



Enhancing Fraud Deterrence in Local Governments: The Role of Internal Controls and E-Procurement in Indonesia

Koenta Adji Koerniawan^{1*}, Ferdio Ghifary Fidhien², Afidhiena Raisyan Nisa³, Alfido Fiqri Arsy Adhiem⁴ and Suyatno Ladiqi⁵

ABSTRACT

This study examines the role of internal control systems (SPIP) and e-procurement in strengthening fraud deterrence within Indonesian local governments. Using data collected from 55 public-sector officials across multiple districts in Java, the study employs multiple regression analysis to assess both the individual and combined effects of these governance mechanisms. The findings reveal that SPIP and e-procurement have a significant positive impact on fraud deterrence, both individually and simultaneously. The model explains approximately 66.9% of the variance in fraud deterrence, indicating a substantial contribution of governance mechanisms in reducing fraud risk. However, the results also highlight that the effectiveness of these systems depends on the quality of implementation, monitoring practices, and organisational commitment. By incorporating the Fraud Deterrence Propeller (DETERE) framework, this study extends prior research by conceptualising fraud deterrence as an integrated governance mechanism rather than a purely preventive approach. The findings provide both theoretical and practical insights to strengthen institutional accountability and enhance anti-corruption strategies in decentralised government settings.

Keywords: Internal Control System (SPIP), E-Procurement, Fraud Deterrence, Public Sector Governance, Indonesia.

JEL Classification: H83, M42, M48

^{1*} Corresponding Author, Accounting Study Program, School of Economics and Business, Telkom University, Bandung, Indonesia. koentaadji@telkomuniversity.ac.id. Orcid ID 0000-0002-5538-3817.

² Translation support. School of Economics and Business, Telkom University, Bandung, Indonesia; TISSA, Universiti Utara Malaysia (UUM), Sintok, Kedah, Malaysia. ferdioghifaryf@gmail.com. Orcid ID 0009-0002-5683-6547.

³ Editing support. The Faculty of Economics and Business, Merdeka University, Malang, Indonesia; Doctoral Program in Accounting, State University of Malang, Malang, Indonesia. afidhiena2103@gmail.com. Orcid ID 0009-0007-7908-5420.

⁴ Editing support. The Faculty of Law and Business, Merdeka University, Malang, Indonesia. alfidofiqri@gmail.com. Orcid ID 0009-0002-7947-9298.

⁵ Translation support. Faculty of Law & International Relations, Universiti Sultan Zainal Abidin, Terengganu, Malaysia. yatno.ladiqi@gmail.com. Orcid ID 0000-0002-8846-0698.

INTRODUCTION

Fraud in public sector governance remains a persistent institutional challenge, particularly in environments where oversight mechanisms and administrative controls are not consistently implemented. Rather than being confined to isolated incidents, fraud reflects deeper structural weaknesses within governance systems that allow opportunistic behaviour to emerge and undermine accountability. Within this context, corruption represents one of the most critical forms of fraud, involving the misuse of authority for private or group benefit at the expense of public resources (Koerniawan et al., 2022; ICW, 2023; Koerniawan, 2024a; Koerniawan et al., 2024b; KPK, 2024).

In Indonesia, despite ongoing regulatory and institutional reforms, corruption continues to pose significant challenges, particularly at the local government level. This is reflected in the fluctuation of corruption perception indicators, where Indonesia's ranking declined from 102nd in 2020 to 110th in 2022 (Transparency International, 2024). These trends suggest that the existence of formal governance frameworks alone is not sufficient, and that greater attention is required to understand how control mechanisms operate in practice to deter fraudulent behaviour.

Between 2020 and 2022, a total of 1,556 corruption cases were recorded in Indonesia, many of which involved State Civil Apparatus across villages, districts, and cities (ICW, 2023). Addressing corruption in this context requires coordinated efforts from multiple stakeholders. In response, the Indonesian government has introduced three main strategies known as the Corruption Eradication Trident, consisting of enforcement, prevention, and education (KPK, 2024). The enforcement dimension focuses on legal action to create a deterrent effect, while the prevention dimension aims to improve public service systems, particularly by addressing conflicts of interest in procurement processes. The education dimension seeks to raise public awareness and promote ethical behaviour. Despite these initiatives, corruption, especially in public procurement, remains persistent and difficult to eliminate.

This persistence indicates that corruption in local governments is closely associated with weaknesses in the implementation of internal control systems and procurement processes. Various patterns observed in practice suggest recurring issues such as manipulation of budgets, abuse of authority, and irregularities in procurement activities. These conditions point to a gap between the formal existence of governance mechanisms and their actual effectiveness in discouraging fraudulent behaviour.

However, prior studies have largely examined internal control systems and electronic procurement as separate mechanisms, with limited attention to how they function together as an integrated system of fraud deterrence. In addition, much of the existing literature focuses on fraud prevention, while relatively little emphasis is placed on fraud deterrence as a strategic governance outcome. This gap highlights the need for a more comprehensive approach that considers both structural and behavioural dimensions in understanding how fraud can be effectively discouraged within public sector organisations.

