improve the quality of government agencies procurement management, including monitoring and decision making, and to encourage the participation of private industries in the public market by increased fairness and competitiveness.

2. SPECIFIC OBJECTIVES:

- i. To examine the influence of individual user factors in procurement processes
- ii. To examine the role of information systems used in procurement

3. THEORETICAL REVIEW:

Technology Diffusion Theory

Technology diffusion theory is the common lens through which theorists study the adoption and development of new ideas. Diffusion is defined basically as the process by which an innovation is adopted and gains acceptance by individuals or members of a community. The Diffusion theory represents a complex number of sub-theories that collectively study the processes of adoption. The most famous account of diffusion research by Rogers (2005) where the definition of diffusion comprises of four elements which are defined as;

Innovation: an idea, practices or object perceived as new by individuals or group of adopters. Communication channels: means by innovation moves from one individual to the next or group to group. Time: the non-spatial interval through which Diffusion event takes place. The events include: innovation diffusion process, relative span of time for the individual or group to adopt the innovation and social system: a set of interrelated units that are engaged in joint problem solving activities to accomplish the goals.

Information Systems Success Model

The last most cited theory was the Information Systems Success Model. DeLone and McLean (1992) reviewed prior research and introduced a comprehensive taxonomy of factors contributing to the success of information systems. The authors examined the literature on information system success and categorized success measures into six major categories: system quality, information quality, use, user satisfaction, individual impact, and organizational impact. These categories are interrelated and interdependent and provide a comprehensive view of IS success. The target of the model is to guide future research efforts. In conclusion, the most cited theories of previous publications showed that the theory of the research area focused on the acceptance and adoption of technology.

Review of Variables

Individual User Factors

According to Markus, (1990) individual end users and entire business units will naturally resist any change in business processes that poses uncertainty in security and privacy of their transactions. Organizations keep their business information secret as a protective mechanism to ward off competition and remain competitive in the business environment. Private sector organizations on the other have limits to the amount and nature of information to be shared with other third parties. The balance between transparency, protection against unauthorized data disclosure, ensuring the authenticity of a data source and the impact of disclosure of procurement process remains hazy. To ensure that all individuals within the organization are well versed with the newly introduced ICT applications in the procurement process, management of the organization should emphasize on employee training and induction to ensure that they (employees) are well equipped with the necessary required skills to handle the new system with accuracy (Amaratunga & Baldry, 2002).

Information Systems

Enterprise resource planning (ERP) integrates internal and external management information across an entire organization, embracing finance/accounting, manufacturing, sales and service and CRM. ERP systems automate this activity with an integrated software application. Its purpose is to facilitate the flow of information between all business functions inside the boundaries of the organization and manage the connections to outside stakeholders (Telgen, Zomer, & de Boer, 1997). Enterprise resource planning (ERP) as an extension of material requirements planning (MRP), later accounting resource planning and computer-integrated accounting. Without supplanting these terms, ERP came to represent a larger whole, reflecting the evolution of application integration beyond accounting (Raymond, 2005).

3. RESEARCH METHODOLOGY:

Research Design

The researcher used descriptive research design. Descriptive study was concerned with finding out who, what, where and how much of a phenomenon, which is the concern of the study. Sekaram (2006) observes that the goal of descriptive research was to offer the researcher a profile or describe relevant aspects of the phenomena of interest from the individual, organization, industry or other perspective.

Data Collection Procedure

The researcher used primary and secondary data. Structured questionnaires are used to collect primary data from respondents. The questionnaire will be self-administered to the respondents and collected after will be collected after three days.

Data Processing, Analysis and Presentation

Kothari (2009) argues that data collected has to be processed, analyzed and presented in accordance with the outlines laid down for the purpose at the time of developing the research plan. Data analysis involves the transformation of data into meaningful information for decision making. It involved editing, error correction, rectification of omission and finally putting together or consolidating information gathered. The collected data was analyzed quantitatively and qualitatively. Descriptive and inferential statistics was done using SPSS version 22 and specifically multiple regression model was applied.

