

# **EFFECT OF ICT INFRASTRUCTURE SUPPORT ON ORGANIZATIONAL PERFORMANCE: A CASE OF NAIROBI COUNTY, KENYA**

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## **Abstract**

*This research was conducted to find out the impact of ICT infrastructure support on organizational performance. The research was based on the positivist research philosophy. A quantitative research design and a survey strategy were used. The research employed purposive sampling to select 87 employees in Nairobi County Government to participate in the research. Data was collected using simple structured questionnaires and analyzed using descriptive and regression analysis. The findings showed that a robust ICT infrastructure in procurement improves communication, enhances efficiency, enhances monitoring and control, makes work easier as well as improving service delivery. ICT infrastructure also plays an important role in improving the level of coordination between members of the supply chain network. It facilitates the flow of information between members of the supply chain ensuring the timely delivery of goods and services between supply chain partners. By improving coordination among supply chain partners, ICT infrastructure eliminates high transaction costs associated with the flow of goods from one supply chain partner to another. Therefore, the use ICT infrastructure within procurement enhances organizational performance by enhancing the value for money for all procurement related transactions.*

*Keywords: ICT infrastructure, organizational performance, monitoring, control*

## INTRODUCTION

The procurement process is one of the aspects of business that can immensely benefit from the development of internet technology. Internet technology presents an opportunity for improving procurement processes by replacing the time-consuming, costly and inefficient procurement processes, lowering administrative costs, improve the quality service delivery, improving the location and receipt of products as well as enhancing flexibility. According to Namusonge (2016) most businesses spend approximately a third of their budget on the purchase of goods and services. Therefore, procurement has a significant influence on the value of an organisation. The development of internet technology presents an opportunity for enhancing value for money spent on procurement-related processes within an organisation.

Some of the latest technologies that could influence the manner in which procurement is conducted include electronic data interchange among other information processing and sharing technologies. Information sharing is one of the critical elements of procurement. Consequently, successful procurement is highly dependent on the presence of highly effective information processing and sharing technologies. The objective of this research was to evaluate the effect of ICT infrastructure support on organizational performance based on the Nairobi County Government.

### Statement of the Problem

Previous research studies have been conducted to find out the impact of ICT infrastructure support in procurement on organizational performance. Namusonge (2016) found out that ICT infrastructure enhances organizational performance in respect to procurement. The research further established that with ICT infrastructure organizations are able to engage in timely exchange of information facilitating quality and timely delivery of procured inputs. Therefore, ICT infrastructure support to procurement functions enhances organizational performance. Kinuthia and Rotich (2015) also studied the influence of ICT infrastructure in procurement on organizational performance. The research showed that while ICT is important in procurement, it can easily have a counterproductive impact on organizational performance especially when employees' competencies are not aligned with the infrastructure. The research sought to comprehensively evaluate the impact of ICT infrastructure in procurement on organizational performance.

The findings of this research will be valuable to professionals in the procurement field particular in coming up with effective strategies of ensuring that performance is enhanced through the use of ICT infrastructure in procurement.

## Research Objective and Hypothesis

The objective of this research was to explore the impact of ICT infrastructure in procurement on organizational performance and was guided by the following hypothesis:

*(H<sub>4</sub>): ICT infrastructure in procurement does not influence organizational performance.*

## LITERATURE REVIEW

### Theoretical framework

This study uses Technology Acceptance model as the theoretical framework. This model is used in enhancing an understanding on how people end up accepting and using a particular technology. According to the technology acceptance model when, users come across a new technology, several factors influence perception of the technology; their decision on when on how to use the technology (Ku, 2009). The factors considered include perceived usefulness of the technology and the perceived ease of use of the technology. If the technology is believed to enhance people's level of job performance, then it is likely to be adopted. On the other hand, a new technology will not be adopted if users believe that it would not enhance their job performance. Likewise is users believe that the use of a particular technology is less tedious, then they are likely to adopt the technology as opposed to a situation where users believe that using a particular technology requires much effort from them. In the case of procurement, the application of ICT infrastructure and its influence on organizational can be best understood by using the technology acceptance model.

### Empirical Review

Namusonge (2016) examined the impact of ICT infrastructure in procurement on organizational performance revealing the ICT infrastructure plays a very important role in enhancing organizational performance. The findings of the research revealed that the use of ICT infrastructure reduces administrative overheads, enhances efficiency in the procurement processes in addition to improve the speed of delivery of goods to purchasers. Therefore, ICT infrastructure enhances the procurement function. The research also established that the use of ICT infrastructure improves information sharing among supply chain partners enabling them to maintain long term relationships that bring forth enhanced trust and delivery of high quality inputs. While noting that ICT infrastructure could enhance organizational performance, Kinuthia and Rotich (2015) argued that it could become counterproductive especially when employees' competencies are not aligned with the ICT infrastructure. The researchers further noted that the high cost of some aspects of ICT infrastructure may undermine the impact of ICT on organizational performance leading to poor performance.