The Government Internal Control System, commonly referred to as SPIP, plays a central role in strengthening governance practices within Indonesian public institutions. As defined in Government Regulation No. 60 of 2008, SPIP is a comprehensive process designed to provide reasonable assurance in achieving organisational objectives, including reliable financial reporting, safeguarding of assets, and compliance with regulations. It encompasses five key elements, namely the control environment, risk assessment, control activities, information and communication, and monitoring, which are consistent with the principles established in the COSO framework (COSO, 2013).

In parallel, the implementation of electronic procurement has been promoted as a means of enhancing transparency, efficiency, and accountability in public sector transactions. As regulated under Presidential Regulation No. 46 of 2025, e-procurement refers to the use of

information technology to manage procurement processes through electronic systems (Perpres 46, 2025). By standardising procedures and increasing traceability, e-procurement is expected to reduce opportunities for manipulation and improve the integrity of procurement activities (Jiménez et al., 2022).

Fraud deterrence, in this study, is understood as a set of actions aimed at reducing the likelihood of fraudulent behaviour by increasing the perceived risk of detection and consequences. It focuses on influencing decision-making by creating conditions in which potential perpetrators are discouraged from engaging in unethical or illegal actions (Richter & Burke, 2007; Cendrowski et al., 2012; Graycar & Prenzler, 2013). While the concept is acknowledged in auditing standards, it is often conflated with fraud prevention and has not been sufficiently developed as a distinct governance construct.

To address this gap, this study adopts the Fraud Deterrence Propeller, or DETERE framework, which conceptualises fraud deterrence as an integrated mechanism that combines prevention, monitoring, behavioural reinforcement, communication, and legal enforcement (Koerniawan et al., 2022; Koerniawan, 2024a; Koerniawan et al., 2024c, 2025a). This framework provides a more holistic perspective by linking structural control mechanisms with behavioural and organisational dynamics.

Accordingly, this study contributes to the literature in two main ways. First, it assesses the maturity of fraud deterrence practices in local governments using the DETERE framework. Second, it examines the individual and combined effects of SPIP and e-procurement on fraud deterrence within Indonesian local government institutions. By doing so, the study offers both theoretical and practical insights into how governance mechanisms can be strengthened to support more effective anti-corruption strategies in decentralised government settings.

While this study builds on a similar empirical context, it advances prior work by reframing fraud deterrence as an integrated governance outcome and by examining the gap between formal system implementation and behavioural effectiveness.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Stewardship theory explains that managers are motivated by the collective success of the organisation rather than individual interests, emphasising accountability and responsible governance (Davis et al., 1997). Within the public sector context, government actors are expected to act as stewards by implementing policies and control mechanisms that enhance organisational performance and reduce the risk of fraud, particularly in procurement processes (Power, 2013; ICW, 2023; Jiménez et al., 2022; Tarjo et al., 2022).

In this regard, the Government Internal Control System (SPIP) represents a structured institutional mechanism designed to support effective governance. As defined in PP No. 60 (2008), SPIP is a comprehensive process involving leadership and employees to ensure operational effectiveness, reliable financial reporting, asset protection, and regulatory compliance. It comprises five key elements: control environment, risk assessment, control activities, information and communication, and monitoring. Complementing this, e-procurement systems, as mandated under Perpres 46 (2025), utilise information technology to enhance transparency and reduce institutional weaknesses in procurement processes, including risks of manipulation and corruption (Anechiarico & Jacobs, 1996; Graycar & Prenzler, 2013; Jiménez et al., 2022; ICW, 2023; Koerniawan et al., 2025a).

From a behavioural perspective, the Theory of Planned Behaviour (TPB) explains that individual actions are shaped by behavioural intentions, which are influenced by attitudes, subjective norms, and perceived behavioural control (Ajzen, 1991). Attitudes reflect individual evaluations of behaviour, subjective norms represent perceived social expectations, and perceived behavioural control captures an individual's belief in their ability to perform a

behaviour. These components collectively determine whether individuals are more likely to engage in or refrain from opportunistic actions.

This perspective is further strengthened by social learning theory, which emphasises that behaviour is influenced by observation, modelling, and reinforcement within a social environment (Bandura, 1969b, 1969a, 1974). Individuals learn not only from direct experience but also by observing the actions and consequences experienced by others. As such, organisational behaviour, including tendencies toward fraudulent actions, can be shaped by prevailing norms, leadership practices, and reinforcement mechanisms within institutions.

The integration of TPB and social learning theory highlights that behavioural outcomes are not solely driven by formal rules but also by social influence and experiential learning. Both perspectives suggest that attitudes, norms, and observed behaviour within organisations play a critical role in shaping ethical or unethical conduct.

In this context, fraud deterrence is understood as a strategic effort to reduce the likelihood of fraud by influencing both structural conditions and behavioural responses. It involves increasing the perceived risk of detection, strengthening internal controls, and enforcing consequences that discourage fraudulent actions (Cressey, 1953; Cendrowski et al., 2012; Biegelman & Bartow, 2012; Albrecht et al., 2018; Koerniawan et al., 2024c).

