# International Journal of Multidisciplinary Research and Growth Evaluation.

# The effect of the use of e-procurement and top management support on preventing corruption in government procurement of goods and services? "Review of public fraud procurement in Indonesia

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## Article Info

## Abstract

Government procurement of goods and services is the sector most vulnerable to fraud, especially fraud in the form of corruption. Viewed from the perspective of the subject of corruption, the perpetrators of corruption in the procurement of government goods and services can come from within the organization or from outside the organization. This research aims to examine the direct or indirect relationship between the use of e-procurement and top management support and preventing corruption in government procurement of goods and services through an internal control system. This research is research that is included in quantitative research. This research was conducted in the public sector, namely in the government goods and services procurement sector within the Ministry of Education, Culture, Research and Technology in Indonesia, involving 100 respondents, namely Functional Officials for Procurement of Goods and Services Management (JF PBJ). Sampling in this research used non-probability sampling with purposive sampling technique. The data analysis used in this research is descriptive analysis techniques, meanwhile the research hypothesis is tested using Partial Least Square (PLS) hypothesis testing. Based on the test results, it was found that the use of e-procurement, top management support and internal control systems have a direct effect on preventing corruption in government procurement of goods and services. The use of e-procurement and top management support has a direct effect on the internal control system. And the use of e-procurement and top management support indirectly influences the prevention of corruption in government procurement of goods and services through the internal control system.

**Keywords:** corrupt behavior, fraud procurement, procurement of goods and services

## 1. Introduction

Government procurement of goods and services is the sector most vulnerable to fraud, especially fraud in the form of corruption (Handayani & Kawedar, 2021; Murray, 2014; Rendon & Rendon, 2016; Rustiarini, Sutrisno, *et al*., 2019; Rustiarini, T, *et al*., 2019) [8, 14, 26, 28]. Viewed from the perspective of the subject of corruption, the perpetrators of corruption in government procurement of goods and services can come from within the organization or from outside the organization (Association of Certified Fraud Examiners (ACFE) Indonesia, 2020; Lisa A *et al*., 2015; Nowrousian, 2019; Velasco *et al*., 2021) [12, 17, 34]. Based on the results of a fraud survey in Indonesia in 2019, it is known that corruption is the most detrimental fraud in Indonesia and the organization most harmed by this fraud is the government (Association of Certified Fraud Examiners (ACFE) Indonesia, 2020). The results of this survey and also from various previous research show that Indonesia has still not been able to escape the problem of corruption since the Old Order, the New Order and even the Reformation Order (Rustiarini, Sutrisno, *et al*., 2019; Yogi Prabowo, 2014) [28, 38].

Previous research states that the cause of widespread corruption in Indonesia is the patrimonial leadership style which is considered to be the main source of rent-seeking and corruption practices in

Indonesia (Prabowo *et al*., 2018; Rustiarini, Sutrisno, *et al*., 2019; Yogi Prabowo, 2014, Purba *et al*., 2021, Sihombing *et al*., 2022) [28, 38]. Apart from that, the decentralization system has also apparently increased corruption at the regional government level, thereby creating political and economic uncertainty at the local level in Indonesia (Prabowo *et al*., 2018). Other research also states that the fraud triangle theory actually influences individual fraudulent behavior in the government goods and services procurement sector in Indonesia (Rustiarini, Sutrisno, *et al*., 2019) [28]. This research proves that there is a negative influence between fraudulent behavior and rationalization so that individuals who are under high pressure and have great opportunities are more susceptible to committing corruption.

In other research conducted in Nigeria, public procurement is an area that is very vulnerable to corrupt practices (Williams-Elegbe, 2018) [37]. From the results of this research, it is known that the cause of widespread corruption in public procurement of goods and services in Nigeria is due to the existence of information asymmetry in public procurement, a bureaucratic system that opens up gaps for abuse, weak public procurement institutions, a lack of accountability mechanisms and a culture of silencing abuse in the procurement process of goods and services public services.

