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Study On E-Procurement Implementation Effect On Performance Through An Improved Procurement Efficiency Of Construction Work In The Public Works Department Of Enrekang Regency

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ABSTRACT

This study aims to examine effect of implementation of e-procurement on performance, through an improved procurement efficiency of construction work at the Public Works Department of Enrekang Regency. A quantitative approach with saturated sampling was employed, and the population comprised 44 respondents, which were selected from the civil servant general data. Furthermore, several tests were conducted on the collected data when it was being analyzed, they include the descriptive statistical (TCR), validity, reliability, normality, simple correlation, multiple linear regression, path analysis, and the coefficient of determination tests, as well as the F-test, and T-test. The results show e-procurement implementation has a partially significant effect on both performance and procurement efficiency, while efficiency greatly influences performance. Simultaneously, e-procurement implementation was found to have a positive significant effect on performance through procurement efficiency of construction work at the Public Works Department of Enrekang Regency. Specifically, e-procurement implementation variable (X) was able to affect performance variable (Y) through procurement efficiency variable (Z) by 54.7%. It is also worth noting that the remaining 45.3% (100% - 54.7%) can be attributed to variables other than the independent variables in the study. This

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means that an increase in e-procurement implementation will lead to a proportional increase in performance value through procurement efficiency.

Keywords: Application of E-Procurement; Performance; Procurement Efficiency

INTRODUCTION

E-procurement is a procurement process that leverages the internet as a means of information and communication to facilitate business-to-business (B2B) transactions in the purchase of goods and services (Croom and Jones, 2007). In Indonesia, the development of e-procurement began in 2004 and was regulated by the Presidential Decree of the Republic of Indonesia Number 80 of 2003 concerning Government Procurement of Goods and Services.

The decree was later updated by Presidential Regulation of the Republic of Indonesia Number 54 of 2010, and then partially revised to become Presidential Regulation Number 4 of 2015. The latest regulation on this subject matter is Presidential Regulation Number 16 of 2018 concerning Government Procurement of Goods and Services, which mandates all Ministries, Non-Departmental Government Institutions, Regional Devices, and other agencies to use e-procurement systems in procuring goods and services.

At the Public Works Department of Enrekang Regency, efforts are made to realize good and clean governance. This is performed through organizational efforts to improve performance and efficiency of construction work procurement based on e-procurement. This is aimed at improving effectiveness and efficiency of program implementation and activities. It is carried out responsibly and with orderliness, hence, promoting accountability for implementation of duties and functions, as well as authority and policy in achieving the vision, mission, and objectives of the Public Works Department of Enrekang Regency.

From the initial observations conducted at the Public Works Department of Enrekang Regency, it was found that the human resources performance and efficiency of both budget and time often hinder implementation of construction work procurement to meet expectations. Following this, performance quality of employees was found to be less than optimal despite their high motivation and commitment to work. This was attributed to the low level of consistency and discipline in completing work on time.

Before implementation of e-procurement system, several performance issues and obstacles could be seen in the manual process involved in procurement of goods and

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services. Employees who handled procurement bidding had to compile data from all service providers (business entities) in documents, and this affected efficiency of the process.

Problem Statement

From the background of this study, the problem statements are as follows:

1. Does e-procurement affect construction work performed in the Public Works Department of Enrekang Regency?
2. Does e-procurement affect procurement efficiency of construction work at regency?
3. Does procurement efficiency affect construction work performed in regency?
4. Does e-procurement influence performance through procurement efficiency in construction work at the Public Works Department of Enrekang Regency?

THEORETICAL REVIEW

Definition of E-Procurement

In general, experts have the same perception of e-procurement definition. According to Djojosoekarto, A. et al. (2008), e-procurement is the adoption of an internet-based system in the purchasing process. Davila, et al. (2003) further elaborated on the definition, stating that e-procurement is a technology designed to facilitate procurement of goods through the internet. Therefore, it can be concluded that e-procurement definition by several experts refers to the digital and electronic implementation of procurement of goods and services by the government.