To operationalise this concept, the Fraud Deterrence Propeller or DETERE Model provides a comprehensive framework comprising due diligence, continuous improvement, truthfulness and respect, behavioural reinforcement, and enforcement mechanisms (Koerniawan et al., 2022, 2024b). These components collectively emphasise that effective fraud deterrence requires not only formal control systems but also behavioural alignment and organisational commitment. (AL-Kharusi & Matriano, 2022; Hamed, 2023; Fitz Verploegh et al., 2025).

SPIP (Government's Internal Control System) and Fraud Deterrence

Internal control systems play a central role in strengthening organisational accountability and reducing opportunities for fraudulent behaviour. In the public sector, SPIP functions as a comprehensive control framework that supports risk management, monitoring, and compliance processes. Effective implementation of SPIP enhances organisational discipline and increases the likelihood of detecting irregularities, thereby discouraging potential fraud.

Prior studies have demonstrated that stronger internal control systems are associated with improved fraud prevention and control outcomes (Abdullahi & Mansor, 2018; Afriyie et al., 2023; Nadirsyah et al., 2024; Mabel et al., 2025; Nisa et al., 2026). Based on this reasoning, the following hypothesis is proposed:

H1: SPIP positively influences fraud deterrence.

E-Procurement and Fraud Deterrence

E-procurement systems contribute to fraud deterrence by increasing transparency, standardising procurement procedures, and reducing discretionary decision-making. Through digitalisation, these systems limit opportunities for manipulation and enhance traceability in public sector transactions. (Bisogno et al., 2025; Moggi et al., 2025).

Empirical evidence suggests that the adoption of e-procurement significantly reduces fraud risks and improves governance outcomes (PP No. 60, 2008; Dorminey et al., 2012; Fitri et al., 2019; ICW, 2023; KPK, 2024). Accordingly, the following hypothesis is proposed:

H2: E-procurement positively influences fraud deterrence.

Integration of SPIP and E-Procurement in Fraud Deterrence

The combined implementation of internal control systems and digital procurement mechanisms is expected to produce a stronger deterrent effect than either mechanism alone. While SPIP provides a structured control environment, e-procurement enhances transparency and reduces operational discretion. Together, these mechanisms reinforce governance processes and create a more comprehensive anti-fraud system.

Therefore, the following hypothesis is proposed:

H3: SPIP and e-procurement jointly influence fraud deterrence.

METHODOLOGY

This study adopts a quantitative research design to examine the relationship between internal control systems (SPIP), e-procurement, and fraud deterrence in Indonesian local governments. The quantitative approach is appropriate as the study aims to test theoretically grounded relationships between governance mechanisms and behavioural outcomes using empirical data.

The data were collected from 55 respondents consisting of government officials involved in financial management and procurement processes across local government institutions in Java. These respondents were selected based on their direct involvement in internal control implementation and procurement activities, ensuring that the data reflect actual governance practices rather than general perceptions.

All variables were measured using structured instruments developed based on prior literature and regulatory frameworks. SPIP was operationalised through indicators reflecting control environment, risk assessment, control activities, information and communication, and monitoring, consistent with PP No. 60 (2008). E-procurement was measured through indicators capturing system transparency, procedural standardisation, and the utilisation of digital platforms in procurement processes (Perpres 46, 2025). Fraud deterrence was measured using indicators derived from the DETERE framework, reflecting the extent to which organisations implement preventive, monitoring, and enforcement mechanisms to reduce fraud risk (Cendrowski et al., 2012; Koerniawan, 2024a).

Table 1 presents the measurement of variables, including their roles within the model, operational dimensions, and supporting references.

Table 1. Number of Research Samples

Regional Government in the Provinces of Java	Total Population of Selected Local Governments	Number of Local Government Samples Selected	Total Number of Regional Officials as Research Samples
East Java	10	9	18
Central Java	10	8	16
West Java	10	8	16
Banten Province	5	3	5
Total	35	28	55
Total Sample			55

Source: processed research data

Data analysis was conducted using multiple regression analysis to assess both the individual and combined effects of SPIP and e-procurement on fraud deterrence. Prior to hypothesis testing, standard diagnostic tests were performed to ensure the validity and robustness of the model, including tests of normality, multicollinearity, and heteroscedasticity.

The regression model is specified as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

Where Y represents fraud deterrence, X_1 denotes SPIP, and X_2 represents e-procurement, α is the constant term, β_1 – β_3 are regression coefficients, and ε is the error term.

This specification allows the study to evaluate both the direct effects of governance mechanisms and their combined influence on fraud deterrence within public sector organisations.

RESULTS

The empirical analysis shows that both internal control systems (SPIP) and e-procurement contribute positively to fraud deterrence, both individually and collectively. These findings indicate that governance mechanisms play a meaningful role in reducing opportunities for fraud within local government institutions.

Descriptive Statistics

Descriptive statistics are used to summarize the characteristics of the data without drawing inferential conclusions (Sugiyono, 2023; Bougie & Sekaran, 2025).

