

**EVALUATION OF E-PROCUREMENT PRACTICE AS A TOOL FOR
EFFECTIVE ORGANIZATION MANAGEMENT, A CASE STUDY
OF NANSANA MUNICIPALITY HEADQUARTERS**

1 Asiimwe Susan, 2 Otim John William

1 Metropolitan International University, 2 Lecturer Metropolitan International University

ABSTRACT: E-Procurement is more than just a system for making purchases online. It has been advocated as a key performance indicator that can improve performance and competence of firms. Some companies implement e-procurement and succeed while others fail. This study had four objectives: to determine the influence data transmission on organizational performance; to determine the influence of buyer/supplier collaboration on organizational performance, to examine the influence of systems management on organizational performance and to establish the influence of billing management on organizational performance of Nansana Municipality. The study adopted a descriptive approach to establish the influence of e-procurement on organizational performance. Keeping other factors constant, a one percent increase in electronic buyer/supplier collaboration would on average lead to 0.224 increase in organizational management. This is statistically significant at 95% confidence since the P-value (0.015) is less than 0.05 and thus we reject the null hypothesis and conclude that there is a significant relationship between electronic buyer/supplier collaboration and organizational management. The study also recommends that future research will need to be carried in other industries and countries in order to show if the link between e-procurement components and organizational performance can be generalized. These findings of the study will enable managers in organizations to formulate e-procurement policies that will ensure a positive impact on strategic performance of the firms.

Key words: E-procurement practice and organization management

Background of the study

E-procurement was first used by IBM in the year 2000, when the company launched its

Replenishment Management System and Method, (Brousseau, 2000) created by Mexican engineer Daniel Delfín, who was then the procurement director at IBM's largest production plant, and Alberto Wario, an IT programmer (Aberdeen Group, 2011). The system was designed to solve IBM's complex procurement process for the plant in Guadalajara, Mexico, then the largest personal computer production plant in the World, with a production value of 1.6 billion dollars a year. Three years after the system was implemented, the production of the plant grew to 3.6 billion dollars, (Brewster and Mayrhofer, 2012) after which, the company used the system in its secondary production plants, and later sold licenses to external companies around the World.

According to the theory, e-procurement enables customers and suppliers to increase networking channel through the internet in terms of production planning, demand management and inventory management, (Lee, 2003). E- Procurement facilitates frictionless procurement paradigm (Brousseau, 2000). The research by Min & Galle (2002) recognizes the extensive nature of e-procurement which refers to e-procurement as a business-to-business (B2B) purchasing practice that utilizes electronic procurement to identify potential sources of supply to purchase goods and services, interact with suppliers and transfer payment.

Previous studies have claimed that e- procurement has become the catalyst that allows companies to integrate their supply chains from end-to-end from supplier to the end user with shared performance, availability and pricing data that allows buyers and suppliers to work to optimum and mutually beneficial schedules and prices (Morris *et al*, 2000).

Usually companies adopt e-procurement systems in order to manage the purchase products and services (Min & Galle, 2002).

Statement of the Problem

According to (Mutindi, Namusonge & Obwogi, 2013), Uganda has been experiencing turbulent times with regard to its organizational managements and this has resulted in declining profits in the manufacturing sector of the economy. Statistics from World Bank show that Ugandan manufacturers of large-scale firms have registered declining profits and stagnation for the last

five years due to a turbulent operating environment (World Bank, 2014). It is estimated that large manufacturing companies have lost 70 per cent of their market share in East Africa largely attributed to contingencies (Republic of Uganda, 2014).

Local governments and other firms have restructured their operations or relocated, opting to serve the local market through importing from low cost manufacturing areas such as South Africa and Egypt thus resulting in job losses (Nyabiage & Kapchanga, 2014) citing high operating costs turbulent operating environment.

Objectives of the study

The objectives of the study were;

1. To evaluate the influence of electronic data transmission on organizational management of Nansana Municipality.
2. To assess the influence of electronic buyer/supplier collaboration on organizational management of Nansana Municipality.
3. To examine the influence of electronic System Management on organizational management of Nansana Municipality.