This is different from what happened in New Zealand where they have succeeded in suppressing corruption in their country. New Zealand's success is due to professional public bureaucracy, regulation and equality which are the keys to the country's success in fighting corruption in the country (Zirker, 2017) [39]. New Zealand's success in reducing corruption in its country cannot be separated from improving their governance, especially related to public procurement. Research conducted by Zirker (2017) [39] shows that there are four successful strategies for reducing corruption in New Zealand, namely, first, forming government employees who are independent, self-sufficient and professional and have competence and integrity so as to produce a professional bureaucracy, second, forming clean government bureaucratic institutions and structures., flexible and flexible which is able to provide professional public services and is able to provide services to the community fairly and equally regardless of economic and social status, three public policy formulations which raise the level of economic equality which are able to suppress greed and have special access for certain parties. And the fourth is the application of the single agency model in eradicating corruption.

Previous research has generally empirically examined procurement fraud in several countries in the world, both developed and developing countries, but research in the form of literature studies on public procurement fraud in Indonesia is still very limited, especially in the context of government procurement of goods and services. Thus, the aim of this research is to examine in depth the factors that cause fraud in government procurement of goods and services as well as prevention strategies in Indonesia based on the results of previous research in other countries which have succeeded in suppressing corruption in the area of government procurement of goods and services.

The results of this research are the factors that cause public procurement fraud and prevention strategies based on the results of a literature review. The benefit of this research is that it contributes to the Republic of Indonesia Government Goods and Services Procurement Policy Institute (LKPP-RI) in formulating policies and strategies to prevent procurement

fraud in the government goods and services procurement sector so that it can reduce the number of corruption and make Indonesia a country free from practices corruption, especially in the area of procurement of government goods and services. This research is a literature study that examines references from Scopus-indexed international journals with the quartile-2 (Q2) category, namely the Journal of Public Procurement, both journals published by Emerald Publishing. The articles examined from this journal are articles that discuss public procurement fraud only, which were published from 2000 to 2021.

## 2. Methods
This research is research that is included in quantitative research. This research was conducted in the public sector, namely in the government goods and services procurement sector within the Ministry of Education, Culture, Research and Technology in Indonesia, involving 100 respondents, namely Functional Officials for Procurement of Goods and Services Management (JF PBJ). Sampling in this research used non-probability sampling with purposive sampling technique. The data analysis used in this research is descriptive analysis techniques, meanwhile the research hypothesis is tested using Partial Least Square (PLS) hypothesis testing.

As a reinforcement of theory and a comparison between theory and research results, researchers in this research chose an accredited international journal (Scopus indexed) with the quartile-2 (Q2) category, namely the Journal of Public Procurement, both journals published by Emerald Publishing where in In this journal, articles related to the topic of public procurement fraud will be selected for articles published from 2000 to 2021. The selection of articles published since 2000 is considering that the 2000s was a decade of government transformation in various countries from Traditional Public Management to New Public Management (NPM). Apart from that, the articles analyzed are articles related to this topic only. Then from 122 (one hundred and twenty two) articles only 35 (thirty five) articles were selected. This is because this is the only article that discusses public procurement fraud in detail. The results of the study of the articles were then analyzed into four groups of study results and then the four categories were discussed based on the references and references used.

## 3. Result and Discussion
### 3.1. Result
From the results of the analysis of articles related to the object of discussion of Public Fraud Procurement in the Journal of Public Procurement from 2000 to 2021, it can be seen that the research pattern related to public fraud procurement in this journal is empirical research in various countries, both developing countries and developed countries (developed countries). The development of research related to fraud and corruption in the procurement of public goods and services has become a special concern for researchers in the last two decades from 2000 to 2021. This is in line with the results of research examining government transformation in various countries related to budgets, Public financial management includes financial reporting and public sector accounting standards since the emergence of system changes in every country in the world to adopt New Public Management (NPM) in government. So that the principles of good governance that have been used in the private sector are also

starting to be applied to the public sector (Hope *et al*., 2021; Mutangili, 2021) [15].