Table 2. Results of Descriptive Statistical Analysis

Variable	Maximum Index Value	Score Total	%	Category
Government Internal Control System	1925	1734	90.10%	Very Good
<i>E-Procurement</i>	3850	3595	93.40%	Very Good
<i>Fraud Deterrence</i>	2475	2209	89%	Very Good

Source: Research Results

The results in Table 2 indicate that all variables are assessed at a high level of implementation. SPIP records a score of 1734, representing 90.1 percent of the expected value, while e-procurement achieves 3595 or 93.4 percent. Fraud deterrence shows a score of 2209, equivalent to approximately 89 percent of the expected value. All variables fall within the “very good” category.

These findings suggest that formal governance mechanisms, particularly internal control systems and digital procurement practices, have been widely implemented within local government institutions. From a structural perspective, this indicates that regulatory frameworks and administrative systems are in place and functioning at a relatively high level.

However, the persistence of corruption cases in local government contexts points to a gap between formal system implementation and actual behavioural outcomes. High scores in SPIP and e-procurement do not necessarily guarantee effective fraud deterrence if monitoring practices are weak, enforcement is inconsistent, or organisational culture does not fully

support integrity.

This discrepancy highlights that fraud deterrence is not solely determined by the presence of formal control systems, but also by how these systems are implemented, monitored, and reinforced in practice. It suggests that governance effectiveness depends on both institutional design and behavioural alignment within organisations.

More importantly, these findings indicate that high levels of formal implementation do not necessarily translate into effective deterrence outcomes. This suggests a divergence between institutional design and behavioural enforcement, where governance systems may appear strong in structure but remain limited in influencing actual organisational conduct.

Normality Test Results (One-Sample Kolmogorov-Smirnov)

Table 3 Summarizes the Normality Test Results.

		Unstandardized Residual
N		55
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	2.90155200
Most Extreme Differences	Absolute	.181
	Positive	.079
	Negative	-.181
Test Statistic		.181
Asymp. Sig. (2-tailed)		.000 ^c
Exact Sig. (2-tailed)		.047

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

Source: Research Results

The normality test results presented in Table 3 show that the asymptotic significance value is below 0.05, which initially suggests a non-normal distribution. However, when using the exact significance criterion, the value exceeds 0.05, indicating that the data can be treated as normally distributed. Based on this result, the dataset satisfies the normality assumption and is appropriate for regression analysis.

Multicollinearity Test

Table 4. Multicollinearity Test Results

		Coefficients				Collinearity Statistics	
		Unstandardized Coefficients		Standardized Coefficients			
Model		B	Std. Error	Beta	t	Sig.	Tolerance VIF
1	(Constant)	-5.672	4.639		-1.223	.227	
	X ₁	.908	.161	.595	5.644	.000	.552 1.812
	X ₂	.263	.093	.299	2.834	.007	.552 1.812

a. Dependent Variable: Y

Source: Research Results

As shown in Table 4, the tolerance values for all independent variables are above 0.01, and the variance inflation factor values are below 10. These results indicate that there is no strong correlation among the independent variables. Therefore, the model satisfies the assumption of multicollinearity and can be used for further analysis.

Testing for Heteroscedasticity

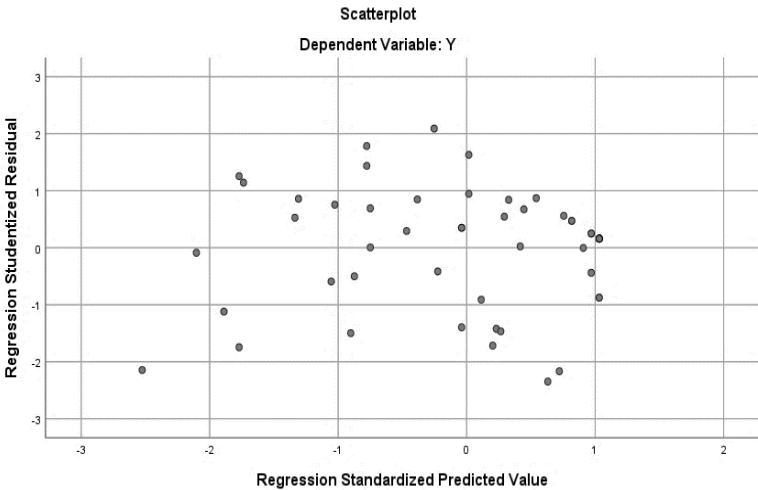


Figure 1. Heteroscedasticity Test Results

The heteroscedasticity test results are illustrated in Figure 1. The scatterplot shows that residual values are randomly distributed above and below the zero line, without forming a specific pattern. This indicates that heteroscedasticity is not present, and the regression model is suitable for estimating the relationship between the variables.

Multiple Linear Regression Analysis

Table 5. Multiple Linear Regression Analysis Test Results

Coefficients

Model		Unstandardized Coefficients	
		B	Std. Error
1	(Constant)	-5.672	4.639
	X1	.908	.161
	X2	.263	.093

a. Dependent Variable: Y

Source: Research Results

As presented in Table 5, the regression results show positive coefficients for both SPIP and e-procurement. The estimated regression equation is as follows:

$$Y = -5.672 + 0.908 X_1 + 0.263 X_2$$

The coefficients reported in Table 5 indicate that improvements in SPIP and e-procurement are associated with higher levels of fraud deterrence. The coefficient for SPIP is larger than that of e-procurement, suggesting that internal control systems play a more substantial role in influencing fraud deterrence within the observed institutions. The constant represents the baseline level of fraud deterrence when the independent variables are not considered, although its practical interpretation remains limited.

