

Influence of Electronic Procurement Strategy on Value For Money In Construction Project

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Abstract:

Since public procurement involves such large amounts of money in various procurement operations, it is imperative to ensure value for money (VfM), electronic procurement is a modern tool through which value for money can be attained, this study determine the influence of electronic procurement strategy on Value for Money in construction project. Study used a cross section design to collect data from 160 employees from different department who were sampled based on their strata and by using questionnaire. The study found that reliability and speedy of electronic procurement increases the efficiency of construction projects. The study concludes that electronic procurement, is the key tools through in which, if utilized well the construction project in public organization will be efficiency, economy and effectively through trade discount and communication. Also, electronic procurement increase transparency and to a large extent brought about simplicity of the work done despite of the challenge of network problem..

1. Introduction

Procurement is shifting from a traditional to modern one, electronic procurement starts the complete acquisition/procurement process for all acquisitions made by public entities with the potential to favorably impact the success of operations, reliable service delivery, and competitiveness (Belegeya, 2020). Furthermore, public entities and organizations often decide to make a specialized strategic electronic procurement team to help them use data from the existing procurement

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process to help them decide the direction of the company and accomplish future ambitions (Weigel *et al.*, 2017).

The majority of large businesses form strategic partnerships with suppliers to address supply disruptions. On the other hand, according to annual strategic procurement of Scottish, (2014) electronic procurement strategy permits an organization to provide its procurement activities, including better contract management and supplier management, cost minimization, as well as a broad perspective of how procurement approach supports its more general goals and objectives.

As nations work to achieve social economic development by assuring fair access to social services, trade development, and community participation without the danger of financial hardship, electronic procurement has drawn significant attention in low- and middle-income countries. Financial protection can be attained through increasing public spending on charitable giving and economic growth (Wilson *et al.*, 2022).

In Tanzania a number of initiatives have been made to secure the industry from burden of waste, corruption and many challenges include green procurement strategy for businesses who wish to be both economically sensible and environmentally responsible. The concept of having a diversity of options for products and services from the industrial sector reduce the negative effects on the environment. Environmental impact assessments must be completed by the manufacturing industry at each stage of a product's life cycle (Mohamed, 2017). This requires keeping track of the costs of acquiring raw materials, producing the item, and handling, storing, processing, using, and discarding it (Gatari & Were, 2014); (Sarkis, 2013).

Furthermore, wherever electronic procurement has been used, potential advantages have been attained, including lower costs because it allows for bulk purchases, a wider range of customers and suppliers, higher quality, improved delivery, less paperwork, lower administrative costs, and time savings (Mrisho, 2010); (Makoba *et al.*, 2017). Despite the fact that businesses may deal with hundreds of transactions every week, these tools serve to streamline the process and strengthen relationships between buyers and suppliers (Shale, 2015).

The current Public Procurement Act (PPA), 2011 has introduced e- procurement system as one among the move to adopt the advanced digital technology growing across the world. The former Tanzania Public Procurement Act (PPA), 2004 did not recognizes e- procurement system as an authorized system of procurement to Public Entities. But it continued to support paper-based procurements undertakings and did not recognize electronic signatures and technology (Swai, 2019).

Since electronic procurement plays a vital role in the organization's performance for the organization to attain its intended objectives, there should be a strategic alignment between organization objectives and organization procurement

planning and operations. Therefore, this study intends to assess the role of electronic procurement on achieving value for money at Tanzania Electricity and Supplies Company (TANESCO).

Follow the procurement inefficiency in procurement system necessitated the government to impose the use of electronic procurement with the intention of enhancing efficiency in the country's public procurement processes (PPRA, 2021). Electronic procurement as a strategic tool has significance impacts on procurement function include cost reduction, ongoing and meaningful collaboration with partners in the procurement industry to inform strategy, and improved quality (Kiplagat, 2010).

Further, it was indicated that a primary concern in using technology, procurement operations can become more cost-effective by optimizing procedures and reducing time and resource waste (Hong & Kwon, 2012). The global construction industry encompasses the project with varieties of different scopes and complexity levels that call for specialized knowledge and trades (Tesha, 2019). Even though construction industry contributes to a country's economy, it is also vulnerable to dangers and frauds that can result in inefficient resource use, exorbitant expenses that exceed the budget, variances, and destruction of value for money. (Wins, 2018).