Hypothesis

Ho: There is no relationship between the influences of electronic data transmission on organizational management of Nansana Municipality

Ha: There is a relationship between the influences of electronic data transmission on organizational management of Nansana Municipality

Ho: There is no relationship between the influences of electronic buyer/supplier collaboration on organizational management of Nansana Municipality

Ha: There is a relationship between the influences of electronic buyer/supplier collaboration on organizational management of Nansana Municipality

Ho: There is no relationship between the influences of electronic System Management on

Ha: There is a relationship between the influences of electronic System Management on organizational management of Nansana Municipality

Research Questions

The research was guided by the following research questions:

1. What is the influence of electronic data transmission on organizational management of Nansana Municipality?
2. What is the influence of electronic buyer/supplier collaboration on organizational management of Nansana Municipality?
3. What is the influence of electronic System Management on organizational management of Nansana Municipality?

Methodology

Research Design

The study adopted a descriptive correlational a cross-sectional and case study survey research design. The descriptive correlational design was used to establish whether there is a significant relationship between advertising and the consumer behavior. The ex-post facto design was used because respondents were asked things that had already happened. The cross-sectional design was employed because a cross-section of respondents was selected to participate in the study all at once.

Quantitative Design

Quantitative design was used to process data which could be quantified and is numeric in nature. For example, the respondents' age, income, and number of times they had purchased a given product in a given period of time, etc. According to Creswell et al. (2013), quantitative research helps in getting an in-depth analysis of the problem under investigation.

Qualitative Design

This was used to describe qualitative data which could not be quantified in numbers. This included respondents' opinions and ideas. Qualitative research was also applied in order to describe current conditions or to investigate relationships, including effects and relationships. In addition, it helped in answering questions concerning the current state of the subject under study

Study Population

The study population constituted mainly the staff and customers of Nansana Municipality especially those working in the different departments. According to the Human Resource officer, this population amounts to 60 staff. This population was chosen because it was assumed to have adequate knowledge of the subject under investigation and the research variables under investigation.

Respondents	Population size	Sample size	Technique
Top Management	15	10	Simple random
Political leaders	15	10	Simple random sampling
Operational officers	30	20	Purposive sampling
Total	60	40	

Sample Size Determination

The sample size was 40 respondents who included top leaders, political leaders and operational officers of Nansana Municipality.

Sampling Technique

The researcher employed several techniques to select the appropriate sample for the study. These included both probability and non probability sampling techniques

In this study a purposive sampling, a non-probability sampling was employed in selecting

respondents from the population. This technique enabled the study to give an opportunity to only eligible participants by selecting from each unit within the population of the study. In this case, the researcher ensured that participants from different categories like sales staff, marketing staff and clients of the company have equal chance to participate.

Sampling procedure

This study employed purposive sampling, cluster sampling and simple random sampling procedures. Purpose sampling was used to identify respondents like the Nansana Municipality managers who were few and hard to access. Cluster sampling was also used to classify the respondents according to the relevant departments. Then simple random sampling was used to identify respondents in the different departments.

Data Collections Instruments

Survey Questionnaires

This study used self-administered questionnaires for the respondents. These were distributed among the staff in their respective departments. The justification for using this instrument is that questionnaires were easy to quantify and analyze. In addition, the questionnaires were used because the study focused on opinions, attitudes, feelings and perceptions of the respondents.

Interviews

An interview guide consisting of structured questions was designed and administered to the customers of Nansana Municipality. Information solicited by this instrument helped the researcher enhance responses from the self-administered questionnaires and this made it possible for the researcher to cross examine some key issues in the research.

Data Analysis, Interpretation and Presentation

Data was analyzed using SPSS. It was presented in form of tables, graphs, pie charts and triangulation

Qualitative data analysis was done by narrative as was recorded during face-to-face interview and through observation. The researcher used a quick impressionist summary in analyzing qualitative data; she summarized key findings by noting down the frequent responses of the respondents during the interview on various issues concerning advertising and how the variables relate to each other. This technique of qualitative data analysis was chosen because it saves time and it was not

very expensive.

RESULTS

Background Characteristics

The study sought to establish the background information of respondents in terms of job designation, gender distribution, level of education and duration since adoption of e- procurement

Job Designation of Respondents

The study sought to establish the role and job designation of respondents. The results are as shown in Table 2.

Table 2: Job Designation of Respondents

Designation	Percentage (%)
Procurement Managers	68
ICT Managers	32
Total	100

An overwhelming 68% of the respondents where senior procurement management designate and 32% indicating ICT managers designate respectively as shown in the table 4.1. This was a very important profile distribution for this study since the respondents were the right people with

adequate information relevant to this study hence best placed.