Partial Test (t-Test)

Table 6. Partial Test Results (t-Test)

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-5.672	4.639		-1.223	.227
	X ₁	.908	.161	.595	5.644	.000
	X ₂	.263	.093	.299	2.834	.007

a. Dependent Variable: Y

Source: Research Results

The partial test results reported in Table 6 indicate that both SPIP and e-procurement have statistically significant effects on fraud deterrence. SPIP shows a significant value of 0.000, while e-procurement records 0.007, both below the 0.05 threshold. These findings confirm that each variable independently contributes to strengthening fraud deterrence in local government institutions.

Coefficient of Determination (R²)

Table 7. Results of the Coefficient of Determination (R²)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.825 ^a	.681	.669	2.957

a. Predictors: (Constant), X₂, X₁

Source: Research Results

As shown in Table 7, the adjusted R-squared value is 0.669. This indicates that approximately 66.9 percent of the variation in fraud deterrence can be explained by SPIP and e-procurement. The remaining 33.1 percent is associated with other factors not included in the model, suggesting that fraud deterrence is influenced by additional organisational and behavioural elements beyond the variables examined in this study.

Hypotheses Testing

Table 8. Hypothesis Testing Results F Test

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	970.901	2	485.451	55.526	.000 ^b
	Residual	454.626	52	8.743		
	Total	1425.527	54			

a. Dependent Variable: Y

b. Predictors: (Constant), X₂, X₁

The results of the simultaneous test presented in Table 8 show a significance value of 0.000, which is below the 0.05 threshold. This indicates that SPIP and e-procurement jointly have a statistically significant effect on fraud deterrence. Thus, the proposed model is supported, confirming that governance mechanisms collectively contribute to reducing fraud risk in local government institutions.

The partial test results (Table 6) provide further insight into the individual effects of each independent variable. SPIP demonstrates a significant positive effect on fraud deterrence, suggesting that stronger internal control systems enhance fraud prevention and control. This finding is consistent with prior studies highlighting the critical role of internal control systems in mitigating fraud risk (Apriliyanti et al., 2021; Biegelman & Bartow, 2012; Hamed, 2023; Nadirsyah et al., 2024; Nisa et al., 2026).

Similarly, e-procurement shows a significant positive effect on fraud deterrence, indicating that increased transparency and standardisation in procurement processes reduce opportunities for fraudulent practices. This result aligns with previous research demonstrating the effectiveness of digital procurement systems in improving accountability and minimising fraud risk (Galindo Pasache et al., 2024; Gong & Lau, 2024; Bisogno et al., 2025).

Overall, these findings confirm that SPIP and e-procurement play complementary roles in strengthening fraud deterrence. While SPIP establishes a robust control environment, e-procurement enhances transparency and limits discretionary behaviour, thereby creating a more comprehensive governance framework.

DISCUSSION

The findings of this study indicate that both SPIP and e-procurement have a significant and positive effect on fraud deterrence, both individually and collectively. This suggests that formal governance mechanisms, particularly internal control systems and digital procurement processes, play an important role in strengthening accountability and reducing opportunities for fraud in local government institutions.

This study extends prior empirical work by demonstrating that governance effectiveness cannot be evaluated solely based on the presence or maturity of control systems, but must be understood through the interaction between structural mechanisms and behavioural dynamics within organisations.

Despite these positive results, an important inconsistency remains. Corruption cases continue to occur in regional governments even though SPIP and e-procurement are implemented at a very good level. This paradox highlights a critical gap between the formal presence of governance systems and their actual effectiveness in practice. It suggests that the existence of control mechanisms alone is not sufficient to ensure effective fraud deterrence.

Several interrelated factors may explain this gap. First, inadequate supervision can limit the effectiveness of SPIP and e-procurement. Although these systems are formally established,

their implementation may not be consistently monitored or evaluated. Effective internal control requires continuous oversight, adaptation to changing conditions, and reinforcement through additional mechanisms such as Fraud Control Plans and whistleblowing systems (Erisnanto & Perdana, 2018; Putra et al., 2022; Benson et al., 2023; Abdullah et al., 2024; Department of Finance, 2024; Setiawan et al., 2024). Without strong supervision, even well-designed systems may fail to prevent irregularities.

Second, non-compliance with ethical standards and weak law enforcement can undermine governance effectiveness. Fraud often arises when individuals or groups do not adhere to established rules or when sanctions are not consistently applied (Richter & Burke, 2007; Dorminey et al., 2012). In such cases, formal systems may exist, but their deterrent effect becomes limited because the perceived risk of detection and punishment is low.