4. RESEARCH FINDINGS AND DISCUSSION:

Individual User Factors

Respondents were asked questions related to individual user factors and give their opinions related to the issue. From the findings all the means were above 3.2 indicating majority of the respondents agreed to the statements on individual user factors on procurement process in the organization.

Table 4.1 Individual Users Factors

Individual User Factors	Mean	Standard Deviation	Coefficient of Variation
Statements			
C1 Assessing the staff ICT competencies	3.68	1.347	0.3660
C2 Assessing staff attitude on ICT adoption	3.92	1.007	0.2569
C3 Management Support	3.40	1.309	0.3850
C4 Assessing suppliers’ attitude on ICT adoption	3.52	0.886	0.2517
C5 Assessing challenges of implementing ICT For procurement processes	3.22	1.314	0.4080
C6 Management solution to challenges implementing Procurement processes	3.98	1.317	0.3309

Information System

Majority of the respondents agreed to a high extent that measuring the performance of the purchasing function yields benefits to organizations such as cost reduction, enhanced profitability, assured supplies, quality improvements and competitive advantage and an important step towards reducing these risks is to make a realistic assessment of those that are most likely to occur in any procurement with means of 3.88 and 368. Improving quality of services while its absence or use of inappropriate means can act as a barrier to change and may lead to deterioration of the purchasing function was indicated as to affect performance at a low extent m= 2.35.

Table 4.2 Information System

Information System	Mean	Standard Deviation	Coefficient of Variation
Statements			
D1 Improves quality of services while its absence or Use of inappropriate means can act as a barrier to Change and may lead to deterioration of Procurement function	2.35	1.352	0.5753
D2 Measuring performance of procurement function Yields benefits to organization such as costs	3.88	1.189	0.3064
D3 Important steps toward risk reduction and mitigate Of those that are most likely to occur	3.68	1.332	0.3619
D4 Placing and tracking orders online	3.90	1.165	0.2987
D5 Quick response and JIT replenishment	3.86	1.178	0.3052

ANOVA

The study used ANOVA to establish the significance of the regression model. In testing the significance level, the statistical significance was considered significant if the p-value was less or equal to 0.05. The significance of the regression model is as per Table 4.3 below with P-value of 0.00 which is less than 0.05. This indicates that the regression model is statistically significant in predicting factors affecting procurement processes at KMA. Basing the

confidence level at 95% the analysis indicates high reliability of the results obtained. The overall Anova results indicates that the model was significant at $F = 259.029$, $p = 0.000$

Table 4.3 Anova

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	34.909	4	8.477	259.029	.000 ^b
	Residual	17.763	46	.032		
	Total	52.672	50			

a. Dependent Variable: Technology adoption on Procurement processes at KMA

b. Predictors: (Constant), ICT application, Individual user factor, information system

5. CONCLUSION:

From the study it is also clear that the adoption of technology applications is not exclusively a matter of resources. On the contrary, operational compatibility and the level of collaboration are two of the factors that play a determinant role in increased technology adoption and impact. Subsequently, managers and practitioners should be prepared to put emphasis on developing their relationships with their suppliers/customers preparatory to implementing common technology investments. In addition, they should try to increase partners’ commitment to using these applications. As the study revealed, increased impact on procurement processes results from higher intensity of use and not necessarily from the adoption of more complex applications. Managers should therefore try to integrate technology applications in their daily operations, making e-business part of their “modus operandi.”

6. RECOMMENDATIONS:

Policy Recommendation

Procurement regulations that refer to paper documents and processes need to be modernized. Established procedures and procurement regulations must recognize information and technology techniques if system developers are not to be constrained when re-engineering work processes.

Managerial Recommendation

Procurement management and executive courses and seminars should be held to address the effect of automation on the procurement function. Basic procurement courses should be revised to present automated contracting processes and techniques.

Business and political representatives need to be educated on the dynamic changes that information technology will bring to procurement and markets

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