Generally speaking, the construction industry has a terrible reputation due to resource mismanagement, subpar workmanship, overly expensive pricing, and risk exposure. It indicated the weak performance of the construction industry and the decline in value for money in every transaction that took place (Per and Erickson, 2016). This resulted from a lack of focus on the contribution of modern procurement and lax procurement policies in the Construction industry (Oladinrin, 2013).

And indeed, accountable to organizations like TANESCO demand effective management of the assets, quality, and cost in order to even get value for money in construction projects initiatives it undertakes (Blanchard and Flint, 2017). Also, according to (CAG, 2022/2023) the debt of TANESCO is three times greater than its capital. Furthermore, lack of technical knowledge and expertise in the selection and use of building materials, a lack of building and construction skills, inadequate support infrastructure at remote locations, and unfavorable climate and environmental conditions that dictate on the design and affect the materials are all issues facing the construction industry in Tanzania (Kwanama, 2015). This affects the value anticipated from the project.

In order to improve the efficiency and transparency of its public procurement system, the government has done this by launching a an electronic procurement system in 2014 to improve government efficiency, economy and transparent (Mohammed, 2013), Establishment and enforcement of PCCB as a body to combat corruption, Procurement Act 2004 and its regulation 2005 (URT, 2015)

and its enforcement to emphasize on force account method to ensure that construction work to enhance the sector performance effective but it seems that the budget on construction is going hire (Mohamed, 2017).

Mrope (2018); Orio (2019) and Chagalima *et al.*, (2021) are only a few Tanzanian research that have highlighted the importance of the so called modern electronic procurement strategies on procurement function. Additionally, current research being done in Tanzania has focused on the effectiveness of public procurement (Maagi, 2020; Orio, 2019; Matto, 2021). These investigations didn't take into the role of electronic procurement on value for money in Tanzania Electricity and Supplies Company.

2. Literature Review

The Stakeholder Theory

In the 1980s, this management philosophy and corporate ethics first appeared. According to Freeman, (1984) stakeholders are any group or person who has the power to influence or is affected by the accomplishment of an organization's goals. Among the stakeholders are vendors, staff members, clients, distributors, shareholders, nearby communities, and rival businesses. This theory is pertinent to the study because it enables a company to effectively manage stakeholders who affect or are affected by its behavior while also looking at the traits of these partners (Mainardes *et al.*, 2012). It demonstrates the implication of decisions made by management that will optimize financial and non-financial resources. Electronic procurement always remains the best decision that will help the organization to rich the intended purpose.

Empirical review

Electronic procurement strategy and Value for money

Ibem & Laryea, (2015) conducted the study in South Africa about e-Procurement use in the South African construction industry. This study investigated the use of e-Procurement in the South African construction industry. Findings show that, e procurement system cause highest positive impact in the firm by speeding transactions, lower transaction costs and ease of use, although unreliable IT infrastructures, established cultures and security concerns were the main impediments to the uptake to these e-procurement technology, therefore South African construction industry was suggested to accelerate the rate of uptake of e – procurement so as to maximize its benefits.

Furthermore, Abdallah & Churk, (2021) conducted a study about the contribution of e-tendering knowledge among procurement staff for public institutions' performance in Dodoma city. The study findings revealed that, there is minimal knowledge on e-tendering among procurement staff on e-tendering for the performance of public institutions. The study suggests the need for the government to maximize e-tendering training among procurement staff to

improve the e-tendering knowledge for proper use of e-tendering hence enabling public institutions' performance in Dodoma Tanzania.

Chen *et al.*, (2022) conducted a study about e-procurement system adoption in local governments as the role of procurement complexity and organizational structure. The study used a survey data of 400 cities. It was revealed that, a centralized structure enhances the likelihood that local government adopt an e-procurement system to cope with the increasing procurement complexity; while governments with a coordinate structure are less likely to adopt e-procurement as they can rely on the intra-organizational collaboration and information-sharing embedded in the structure to accommodate complex procurements.

Sharabatiet *al.*, (2015) conducted a study about end user satisfaction and individual performance assessments in e-procurement systems. The study attempts to empirically examine a framework identifying the relationships between end-user satisfaction, and individual end-user performance. The study revealed that processing, content and user ability significantly affect end-user satisfaction, while the higher levels of end-user satisfaction led to the improved individual performance.

3. Research Methodology

This study was conducted in TANESCO Dodoma Headquarter. The major reason for the selection of this study area is that the organization is one among of the public institutions with the largest number of contracts for procurements of works (Issa, 2020), The study adopted a mixed research approach to analyze the role of strategic procurement on value for money at the TANESCO (Johnson & Christensen, 2017). On the other hand, a cross-section research design was adopted to enables a researcher to gather data at a single point in time.