Third, human factors and organisational culture play a critical role in shaping behaviour. An organisational environment that tolerates unethical practices or lacks strong ethical leadership can weaken the effectiveness of both SPIP and e-procurement (Khalid et al., 2016; Apriliyanti et al., 2021; Jiménez et al., 2022). This indicates that governance systems must be supported by a culture of integrity and accountability to function effectively.

From a theoretical perspective, these findings can be interpreted through several complementary frameworks. Stewardship theory suggests that public officials are expected to act as stewards who prioritise organisational and public interests (Davis et al., 1997). However, the persistence of corruption indicates that this expectation is not always realised, as individual incentives and opportunistic behaviour may override institutional responsibilities.

Unlike prior studies that predominantly focus on fraud prevention, this study explicitly positions fraud deterrence as a behavioural governance outcome, emphasising how control systems influence decision making, perception of risk, and organisational responses to potential misconduct.

The Theory of Planned Behaviour further explains that behaviour is influenced by intentions, which are shaped by attitudes, subjective norms, and perceived behavioural control (Ajzen, 1991; Ajzen & Fishbein, 2005). Even when SPIP and e-procurement systems are in place, fraudulent behaviour may persist if individuals do not internalise ethical values or perceive weak enforcement of rules.

In addition, social learning theory suggests that behaviour is influenced by observation and interaction within the organisational environment (Bandura, 1969a, 1969b). In contexts where corrupt behaviour is observed and insufficiently sanctioned, individuals may adopt similar patterns of behaviour, thereby weakening the deterrent effect of formal control systems.

From a governance perspective, SPIP and e-procurement provide important structural mechanisms for enhancing transparency, accountability, and efficiency. However, their effectiveness depends on consistent implementation, strong monitoring, and alignment with organisational values. Weaknesses in any of these aspects can reduce their ability to prevent fraud and corruption.

The Fraud Deterrence Propeller Protocol further emphasises that effective fraud deterrence requires an integrated approach that combines prevention, detection, handling, and recovery mechanisms (Koerniawan, 2024a; Koerniawan et al., 2022, 2024b, 2024c, 2025a). The effectiveness of this framework depends not only on formal procedures but also on reinforcement, communication, and organisational commitment to ethical behaviour. (Burgess & Akers, 1966).

Overall, these findings suggest that fraud deterrence is not solely a function of formal governance design, but also depends on behavioural, organisational, and institutional factors. Effective anti-corruption strategies, therefore, require a comprehensive approach that integrates strong internal control systems, transparent digital governance, consistent law

enforcement, and the development of an organisational culture that promotes integrity and accountability (IAASB-ISA, 2025).

IMPLICATIONS AND RECOMMENDATIONS

The findings of this study have important implications for strengthening fraud deterrence in Indonesian local governments. The results confirm that SPIP and e-procurement are effective governance mechanisms for reducing fraud risk. However, their effectiveness depends not only on their formal implementation, but also on the quality of supervision, enforcement, and organisational commitment.

From a governance perspective, local governments need to strengthen supervision over the implementation of SPIP and e-procurement. Continuous internal and external audits are necessary to ensure that procedures are consistently applied and adapted to evolving risks. The integration of additional control mechanisms, such as Fraud Control Plans and whistleblowing systems, can further enhance the effectiveness of fraud deterrence efforts.

From a behavioural perspective, ethics and legal awareness training should be reinforced to improve individual accountability. Training programmes can be designed not only to provide knowledge but also to influence attitudes, subjective norms, and perceived behavioural control, as suggested by the Theory of Planned Behaviour. Strengthening ethical awareness is essential to ensure that governance systems are supported by individual commitment to integrity.

Organisational culture also plays a critical role. Local governments should promote a culture that emphasises accountability, transparency, and ethical behaviour. This may include the development of clear codes of conduct, incentive systems that reward integrity, and the establishment of dedicated working groups responsible for driving cultural change within institutions. Such initiatives are important to address behavioural patterns that may undermine formal governance systems.

In addition, community involvement can serve as an important external control mechanism. Public participation, transparency initiatives, and community-based monitoring can strengthen accountability and reduce opportunities for corruption. Applying principles from social learning theory, governments can promote positive role models and reinforce ethical behaviour through public education and communication strategies.

Institutionally, the establishment of independent oversight bodies can enhance the credibility and effectiveness of governance systems. These bodies should operate with sufficient authority and independence to monitor the implementation of SPIP and e-procurement, and to provide objective recommendations without political interference.

From a theoretical standpoint, this study contributes to the literature by integrating Stewardship Theory, the Theory of Planned Behaviour, and Social Learning Theory to explain fraud deterrence in the public sector. The findings demonstrate that fraud deterrence is not solely determined by structural control mechanisms, but also by behavioural and organisational factors. The application of the Fraud Deterrence Propeller Protocol further provides a comprehensive framework for understanding how prevention, monitoring, communication, and enforcement mechanisms can be combined to strengthen anti-corruption strategies.

Overall, the study highlights that effective fraud deterrence requires an integrated approach that aligns governance structures, behavioural interventions, and institutional enforcement. Strengthening this alignment is essential for ensuring that governance reforms lead to meaningful improvements in transparency, accountability, and integrity in local government management.