The Legal Basis for Procurement of Goods and Services Electronically

E-procurement is an Electronic Procurement System designed to facilitate the purchase of Goods and Services (LPSE). This system attempts to organize the transaction process of auctions through technology by conducting the auction process for goods and services online. Furthermore, the legitimacy basis for implementing e-procurement (procurement online and/or via technology (electronic)) lies in the Presidential Regulation of the Republic of Indonesia Number 16 of 2018 regarding Governmental Procurement of Goods and Services. This regulation is a refinement of Presidential Regulation Number 54 of 2010, as well as other regulations, and it is applicable to each Department, Ministry, Organization, and local government apparatus that uses this service system.

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Types of E-Procurement

According to Turban et al. (2012), there are six types of e-procurement, namely:

1) E-sourcing: This involves identifying new suppliers for specific categories of purchasing needs using internet technology.
2) E-tendering: This type of e-procurement deals with the sending of requests for information and prices to suppliers, as well as receiving responses from them using internet technology.
3) E-reverse auction: This involves the use of internet technology to purchase goods and services from a known or unknown number of suppliers.
4) E-informing: Refers to the use of internet technology to collect and distribute purchasing information internally and externally.
5) Web-based ERP (Electronic Resource Planning): This system deals with the creation and approval of purchase requests, establishing purchase orders, as well as the receiving of goods and services using an internet-based application system.
6) E-MRO (Maintenance, Repair, and Operation): Similar to the web-based ERP, except that the ordered goods and services are unrelated to MRO suppliers.

Process E-Procurement Type

Procurement process, as explained by Chaffey (2009), basically starts with the following:

1) The planning function determines the needed goods.
2) The planning function fills out a request form. This is then handed to the buyer in the purchasing department, and then the manager of the purchasing department approves the purchase form.
3) The buyer fills out an order form and sends it to the supplier.
4) The supplier receives the order.
5) The ordered goods are checked to see if they match the order form and the invoice made by the supplier.
6) The invoice is then paid to the supplier.

Purpose and Benefits of E-Procurement

According to Suparman, E. (2014), the objectives of e-procurement are not merely to produce goods/services that prioritize profit but to provide goods and services to the

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public who are in need of them in order to improve public services. Similarly, Airlangga, U. (2010) outlined the objectives of e-procurement, which are, to increase transparency and accountability, to increase market access and promote healthy business competition, to improve efficiency of procurement processes, to support the monitoring and auditing processes, and to fulfill the need for real-time access to information. E-procurement facilitates market access and helps create healthy competition (transparency, better prices, and better interaction patterns).

Performance

E-procurement has several implications for process improvement, but it is essential to understand the influence these improvements have on the organizations' performance and efficiency, both financially and non-financially. In general, its usefulness for individuals and groups in an organization gives it a multifaceted meaning. According to Rivai, V., & Basri, A.F.M. (2005), performance refers to a person's or group's willingness to perform an activity and fulfill their responsibilities with the expected results. In an organization, performance is reflected in the quantity and quality of work results produced by personnel, whether in individual or group settings. Performance of work results is not limited to personnel who hold functional or structural positions but also to the entire range of personnel within the organization (Ilyas, 2011).

Procurement Efficiency

Generally, work efficiency refers to how best a job is performed and the results achieved in terms of quality. Experts have defined work efficiency in various ways, for example, Susilo (2011:28) defines efficiency as the state or condition in which a job is carried out correctly and with full capabilities.

Thinking Framework

In this study, the independent variable (X) is e-procurement implementation, which has several indicators, as identified by Turban et al. (2012). These indicators include E-sourcing, E-tendering, E-reverse auction, E-informing, Web-based ERP, and E-MRO.