According to Wachira et al. (2014) the use of ICT infrastructure in procurement improves organizational performance in a number of ways. Firstly, ICT infrastructure improves the level of coordination between various firms within the supply chain network in effect lowering inventory costs. ICT infrastructure also improves external communication between the firm and its suppliers leading to reduced inefficiencies that could be caused by lack of coordination. ICT infrastructure also increases the speed as well as the reliability of transfer and processing of information between members of the supply chain in effect leading to reduced transaction costs and coordination costs. The outcome is improved value of procurement transactions. Barngetuny and Kimutai (2010) also believes that the use of ICT in procurement significantly reduced the transaction costs bringing forth improving in organizational performance. ICT infrastructure improves the exchange of information between players within the supply chain network in effect leading to improved coordination and overall organizational performance. However, Steinberg (2003) disagrees with the above viewpoint arguing that ICT infrastructure in procurement derails organizational performance due to inadequate skills and competence.

Wilson et al. (2015) examined the impact of information technology on performance of logistics firms in Nairobi County revealing that the use of information technology within the procurement process enhances organizational performance. The research revealed that ICT infrastructure reduces transaction costs by replacing paper work with electronic processes. The research also revealed that the use of information technology within logistics firms leads to improvement in the level of coordination between members of the supply chain network. This reduces costly errors like the supply of unordered goods or erroneous products. By reducing transaction costs and eliminating avoidable errors, ICT infrastructure significantly improves the performance of organizations in regard to their procurement functions. These sentiments are also shared by Gallear et al. (2008) whose research revealed that ICT infrastructure enhances the value of procurement transactions leading to overall improvement in organizational performance. Therefore, it is important to incorporate ICT infrastructure within the procurement functions of organizations to bring forth improvement in performance.

In conclusion, the technology acceptance model forms theoretical basis of this research. According to the technology acceptance model, people's adoption of a particular new technology is influenced by the perceived ease of use of the technology and its perceived usefulness. The usefulness of ICT infrastructure in enhancing organizational performance in respect to procurement can be understood based on the technology acceptance model. Past research studies show that the use of ICT infrastructure in procurement brings forth improved organizational performance. ICT infrastructure improves the level of coordination between different members of the supply chain network enhancing the quality and level of information

sharing. By improving coordination among members of the supply chain, ICT infrastructure reduces the cost of transactions leading to improved organizational performance. ICT infrastructure also enhances the value of procurement transactions in effect bringing forth improved organizational performance.

## **RESEARCH METHODS**

### **Population and Sampling Design**

Remenyi (2013) defines the target population as a set of people, items or phenomenon that is to be studied within a particular research. The target population of the current study constitutes all employees in the Nairobi County Government. The sample frame on the other hand refers to a subset of the target population that has been selected to be studied. In the current research the sample frame was composed of 87 employees selected from the procurement and finance departments of the Nairobi County Government. In the current research purposive sampling was used to select 87 personnel from Nairobi County Government's procurement and finance departments. Purposive sampling enables the researcher to deliberately choose respondents who have knowledge and experience in the field of study being investigated. Therefore, in the current research using stratified random sampling enabled the researcher to select employees with adequate knowledge procurement processes within the Nairobi County Government.

### **Data Collection**

Three research instruments are commonly used in social science. They include questionnaires (self-designed), interviews and observations (Saunders et al., 2009). In this research, questionnaires were used as the main research instrument. Simple structured questionnaires were used in this research. The choice of simple structured questionnaires was informed by the ease associated with filling in simple structured questionnaires. Therefore, a high response rate was possible because respondents found it easy and convenient to fill in the questionnaires. A high response rate is important quantitative research to bring forth high quality research findings. Data analysis was conducted using descriptive analysis and regression analysis.

### **Data Analysis**

Descriptive analysis was conducted to provide more information on the profile of respondents including level of education, gender and working experience. Regression analysis was conducted to evaluate the impact of ICT infrastructure in procurement on organizational performance. The researcher put into consideration a number of ethical issues. Firstly, the