CONCLUSION

This study demonstrates that internal control systems and e-procurement play a significant role in strengthening fraud deterrence in local government institutions. The findings confirm that SPIP and e-procurement contribute both individually and collectively to reducing opportunities for fraud.

However, the study also reveals a critical insight. The existence of well-implemented governance mechanisms does not automatically eliminate corruption. This highlights a gap between formal system design and actual behavioural outcomes, indicating that fraud deterrence depends not only on structural controls but also on how these controls are implemented, monitored, and reinforced in practice.

By integrating Stewardship Theory, the Theory of Planned Behaviour, and Social Learning Theory, this study provides a more comprehensive explanation of fraud deterrence as a governance and behavioural outcome. The application of the Fraud Deterrence Propeller Protocol further extends this perspective by emphasising the importance of combining prevention, monitoring, communication, and enforcement mechanisms.

From a practical perspective, the findings suggest that effective anti-corruption strategies require more than formal compliance. Strengthening supervision, enhancing ethical awareness, promoting organisational integrity, and ensuring consistent enforcement are essential to maximise the effectiveness of governance systems.

Overall, this study contributes to the literature by demonstrating that fraud deterrence is not solely determined by the presence of control mechanisms, but by the alignment between governance structures, organisational behaviour, and institutional enforcement. This insight provides a clearer basis for future research on public sector governance and more effective anti-corruption strategies.

REFERENCES

Abdullah, M. W., Nurmelani, Andi Yustika Manrimawagau Bayan, & Hadriana Hanafie. (2024). Strengthening Fraud Control Plan For Investigative Audit And Probity Audit In Fraud Detection. *Jurnal Akuntansi*, 28(3), 479-497. <https://doi.org/10.24912/ja.v28i3.2181>

Abdullahi, R., & Mansor, N. (2018). Fraud prevention initiatives in the Nigerian public sector: Understanding the relationship of fraud incidents and the elements of fraud triangle theory. *Journal of Financial Crime*, 25(2), 527-544. <https://doi.org/10.1108/JFC-02-2015-0008>

Afriyie, S. O., Akomeah, M. O., Amoakohene, G., Ampimah, B. C., Ocloo, C. E., & Kyei, M. O. (2023). Forensic Accounting: A Novel Paradigm and Relevant Knowledge in Fraud Detection and Prevention. *International Journal of Public Administration*, 46(9), 615-624. <https://doi.org/10.1080/01900692.2021.2009855>

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)

Ajzen, I., & Fishbein, M. (2005). The Influence of Attitudes on Behavior. In *The Handbook of Attitudes* (D. Albarracín, B. T. Johnson, M. P. Zanna, pp. 173-221). Lawrence Erlbaum Associates Publishers.

Albrecht, W. S., Albrecht, C. C., Albrecht, C. O., & Zimbelman, M. F. (2018). *Fraud Examination* (6th ed.). Cengage Learning.

AL-Kharusi, J. K. N. Y., & Matriano, M. T. (2022). The Impact of Internal Control Systems on the Quality of Financial Reports. *Global Scientific Journal*, 10(6).

Anechiarico, F., & Jacobs, J. B. (1996). *The Pursuit of Absolute Integrity How Corruption Control Makes Government Ineffective*. The University of Chicago Press.

Apriliyanti, I. D., Kusumasari, B., Pramusinto, A., & Setianto, W. A. (2021). Digital divide in ASEAN member states: Analyzing the critical factors for successful e-government programs. *Online Information Review*, 45(2), 440-460.
<https://doi.org/10.1108/OIR-05-2020-0158>

Bandura, A. (1974). Self-Efficacy. In *Encyclopedia of Human Behavior* (Ramachaudran, V.S., Vol. 4, pp. 71-81). Academic Press.

Bandura, A. (1969b). Social learning of moral judgments. *Journal of Personality and Social Psychology*, 11(3), 275-279. <https://doi.org/10.1037/h0026998>

Bandura, A. (1969a). Social-Learning Theory of Identificatory Processes. In *Handbook of Socialization Theory and Research* (Goslin, DA., pp. 213-262). Rand McNally & Company.

Benson, M. L., Simpson, S. S., Rorie, M., & Kennedy, J. P. (2023). *White-Collar Crime: An Opportunity Perspective* (4th ed.). Routledge. <https://doi.org/10.4324/9781003175322>

Biegelman, M. T., & Bartow, J. T. (Eds.). (2012). *Executive Roadmap to Fraud Prevention and Internal Control: Creating a Culture of Compliance* (1st ed.). Wiley.
<https://doi.org/10.1002/9781119202356>

Bisogno, M., Caruana, J., Lino, A., Jorge, S., & Roje, G. (2025). Editorial: Navigating non-linear reforms in public sector accounting, towards digitalization, sustainability and usability. *Public Money & Management*, 45(8), 837-840.
<https://doi.org/10.1080/09540962.2025.2573568>

Bougie, R., & Sekaran, U. (2025). *Research Methods for Business: A Skill Building Approach*, 9th Edition (9th ed.). UK, West Sussex: John Wiley & Sons Ltd.