From the results of the literature study, we can see that research on the Journal of Public Procurement in the Journal of Public Procurement from 2000 to 2021 can be grouped into four groups as in the following Table 1:

**Table 1:** Literature Review Analysis

| No | Topic | Research ( 2000 – 2021 ) |
|---|---|---|
| 1. | Public Procurement Concept (Public Procurement Concept) | Khan, 2018b; Pilonato, 2020; Rafay, 2021; Abul Hassan *et al*., 2021; Mutangili, 2021; Rotchanakitumnuai, 2013; Ogunlela *et al*., 2021; Velasco *et al*., 2021; Utami & Indrijawati, 2020 [34, 15, 11, 20, 24, 1, 27, 19, 33] |
| 2. | Fraud and Corruption in public procurement | Khan, 2018b; Pilonato, 2020; Rafay, 2021; Lisa A *et al*., 2015; Pilonato, 2020; Rotchanakitumnuai, 2013; Rustiarini, T, *et al*., 2019; Rendon & Rendon, 2016; Dorn *et al*., 2008; Handayani & Kawedar, 2021; McCue *et al*., 2015; Nowrousian, 2019; Nyseröd & Spagnolo, 2021; Yogi Prabowo, 2014; Weingärtner *et al*., 2021; Vousinas, 2019; Christian *et al*., 2019 [8, 26, 28, 12, 17, 11, 24, 27, 7, 13, 18, 38, 36, 35, 6] |
| 3. | Factors Causing Fraud and Corruption in Public Procurement | Rustiarini, T, *et al*., 2019; Tumuramye *et al*., 2018; Yogi Prabowo, 2014; Dorn *et al*., 2008; Handayani & Kawedar, 2021; McCue *et al*., 2015; Nowrousian, 2019; Nyseröd & Spagnolo, 2021; Purba *et al*., 2021, Rafay, 2021; Ayling & Grabosky, 2006; Caillaud & Lambert-Mogiliansky, 2021; Ogunlela *et al*., 2021; Pilonato, 2020; Tavala, 2021; Velasco *et al*., 2021; Weingärtner *et al*., 2021 [8, 28, 17, 34, 24, 19, 7, 13, 18, 38, 36, 5, 20] |
| 4. | Fraud and Corruption Prevention Strategy in Public Procurement | Singleton, 2006; Arens, et. al, 2014; Ramadhani & Ondiek, 2021, Muda *et al*., 2022 [25, 16] |

## 3.2. Public Procurement Concept

Public procurement is part of the government system which plays an important and vital role because it is the government's instrument for spending state money in order to fulfill a country's needs to achieve its goals, whether in the form of spending on goods or services (Abul Hassan *et al*., 2021; Khan, 2018a; Mutangili, 2021; Rotchanakitumnuai, 2013) [15, 10, 1, 27]. So public procurement is one of the driving forces of the economy and a driver of economic growth in every country (Ogunlela *et al*., 2021) [19]. Because of this vital position, if a country's public procurement has problems it will have a very broad impact on a country's economy (Mutangili, 2021; Velasco *et al*., 2021) [34, 15].

There are four pillars in public procurement, namely the first legislative, the second is the institution and management structure of public procurement, the third is procurement operations and market segments (vendors) and the fourth is integrity and transparency (Khan, 2018a) [10]. Then the public procurement system throughout the world must at least meet seven values, namely value for money, economics, integrity, in accordance with procurement objectives, efficiency, transparency and fairness (Abul Hassan *et al*., 2021; Alanzi, 2021; Caillaud & Lambert-Mogiliansky, 2021; Khan, 2018a; McCue *et al*., 2015; Mutangili, 2021; Rotchanakitumnuai, 2013) [15, 10, 1, 27, 13, 5]. Based on this, the aim of public procurement is to ensure that the goods and services needed by the country for the welfare of its people can be met on an ongoing basis (Abul Hassan *et al*., 2021) [1].