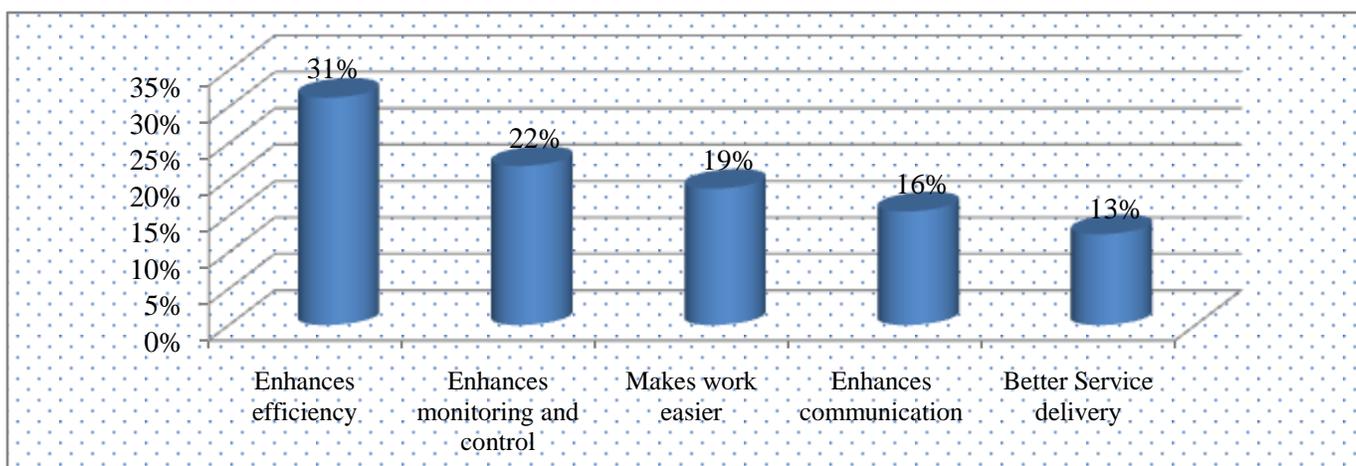
researcher ensured that respondents' consent is sought before conducting the research. Secondly, the researcher ensured that the data collected is used for no other purposes other than the intended academic purpose. Further, the researcher protected the privacy of respondents by informing them not indicate their names on the questionnaires.

## FINDINGS AND DISCUSSION

From the 87 questionnaires delivered to respondents, a total of 81 were collected by the researcher. This means that response rate was 93.1%. This is an impressive response rate given that according to Oliver (2010), 60% response rate is good enough for a research study.

Amongst the respondents, 59.3% of them were male whereas 40.7% of the respondents were female respondents. This indicates a sufficient gender distribution enabling the researcher to obtain a balanced opinion between male and female respondents. To find out the impact of ICT infrastructure support on organizational performance, researcher were asked to rate the extent of robustness of ICT infrastructure in the organization. According to the results, 39% of the ICT infrastructure in the organization is robust to a great extent. 30% of the respondents believed that the robustness of ICT infrastructure in the organization to a moderate extent while 25% of the respondents believed that robustness of ICT infrastructure in the organization is to a very great extent. Only 6% of the respondents believed that the robustness of ICT infrastructure in the organization was to a little extent. However, none of the respondents of respondents indicated that ICT infrastructure in the organization is not robust. The results are in line with findings of a research conducted by Wilson et al. (2015) which established that robust ICT infrastructure essential in bringing forth improved organizational performance particularly within the procurement department. Participants were also required to indicate how ICT infrastructure influences organizational performance (Figure 1).

Figure 1: How ICT Infrastructure Influences the Organizational Performance



From figure 1 above, 31% of the respondents believe that ICT infrastructure improve organizational performance by enhancing efficiency. 22% of the respondents believed that ICT infrastructure enhances organizational performance by improving control and monitoring while 19% of participants believed ICT infrastructure enhances organizational performance by making work easier. 16% of the respondents believe that ICT infrastructure enhance organizational performance by enhancing communication while 13% believe that ICT infrastructure enhances organizational performance by facilitating better delivery of service. The above results are in line with the findings of a research conducted by Barngetuny and Kimutai (2010) which established that ICT infrastructure promotes organizational performance by improving efficiency, monitoring and control. Additionally, Namusonge (2016) established that ICT infrastructure improves coordination, reduces administrative overheads and the speed of delivery of goods and services.

### Regression Analysis Results

Regression analysis of the ratings on ICT infrastructure support on organizational performance yielded statistically significant results with p-value of 0.029 and unstandardized coefficient of 0.471 as shown in table 2.

Table 2. Regression Output

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. Error	Beta		
(Constant)	0.878	0.357		2.46	0.016
ICT Infrastructure support	0.471	0.093	0.391	5.07	0.029

According to the discussions of findings, most participants believed that Nairobi County Government has robust ICT infrastructure which plays a very instrumental role in enhancing organizational performance in respect to procurement. Further the research also established that ICT infrastructure enhances efficiency, improves monitoring and control, makes easier enhances communication and also enhances the delivery of services. Participants' views were in line with the findings of previous research studies.

### SUMMARY AND RECOMMENDATIONS

The main purpose of this research was to evaluate the impact of ICT infrastructure in procurement on organizational performance. Research findings showed that ICT infrastructure enhances organizational performance. Specifically, the findings showed that a robust ICT

infrastructure in procurement improves communication, enhances efficiency, enhances monitoring and control, makes work easier as well as improving service delivery. ICT infrastructure also plays an important role in improving the level of coordination between members of the supply chain network. It facilitates the flow of information between members of the supply chain ensuring the timely delivery of goods and services between supply chain partners. By improving coordination among supply chain partners, ICT infrastructure eliminates high transaction costs associated with the flow of goods from one supply chain partner to another. Therefore, the use ICT infrastructure within procurement enhances organizational performance by enhancing the value for money for all procurement related transactions. It is recommended that organizations utilize ICT to enhance their procurement function for better performance, efficiency and effectiveness.

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