The population is the sum of all the objects under the investigation Kothari (2014). The targeted sample size in this study was 160 staffs from TANESCO Central Zone-Dodoma out of 268 staffs in TANESCO central zone.

According to Alvi (2016), sampling procedures refer to the process of choosing a sample from the target population to represent additional elements with similar characteristics. The stratified method and the purposive sampling methods were used to choose the sample. Employees and key respondent were grouped into subgroup called strata and chosen from various departments at TANESCO then 10 key informant was drawn purposeful.

This research study adopted a survey questionnaire method where a semi-structured questionnaire was employed in collecting quantitative data together with interview guideline for qualitative information. Both historical and contemporary are rich sources of data for social research (Gall *et al.*, 2014). This study reviewed the current data from the Tanzania Procurement Journal of 2020-

2022, the Public Procurement Act of 2014 and its regulations of 2013 and PPRA to analyze the effect of strategic procurement on value for money at TANESCO

Data analysis

Data analysis require coding, tabulate, and draw statistical inference from data, a variety of closely connected processes must be used (Pandey & Pandey, 2015). Data were examined using the Statistical Package for Social Sciences (SPSS) (version 25) to determine means, standard deviations, and percentages that were used to examine quantitative data using means, t-tests, and percentages; where by both inferential and descriptive statistics were adopted. The multiple regression models were used to look on the relationship between variables. On the other side, thematic or content analysis was used to analyze qualitative information from head of departments and potential buyers and sellers of minerals resource. Additionally, this study uses two strategies data triangulation and a wide range of data sources to ensure validity (Johnson & Christensen, 2017). Data from the quantitative research approach was measured using 99% (0.1) confidence intervals and 0.5 percentages of picking a choice in order to ensure validity. While questionnaire was used, and measurements were made using Cronbach's alpha coefficient to demonstrate the internal consistency of the scale reliability.

4. Findings

Electronic Procurement Strategy and Efficiency

The study findings, as presented in Table 4.7 revealed, that reliability is positively significant and related to efficiency of construction projects at $p=0.000$ and $\beta=0.345$. These results imply that, at every 1-unit increase in reliability of electronic procurement, efficiency of construction projects under TANESCO increases by 34.5%. These results are not in line with those of Abdallah & Churk (2021) who revealed that, there is minimal knowledge on e-tendering among procurement staff on e-tendering for the performance of public institutions.

Also, the findings indicate that speedy of electronic procurement is positively significant and related to efficiency of construction projects at $p=0.013$ and $\beta=0.146$. These results imply that, at every 1-unit increase in speedy of electronic procurement, efficiency of construction projects under TANESCO increases by 14.6%. These results are in harmony with those of Iben& Laryea, (2015) show that, e procurement system cause highest positive impact in the firm by speeding transactions, lower transaction costs and ease of use, although unreliable IT infrastructures, established cultures and security concerns were the main impediments to the uptake to these e-procurement technologies.

Table 1: The Effect of Electronic Procurement Strategy on efficiency

Model	B	Std. Error	Beta	t	Sig.
(Constant)	1.686	.231		7.305	.000
Transparency	.009	.044	.012	.210	.834
Speedy	.146	.058	.149	2.526	.013
Reliability	.345	.032	.660	10.879	.000
Network stability	.011	.032	.019	.333	.740
Simplicity	.057	.035	.092	1.622	.107

Electronic Procurement Strategy and Effectiveness

The study findings, as presented in Table 2 revealed, that speedy is positively significant and related to effectiveness of construction projects at $p= 0.001$ and $\beta= 0.143$. These results imply that, at every 1-unit increase in speedy of electronic procurement, effectiveness of construction projects under TANESCO increases by 14.3%. Also, network stability is positively significant and related to effectiveness of construction projects at $p= 0.000$ and $\beta= 0.347$. These results imply that, at every 1-unit increase in network stability of electronic procurement, effectiveness of construction projects under TANESCO increases by 34.7%. These results are in line with those of Sharabatiet al., (2015) who revealed that processing, content and user ability significantly affect end-user satisfaction, while the higher levels of end-user satisfaction led to the improved individual performance.