Gender Distribution

The researcher further sought to establish the respondents' gender distribution. The results are as indicated in the Table 2.

Table 2 Gender Distribution

Gender	Frequency	Percent
Female	27	32.0
Male	59	68.0
Total	86	100

A majority of 68% of the respondents were male while 32% were female as shown in Figure 4.2. This was a good distribution which depicts a fair balance of gender. Since majority of the responses for this study relies on the perceptual measures of the respondents, this gender distribution is expected to accommodate the opinions and views from both sides of the gender divide.

Level of Education of Respondents

The researcher also sought to establish the respondents' highest level of education. The results are as indicated in the Table 3.

Table 3 Level of Education of Respondents

Education Level	Percentage (%)
Diploma	2
Bachelor's Degree	71
Postgraduate	27
Total	100

Respondents' level of education was sought and majority (71%) of the respondents indicated that they have at least a degree level of education while sizeable (27%) possess a higher degree at postgraduate level and 2% had a Diploma as shown in table 4.3. This is highly expected since the respondents are at a senior management level where the skills, knowledge and competencies are supposed to be high. Nevertheless, the well-educated respondents mean that they were well informed and furnished this study with better information which added value.

Company's Duration since Adoption of E-procurement

The study sought to establish the number of years since E- procurement adoption. It was ensured that each manufacturing company that was sampled had adopted e-procurement. The results are shown in Table 4.

Table 4 Company's duration since E-Procurement adoption		
Number of Years	Frequency	Percent
1-5 Years	41	48
6-10 Years	38	44
11-15 Years	5	6
Above 16 Years	2	2
Total	86	100

For each company sampled, the period of e-procurement adoption was also sought. A range of years were given which were categorized to come up with various range for easy presentation. 48% of the respondents indicated their company adopted e-procurement between 1 to 5 years, 44% indicated between 6 to 10 years, 6% indicated 11 to 15 years and another 2% gave above 16 years.

The size of the firms' workforce ranged from 50 to 2,000 employees. This is a workforce size that can provide a rich, adequate and diverse pool of knowledge among the employees which is the critical construct focused in this study.

Data Transmission and Organizational Performance

The study sought to find out extent to which data transmission systems have influenced organizational performance of manufacturing firms.

Table 5 Data Transmission

	N	Minimum	Maximum	Mean	Std. Deviation
Automation	86	2.00	4	3.1163	.51834
Security	86	2.00	4	3.3140	.55860
Real-Time Communication	86	3.00	5	3.7326	.67605
E- Notification	86	3.00	4	3.5349	.50171
Aggregate Score	86			3.42445	.563675

From the findings, respondents agreed that; automation (mean 3.12), security (mean 3.31), real time communication (mean 3.73) and e - notification (mean 3.53) have been integrated into the organizations and have an influence on the performance of procurement processes of their firms as shown by an aggregate mean of 3.42.

Buyer/ Supplier collaboration and Organizational Performance

The study sought to find out the influence of buyer/supplier collaboration on organizational procurement of different manufacturing firms. The responses to the statements ranged between 3 and 5.

Table 6 Buyer/Supplier Collaboration

	N	Minimum	Maximum	Mean	Std. Deviation
Inter-organizational systems	86	3.00	5.00	3.4302	.54321
Channel relationships	86	3.00	5.00	3.4767	.56832
Decision making	86	3.00	5.00	3.6395	.52943
Information sharing	86	3.00	5.00	3.6279	.53240
Aggregate Score	86			3.543575	.54334

The respondents agreed that buyer/supplier collaboration have been integrated into the procurement function with inter organizational systems (mean = 3.43), channel relationships (mean = 3.48), decision making (mean = 3.64) and information sharing (mean = 3.63) as shown in Table 6.

System Management and Organizational Performance

The study further investigated the influence of system management on organizational performance. Table 7 presents descriptive findings on system management component of e-procurement.

Table 7 System Management

	N	Minimum	Maximum	Mean	Std. Deviation
Transparency	86	1.00	5.00	3.8256	.76990
Coordination	86	3.00	5.00	3.7442	.55701
Demand Forecasting	86	3.00	5.00	3.7442	.53547
Monitoring	86	3.00	5.00	3.7093	.48182
Aggregate Score	86			3.755825	.58605

From table 7, the responses ranged between 1 and 5 on transparency while responses to coordination, Demand forecasting, and monitoring ranged between 3 and 5. From the study, the respondents agreed that transparency (mean = 3.83), coordination (mean = 3.74), demand forecasting (mean = 3.74), monitoring (mean = 3.71) are factors of system management that influence the organizational performance of organizations and institutions in Uganda.