Based on previous research conducted in Malaysia, it is known that public procurement of goods and services in Malaysia has reached a moderate level of compliance with the principles of public procurement, namely public accountability, transparency, open, healthy and fair competition, and value for money (Abul Hassan *et al*., 2021) [1]. According to researchers, one of the principles in the Malaysian context that is most adhered to is open and fair competition, while the principle that is often ignored is transparency (Abul Hassan *et al*., 2021) [1]. The results of other research conducted in Abuja (Nigeria) stated that the application of procurement technology in the form of e-procurement in Nigeria has been able to reduce fraud in the procurement process (Utami & Indrijawati, 2020) [33].

## 3.3. Fraud and Corruption in Public Procurement

Fraud and corruption have different definitions (Khan, 2018b; Pilonato, 2020; Rafay, 2021) [11, 24, 20]. Corruption is defined as the abuse of authority and power that is owned to the detriment of a person or group of people who are related to and depend on the integrity of someone who is given authority for this matter (Rafay, 2021) [24]. In contrast to corruption, fraud is defined as hiding material facts from being known by other interested people so as to influence a decision that will harm other parties who have an interest in the information (Khan, 2018b; Rafay, 2021) [11, 24].

Fraud and corruption often occur simultaneously (Khan, 2018b; Lisa A *et al*., 2015) [12, 11]. What is interesting is that it turns out that misuse of accounting actually contributes to the formation of a continuous and continuous corruption network where the perpetrators of this corruption can use accounting instruments to coordinate and carry out their corrupt behavior (Pilonato, 2020) [20]. On the other hand, accounting instruments can also be used to reveal fraud so that accounting is like a double-edged sword.

In the context of public procurement of goods and services, the success of implementing public procurement that is free from fraud and corruption is very dependent on good governance, where the government as the person responsible and implementing public procurement must have professional and competent resources and have integrity and understanding. essence and basis for making correct and appropriate decisions (Khan, 2018b; Rotchanakitumnuai, 2013; Rustiarini, T, *et al*., 2019) [28, 11, 27]. Learning from the experience of handling public procurement fraud at the US Department of Defense, fraud incidents are analyzed from the contract management and internal control framework adopted by the United States government where recommendations related to handling fraud are developed to improve contract processes and the quality of internal control as a strategy for preventing and detecting their occurrence. fraud in public procurement (Rendon & Rendon, 2016) [26]. So it can be concluded that corruption in public procurement can occur at five stages, namely the first stage of procurement planning, the second preparation of selection and bidding documents including determining technical specifications, the third stage of provider selection, the fourth stage of contract implementation and the fifth stage of handover and

final accounting (Caillaud & Lambert-Mogiliansky, 2021; McCue *et al*., 2015) [13, 5]. The serious impact of corruption in the public procurement sector is that it can cause inefficiency and ineffective use of public finances as well as a fall in the reputation of public organizations which causes a loss of public trust in the competent authorities (Weingärtner *et al*., 2021) [36].

This occurs due to situational factors such as pressure and opportunities for procurement actors to commit fraud and corruption which are directly related to the perpetrator's psychological factors in the form of rationalization and justification for the corrupt behavior as well as the perpetrator's ability to commit the fraud/corruption (Rustiarini, T, *et al*., 2019; Yogi Prabowo, 2014) [28, 38]. There is also research that tries to further develop these three fraud trigger factors, namely S.C.O.R.E (Stimulus, Capability, Opportunity, Rationalization and Ego) where this model is used to increase sensitivity in detecting and preventing fraud by expanding understanding of the main determining factors for fraud ( Vousinas, 2019) [35]. This research suggests that fraud cannot possibly occur if it is not carried out by the right person and has the ability to do so. This is also the same as the results of research conducted by other researchers which stated that pressure, opportunity, rationalization, capability and ego/arrogance have a significant effect on the occurrence of fraud (Christian *et al*., 2019) [6].