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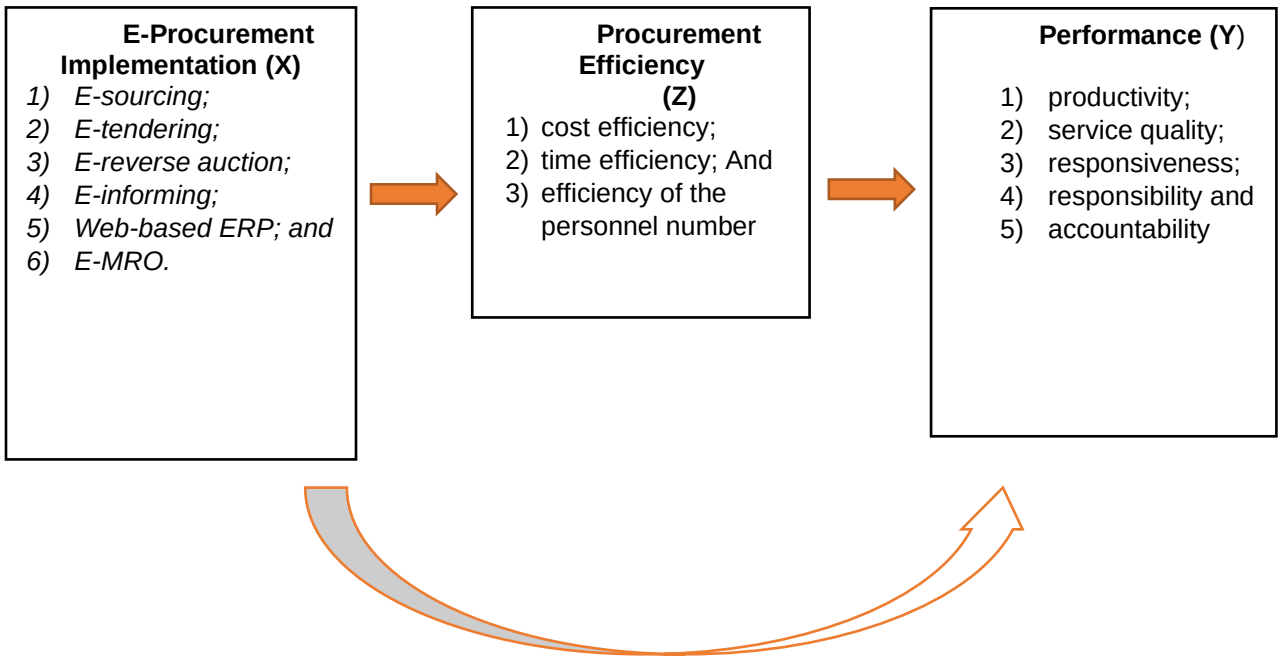


Figure 1.Thinking Framework

Based on the assumptions in the study, the hypothesis can be formulated as follows:

H1: It is suspected that there is an effect of e-procurement implementation (X) on performance (Y) of construction work in the Public Works Department of Enrekang Regency.

H2:There is also a suspected effect of e-procurement implementation (X) on procurement efficiency (Z) of construction work in the Public Works Department of Enrekang Regency.

H3: Thirdly, it is suspected that there is an effect of procurement efficiency (Z) on performance (Y) of construction work in Department of Enrekang Regency.

H4: It is also suspected that there is an effect of e-procurement implementation (X) on performance (Y) of construction work through procurement efficiency in Department of Enrekang Regency.

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METHOD

Study Approach

The method used in this study is quantitative. It was selected because of the measurable and rational nature of the subject being studied. Quantitative analysis, based on the positivism philosophy, is used to examine a specific population or sample. Furthermore, the data utilized in this study was collected using a study instrument.

Population and Sampling Techniques

Study Population

The population in a study refers to the complete set of elements that acts as a data source and possess certain characteristics. Accordingly, the population for this study comprises all civil servants working at the Public Works Department of Enrekang Regency, which amounted to 44 people.