Billing Management and Organizational Performance

The study sought to establish the influence of billing management on organizational performance. To examine the influence of billing management on organizational performance in manufacturing firms, the study rated key billing management indicators in e- procurement as shown in table 8.

Table 8 Billing management

	N	Minimum	Maximum	Mean	Std. Deviation
Inventory Control	86	3.00	5.00	3.7558	.45854
Transaction Costs	86	3.00	5.00	3.8023	.45555
Accountability	86	3.00	5.00	3.8140	.44752
Pricing Policies	86	3.00	5.00	3.7907	.43700
Aggregate Score	86			3.7907	.4496525

The response to these factors ranged from 3 to 5. The respondents agreed that Inventory Control (mean = 3.76), Transaction costs (mean = 3.80), Accountability (mean = 3.81), Pricing policies (mean = 3.79) influence the e-procurement performance of a firm.

Performance of the Organization

The study sought to establish the respondents' level of agreement on some statements on the evaluation of the performance of the organization on several areas.

Table 9 Performance of the Organization

	N	Minimum	Maximum	Mean	Std. Deviation
Increased adherence to power processes and procedures	86	3.00	5.00	3.8140	.47308
Production of better-quality products and services	86	3.00	5.00	3.8488	.44767
Procurement planning has significantly improved	86	3.00	5.00	3.8837	.41780
Better procurement benchmarks have been set up	86	3.00	5.00	3.8953	.40668
Enhancement of procurement integrity and transparency	86	3.00	5.00	3.8837	.41780
Overall performance has generally improved	86	3.00	5.00	3.8837	.41780
Aggregate Score	86			3.6045	.43107

The responses to the statements on increased adherence to power processes and procedures, production of better quality products and services, procurement planning, procurement benchmarks, enhancement of procurement integrity and transparency and enhancement of

procurement integrity and transparency ranged between 3 and 5. These responses were presented by a mean of 3.81, 3.80, 3.88, 3.86, 3.88 and 3.88 respectively.

Regression Analysis

Table 10 Coefficients Matrix

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.420	.564		4.288	.000
X ₁	Data Transmission	.208	.098	3.4244	3.7304	.036
X ₂	Buyer/Supplier collaboration					
		.224	.090	3.5436	3.8576	.015
X ₃	System Management					
		.014	.081	3.7558	3.8508	.861

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organizational management of Nansana Municipality

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Keeping other factors constant, a one percent increase in electronic data transmission would on average lead to 0.208 increase in organizational management. This is statistically significant at 95% confidence since the P-value (0.036) is less than 0.05 and thus we reject the null hypothesis and conclude that there is a significant relationship between electronic data transmission and organizational management

Keeping other factors constant, a one percent increase in electronic buyer/supplier collaboration would on average lead to 0.224 increase in organizational management. This is statistically significant at 95% confidence since the P-value (0.015) is less than 0.05 and thus we reject the null hypothesis and conclude that there is a significant relationship between electronic buyer/supplier collaboration and organizational management

Keeping other factors constant, a one percent increase in system management would on average lead to 0.014 increase in organizational management. This is statistically significant at 95% confidence since the P-value (0.00) is less than 0.05 and thus we reject the null hypothesis and conclude that there is a significant relationship between system management and organizational management

Conclusions of the Study

The output from the findings indicates that there is a significant positive relationship between the components of e-procurement namely data transmission systems, buyer/supplier collaboration, billing management and systems management with the organizational performance. Prior to e-procurement, procurement often dealt with administrative routine duties as well such as individual transactions, converting purchase requests into purchase orders or ensuring the correct amount of inventory is maintained and therefore, the use of e-procurement technologies in e-procurement is aimed at realizing faster and more efficient operational procurement processes hence reducing

procurement costs and thereby enhancing organizational performance.

Recommendations of the Study

It is therefore recommended that Enterprise resources planning (ERP) systems in particular should be concerned with trying to integrate and co-ordinate the various internal functional areas in order to break down those functional boundaries and ensure decisions for areas like marketing, operations and financial decisions are all made using the same data. Customer Relationship Management systems can also be used to co-ordinate the supply chain by ensuring better sharing of information. In summary use of information technology in e- procurement is considered to be a driver of innovation strategy action.

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