## 3.4. Factors that cause fraud and corruption in public procurement

The complexity and high level of difficulty in public procurement makes this sector vulnerable to fraud and corruption (Rustiarini, T, *et al*., 2019; Tumuramye *et al*., 2018; Yogi Prabowo, 2014) [28, 38]. Apart from that, the procurement of public goods and services has a big risk if there is a lack of monitoring and control, weak bureaucracy and institutions as well as non-transparent procurement implementation, which has the potential to give rise to fraud and corruption which will be detrimental to the public sector organization itself (Dorn *et al*, 2008; Handayani & Kawedar, 2021; McCue *et al*., 2015; Nowrousian, 2019; Nyveröd & Spagnolo, 2021; Rafay, 2021; Yogi Prabowo, 2014) [8, 17, 24, 7, 13, 18, 38]. Due to the large potential for fraud and corruption in public procurement, there should be more research related to public procurement fraud (Murray, 2014; Rustiarini, T, *et al*., 2019) [14, 28].

Based on the results of previous research, there are at least seven causes of fraud and corruption in the government goods and services procurement sector, namely first there is no clarity about the owners and users of procurement results, second the procurement implementers are temporary staff and not functional procurement, third there is low awareness of organizational policies, fourth, staff who are not competent and only do work based on what has previously been done for years (less innovative), fifth, there is no clear separation of duties and responsibilities, sixth, single procurement and unhealthy competition, and seventh, procurement implementers limit recommendations from consultants towards a particular product (Ayling & Grabosky, 2006; Caillaud & Lambert-Mogiliansky, 2021; Ogunlela *et al*., 2021; Pilonato, 2020; Tavala, 2021; Velasco *et al*., 2021; Weingärtner *et al*., 2021) [36, 5, 20].

## 3.5. Fraud and Corruption Prevention Strategy in Public Procurement

According to Singleton (2006) risk assessment of fraud is the main key to the effectiveness of organizational/company governance. Apart from that, fraud risk assessment is also the core of the anti-fraud strategy program. This fraud risk assessment is very dependent on understanding the concept of fraud itself, including the concept of the fraud triangle, indications of fraud (red flags), fraud schemes and accounting information systems. Singleton (2006) also explains that the main aim of an anti-fraud program is not only to detect fraud but also to prevent fraud itself. So although fraud detection is important, it is much more important if the fraud itself can be mitigated or minimized and prevented as much as possible. Therefore, it can also be said that fraud detection is interrelated with fraud prevention.

Arens, *et al* (2014) stated that based on the results of previous research, the most effective way to detect and prevent fraud is to implement an anti-fraud program in the entity and carry out fraud control based on the values adhered to by the entity. To create a work culture based on values and a culture of honesty and ethics including six elements, namely example and commitment from leadership, building a positive and conducive work environment, hiring and promoting appropriate and worthy employees, training, confirmation and reciprocal response. (feed-back) and discipline.

Based on research conducted in Tanzania, the procurement accountability framework in Tanzania is caused by several factors, namely an adequate system that is able to prevent fraud and corruption both on the government side and on the provider side (vendor), the entire procurement process is supported by written documents and evidence, publications adequate procurement, having standard selection documents used in the provider selection process (Ramadhani & Ondiek, 2021) [25].

## 3.6. Discussion

Analysis of the impact of determination in SEM analysis is used to understand the total contribution of exogenous variables to endogenous variables, which can be seen from the R-square (R2). The coefficient of determination (R2) essentially measures the level of model capacity in explaining endogenous variation. Based on the table above, the R2 value for the corruption prevention variable obtained is 93%. This means that the independent variable is able to explain 93% of the corruption prevention variable and the remainder is explained by other factors not included in the model. And the R2 value obtained for the internal control system variable is 91.9%. This means that the independent variable is able to explain 91.9% of the internal control system variable and the remainder is explained by other factors not included in the model. Next, Q-square measures a model's predictive relevance. Q-square establishes the predictive relevance of an endogenous construct. A Q-square value above zero means that the value is reconstructed well and the model has predictive relevance. Based on the table above, the Q2 value for the corruption prevention variable obtained is 0.561 and the Q2 value for the internal control system variable obtained is 0.513. Both Q2 values are above zero, so the values are reconstructed well and the model has predictive relevance.