Furthermore, the study findings reveal that, simplicity of electronic procurement is positively significant and related to efficiency of construction projects at $p= 0.000$ and $\beta= 0.381$. These results imply that, at every 1-unit increase in simplicity of electronic procurement, effectiveness of construction projects under TANESCO increases by 38.1%. These results are in harmony with those of Chen et al., (2022) who revealed that, a centralized structure enhances the likelihood that local government adopt an e-procurement system to cope with the increasing procurement complexity; while governments with a coordinate structure are less likely to adopt e-procurement as they can rely on the intra-organizational collaboration and information-sharing embedded in the structure to accommodate complex procurements.

Table 2: The effect of electronic strategy on effectiveness

Model	B	Std. Error	Beta	t	Sig.
(Constant)	.158	.171		.921	.359
Transparency	.039	.033	.041	1.181	.239
Speedy	.143	.043	.125	3.339	.001
Reliability	.012	.024	.019	.490	.625
Network stability	.347	.024	.534	14.718	.000
Simplicity	.381	.026	.529	14.577	.000

Electronic Procurement Strategy and Economy

The study findings, as presented in Table 3 revealed, that reliability is positively significant and related to economy of construction projects at $p=0.000$ and $\beta=0.364$. These results imply that, at every 1-unit increase in reliability of electronic procurement, economy of construction projects under TANESCO increases by 36.4%. These results are in line with those of Sharabati *et al.*, (2015) who revealed that processing, content and user ability significantly affect end-user satisfaction, while the higher levels of end-user satisfaction led to the improved individual performance.

The study findings, as presented in Table 3 revealed, that network stability is positively significant and related to effectiveness of construction projects at $p=0.000$ and $\beta=0.333$. These results imply that, at every 1-unit increase in network stability of electronic procurement, economy of construction projects under TANESCO increases by 33.3%.

Table 3: The effect of electronic strategy on economy

Model	B	Std. Error	Beta	t	Sig.
(Constant)	1.138	.158		7.183	.000
Transparency	-.021	.030	-.022	-.696	.487
Speedy	.019	.040	.016	.468	.640
Reliability	.364	.022	.582	16.723	.000
Network stability	.333	.022	.499	15.277	.000
Simplicity	.021	.024	.028	.860	.391

5. Summary of the Findings

The contribution of electronic procurement strategy seemed to have a strongly statistical significance on value for money, the strategy by utilize effectively the system increase speedy in the procurement operation, transparency specifically during tendering process also, the strategy simplify work to a large extent and save time hence minimal cost overrun. TANESCO witnessed the efficiency performance of procurement operation, effective utilization of their scarce resources through the system.

5.1 Conclusion

The study concludes that reliability and speedy of electronic procurement increases the efficiency of construction projects performed by TANESCO. It was viewed that network stability and simplicity of electronic procurement boosts the effectiveness of construction projects. Network stability and reliability of electronic procurement improves the economy of construction projects. Also, the study concludes that trade discount, long term relationship and communication of electronic procurement enhance efficiency of construction projects.

5.2 Recommendations

The study suggests the need for the government through PPRA and private capacity building facilitators to maximize regular electronic procurement training among procurement staff to improve the efficiency and economy of their performance through the use of electronic procurement so as to enabling public institutions' specifically to speed up ongoing construction project in Tanzania as the center of government excellence. Additionally, the vast majority of survey participants from TANESCO agree that sustainable procurement is an urgent necessity and cite government rules as the primary motivator for sustainable procurement. Hence the government should continue enforcing the laws and awareness seminar pertaining the essence of the so-called electronic procurement.

5.3 Area for Further Studies

The nature of some respondents who were not willing to provide information as the results of the possibility of having inaccurate information was one of the limitations in this study. Also, insufficient time and high cost which were possible are other limitations on this study. The researcher overcame these challenges by conducting the study nearby her location so as to minimize the cost. Also, the researcher used to collect relevant information by establishing closed ended questions in a large context so as the respondents could not be tied to provide some information. Therefore, other studies should be conducted with sufficient time, cost and analyzing the relevance of respondents.

5.4 Study Contribution

The findings of this research are beneficial to TANESCO at Dar es Salam by highlighting the ways in which strategic procurement can help the department of procurement carry out its duties more affordably as well as instill a positive influence on the overall value for money in the organization.

Findings derived in this study not only helps public entities and related government units' Besides helping the public sector play a positive role in improving government competitiveness in the provision of services to its residents, weathering the storm and developing stronger policies and plans would also be beneficial to its citizens.

Conflict of Interest Statement

In accordance with policy and ethical obligation as a researcher, I have no conflict of interest in this work or any company that has been affected by the research reported in the enclosed paper. Also, researcher received no direct funding for this research

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