Sample

According to Arikunto, S. (2010), if the number of respondents is less than 100, the entire population can be considered as the study sample. Therefore, the sample in this study is the entire population of 44 respondents.

Data Analysis Technique

Simple Linear Regression Analysis

The purpose of a simple linear regression analysis is to test effect of the independent variable on the dependent variable. In this study, a simple linear regression analysis was employed with two equations. The first is used to determine the extent of effect of the variable e-procurement implementation (X) on the variable performance (Y). The second equation is used to examine the extent of effect of the variable procurement efficiency (Z) on the variable performance (Y) in the Public Works Department of Enrekang Regency.

where:

Y = Dependent variable
X = Independent variable
a = Constant (the value of Y when X = 0)
b = Regression coefficient (positive or negative effect)

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Equation 1

Table 1. shows the results of the simple linear regression test conducted to determine effect of variable implementation of e-procurement (X) on performance variable (Y):

Table 1. Simple Linear Regression Analysis of e-procurement implementation variable (X) on Performance variable (Y)

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	ig.
		B	Std. Error	Beta		
	(Constant)	73.579	18.607		3.954	.000
	EProcurement_Implementation_X	1.113	.329	.462	3.379	.002
a. Dependent Variable: Procurement _Performance_Y						

From the table above it can be formulated the regression equation as follows:

Y = 0,462X + 18,607e

1) The regression coefficient value for the variable of e-procurement implementation shows a positive number of 0.462. This value indicates a direct relationship between e-procurement implementation (X) and performance (Y) variables. This means that an increase in the value of e-procurement implementation variable will lead to a proportional increase in the value of performance variable. Furthermore, the coefficient value of 0.462 indicates that a unit increase in e-procurement implementation will result in a corresponding performance increase of 0.462 units, provided the other independent variables remain constant.
2) The standard error value obtained is 18.607. This means that if there is a deviation, the deviation is 18.607. The smaller the standard error value, the smaller the deviation will be.

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Equation 2

Following are the results of a simple linear regression test on e-procurement implementation variable (X) on procurement efficiency variable (Z):

Table 2. Simple Linear Regression Analysis of e-procurement Implementation variable (X) on Procurement Efficiency variable (Z)

Coefficients[b]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	35.152	8.513		4.129	0.000
	EProcurement_Implementation_X	0.575	0.151	0.507	3.815	0.000
a. Dependent Variable: Procurement_Efficiency Z						

The regression equation can be formulated from the table above as follows:

Z = 0,507X + 8,513e

1) The regression coefficient value on e-procurement implementation variable shows a positive value of 0.507. This positive value indicates that there is a positive relationship between variables X and Z. This relationship signifies that an increase in the value of e-procurement implementation variable will lead to a proportional increase in the value of procurement efficiency variable. The coefficient value of 0.507 indicates that a unit increase of e-procurement implementation results in an increase of procurement efficiency by 0.507 units, provided that other independent variables remain constant.

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2) The standard error value obtained is 8.513. This means that if there is a deviation, the deviation is 8.513. Accordingly, the smaller the standard error value, the smaller the deviation.

DISCUSSION

Effect of E-Procurement Implementation on Construction Work Performance at the Public Works Department of Enrekang Regency

Based on the results of the T-test in the Coefficients table, the data for the T-test coefficient of e-procurement implementation variable (X) towards performance variable (Y) shows a value of T_{count} **3.379**>T_{table} 2.01954, with a significance value (sig) of 0.002<0.05. As a result, it can be concluded that e-procurement implementation variable (X) has a positive and significant impact on performance variable (Y).