Next, bootstrapping testing is carried out to determine the results of hypothesis testing. The output of the hypothesis test in this research uses a significance level and a tolerable error level of 0.05 or 5%. The following are the results of bootstrapping for each research hypothesis, namely:

**Table 2:** Hypothesis Test Results with SEM-PLS

| Hipotesis Penelitian | Original Sample | T Statistics | P Values |
|---|---|---|---|
| se of E-Procurement -> Corruption Prevention | 0.248 | 2.344 | 0.019 |
| Top Management Support -> Corruption Prevention | 0.325 | 2.220 | 0.027 |
| Use of E-Procurement -> Internal Control System | 0.594 | 5.198 | 0.000 |
| Top Management Support -> Internal Control System | 0.378 | 3.337 | 0.001 |
| Internal Control System -> Corruption Prevention | 0.410 | 3.166 | 0.002 |
| Use of E-Procurement -> Internal Control System -> Corruption Prevention | 0.244 | 2.670 | 0.008 |
| Top Management Support -> Internal Control System -> Corruption Prevention | 0.155 | 2.303 | 0.022 |

The results of hypothesis testing using a structural equation model using SmartPLS produced for each hypothesis the T statistic value > 1.96 with a p value < 0.05, namely 0.019. This means that based on the test results, it is found that the use of e-procurement, top management support and internal control systems have a direct effect on preventing corruption in government procurement of goods and services. The use of e-procurement and top management support has a direct effect on the internal control system. And the use of e-procurement and top management support indirectly influences the prevention of corruption in government procurement of goods and services through the internal control system.

## 4. Conclusions, Limitations, and Suggestions

Government procurement of goods and services is the sector most vulnerable to fraud, especially fraud in the form of corruption. The serious impact of corruption in the public procurement sector is that it can cause inefficiency and ineffective use of public finances as well as a fall in the reputation of public organizations which causes a loss of public trust in the competent authorities. Fraud cannot possibly occur if it is not carried out by the right person and has the ability to do so. There are seven causes of fraud and corruption in the government goods and services procurement sector, namely firstly there is no clarity regarding the owners and users of procurement results, secondly procurement implementers are temporary staff and not functional procurement, thirdly there is low awareness of organizational policies, fourthly staff are incompetent and only carrying out work based on what has previously been done for years (less innovative), fifth there is no clear separation of duties and responsibilities, sixth single procurement and unhealthy competition and seventh is the procurement implementer limiting recommendations from consultants for a particular product.

The most effective way to detect and prevent fraud is to implement an anti-fraud program in the entity and carry out fraud control based on the values adhered to by the entity. To create a work culture based on values and a culture of honesty and ethics including six elements, namely example and commitment from leadership, building a positive and conducive work environment, hiring and promoting appropriate and worthy employees, training, confirmation and reciprocal response. (feed-back) and discipline.

The implication of this research is that it is hoped that it can provide information for the Government Procurement Policy Institute (LKPP) of the Republic of Indonesia in formulating policies related to government procurement of goods and services so that they can be free from corrupt behavior so that the APBN and APBD in Indonesia can be more effective and efficient. Apart from that, with research in the form of literature studies on public procurement fraud, the data enriches the results of previous research, most of which is empirical research.

The limitation of this research is that this research is quantitative research which only discusses one topic qualitatively from research on public procurement. It is hoped that in future research it can also be linked to other topics such as budgeting and government financial reporting so as to provide a portrait. which is more comprehensive regarding the procurement of government goods and services.

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