This study's findings align with that of previously discussed studies. Quesada, G., Gonzales M.E., Mueller J., and Mueller R. (2010), in their study entitled *Impact of e-procurement on procurement practices and performance*, found that E-Procurement Technology (EPT) has a positive effect on performance. Likewise, in a study conducted by Heriawati, L. (2018), entitled *Pengaruh Penerapan Electronic Procurement dan Good Governance Terhadap Kinerja Pengadaan Barang/Jasa Pada Bagian Pengadaan Barang dan Jasa Sekretariat Daerah Kabupaten Pandeglang* (The Influence of Implementation of Electronic Procurement and Good Governance on Performance of Procurement of Goods/Services in procurement of Goods and Services Section of the Regional Secretariat of Pandeglang Regency), it was found that e-procurement implementation positively and significantly affects Performance of Goods/Services Procurement by 34.61%.

Effect of E-Procurement on Procurement Efficiency of Construction Work at the Public Works Department of Enrekang Regency

According to the problem statement, the impact of e-procurement on construction work procurement efficiency in the Public Works Department of Enrekang Regency was evaluated. The t-test (partial) was conducted and the observed results showed a significant value in the Coefficients table of 0,000<0,05 and a calculated T_{count} value of 6.904>T_{table} of 2.01954. Based on these findings, it can be concluded that e-procurement implementation (X) has a positive significant impact on procurement efficiency (Z) of construction work in the Public Works Department of Enrekang Regency.

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Effect of efficiency on construction work performance at the Public Works Department of Enrekang Regency

Based on the study results, it can be concluded that procurement efficiency (Z) positively and significantly impacts performance (Y) variable at the Public Works Department of Enrekang Regency. This effect was found after conducting a partial t-test, where the data in the coefficient table showed the value of T_{count} 6.904>T_{table} 2.01954, with a significance value (sig) of .000<0.05. These findings indicate that procurement efficiency (Z) positively and significantly affects performance (Y) variable.

Specifically, e-procurement implementation is aimed at improving employee performance by promoting efficiency. This study tested the hypothesis of whether e-procurement implementation affects performance by improving efficiency of construction work procurement at the Public Works Department of Enrekang Regency. Based on the results of the simultaneous F-test, the ANOVA table showed a F_{count} value of 27.003, where the value of F_{count} >F_{table} by 4,073, with a significant F-value of 0.000<0.05.

Therefore, based on the obtained results, it can be concluded that implementation of e-procurement has a positive and significant impact on performance through the improvement of procurement efficiency construction work at the Public Works Department of Enrekang Regency. The magnitude of this effect can be seen in the Model Summary table of the determination test coefficient, which shows an R-square value of 0.568 and an adjusted R-square value of 0.547 (54.7%). This means that the ability of e-procurement implementation (X) variable to affect performance (Y) variable through procurement efficiency (Z) variable is 54.7%. The remaining 45.3% (100% - 54.7%) can be explained by other variables besides the independent variables in the study.

CONCLUSION AND SUGGESTION

Conclusion

From the discussions and observations of this study, the following conclusion was drawn**:**

1. E-procurement implementation positively and significantly affects construction work performance in the Public Works Department of Enrekang Regency.
2. E-procurement implementation positively and significantly affects procurement efficiency of construction work in the Public Works Department of Enrekang Regency. This effect is measured by cost, time, and personnel efficiency.
3. efficiency positively and significantly impacts procurement performance for construction work in Department of Enrekang Regency. Performance refers to the

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employee work results seen from productivity, service quality, responsiveness, responsibility, and accountability to achieve the goals of the assigned post or office.

4. Lastly, e-procurement implementation affects performance through procurement efficiency of construction work in Regency.

Suggestion

This study result concludes that e-procurement implementation has a positive and significant effect on performance through the improvement of procurement efficiency of construction work at the Public Works Department of Enrekang Regency. However, there are still some notes for improvement in the future related to construction procurement, namely:

1. E-procurement system needs to be continually developed to minimize maintenance errors.
2. The Public Works Department of Enrekang Regency should consistently implement e-procurement system, not just as a formality, since, the goal of implementing e-procurement system is to achieve effective, efficient, and transparent procurement services.

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