Burgess, R. L., & Akers, R. L. (1966). A Differential Association-Reinforcement Theory of Criminal Behavior. *Social Problems*, 14(2), 128-147.
<https://doi.org/10.1525/sp.1966.14.2.03a00020>

Cendrowski, H., Martin, J., & Petro, L. (Eds.). (2012). *The Handbook of Fraud Deterrence* (1st ed.). Wiley. <https://doi.org/10.1002/9781119202165.ch1>

COSO. (2013). Internal Control - Integrated Framework. Committee of Sponsoring Organizations of the Treadway Commission.

Cressey, D. R. (1953). Other People's Money: A Study in the Social Psychology of Embezzlement. Free Press.

Davis, J. H., Schoorman, F. D., & Donaldson, L. (1997). Toward a Stewardship Theory of Management. *The Academy of Management Review*, 22(1), 20.
<https://doi.org/10.2307/259223>

Department of Finance. (2024). Fraud and Corruption Control Plan (ClauseBank). Australian Government.
<https://www.finance.gov.au/government/procurement/clausebank/fraud-and-corruption-control-plan>

Dorminey, J., Fleming, A. S., Kranacher, M.-J., & Riley, R. A. (2012). The Evolution of Fraud Theory. *Issues in Accounting Education*, 27(2), 555-579.
<https://doi.org/10.2308/iace-50131>

Erisnanto, M., & Perdana, H. D. (2018). Violation Reporting System as the Implementation of Fraud Control Plan in the Public Sector. *Asia Pacific Fraud Journal*, 3(2), 307-318.
<https://doi.org/10.21532/apfjournal.v3i2.86>

Fitri, F., Syukur, M., & Justisa, G. (2019). Do The Fraud Triangle Components Motivate Fraud In Indonesia? *Australasian Accounting, Business and Finance Journal*, 13(4), 63-72.
<https://doi.org/10.14453/aabfj.v13i4.5>

Fitz Verploegh, R., Budding, T., & Wassenaar, M. (2025). The relationship between management control systems and strategy: How management control systems are designed and used in the public policy context of Dutch ministries. *Journal of Public Budgeting, Accounting & Financial Management*, 37(6), 302-323. <https://doi.org/10.1108/JPBAFM-01-2025-0002>

Galindo Pasache, R. L., Cano Legua, F. E., Massa Palacios, L. A., & Gabriel Hernández, O. T. (2024). Efficiency of public services in the digital era. *Revista Venezolana de Gerencia*, 29(108), 1713-1725. Scopus.
<https://doi.org/10.52080/rvgluz.29.108.15>

Gong, T., & Lau, C. H. (2024). Navigating anti-corruption strategies. *Global Public Policy and Governance*, 4(3), 225-230.
<https://doi.org/10.1007/s43508-024-00099-0>

Graycar, A., & Prenzler, T. (2013). Understanding and Preventing Corruption. Palgrave Macmillan UK. <https://doi.org/10.1057/9781137335098>

Hamed, R. (2023). The Role of Internal Control Systems in Ensuring Financial Performance Sustainability. *Sustainability*, 15(13), 10206.
<https://doi.org/10.3390/su151310206>

IAASB-ISA. (2025). ISA 240 (Revised), The Auditor's Responsibilities Relating to Fraud in an Audit of Financial Statements. IAASB, IFAC.

ICW. (2023). Mapping Fraud Potentials in E-Purchasing Procurement in Indonesia. Indonesia Corruption Watch.

Jiménez, A., Hanoteau, J., & Barkemeyer, R. (2022). E-procurement and firm corruption to secure public contracts: The moderating role of governance institutions and supranational support. *Journal of Business Research*, 149, 640-650.
<https://doi.org/10.1016/j.jbusres.2022.05.070>

Khalid, M. A., Alam, Md. M., & Said, J. (2016). Empirical Assessment of Good Governance in the Public Sector of Malaysia. *Economics & Sociology*, 9(4), 289-304.
<https://doi.org/10.14254/2071-789X.2016/9-4/18>

Koerniawan, K. A. (2024a). *Fraud Theories & Fraud Deterrence Propeller* (1st ed.). Tel-U Press. <https://telupress.telkomuniversity.ac.id/product/fraud-theories-fraud-deterrence-propeller/>

Koerniawan, K. A., Afiah, N. N., Sueb, M., & Suprijadi, J. (2022). Fraud Deterrence: The Management's Intention in Using FCP. *Quality - Access to Success*, 23(190), 292-301.
<https://doi.org/10.47750/QAS/23.190.31>

Koerniawan, K. A., Murti, G. T., Saraswati, R. S., & Hilda, H. (2024b). Assessing Fraud Deterrence In Private Health Clinics: Policy Implications From West Java. *Jurnal Reviu Akuntansi Dan Keuangan*, 14(2), 350-379.
<https://doi.org/10.22219/jrak.v14i2.32903>

Koerniawan, K. A., Salim, D. F., Isyнуwardhana, D., Pratomo, D., Murti, G. T., & Fidhien, F. G. (2025a). Integrating Fraud Deterrence Propeller and Continuous Auditing for Enhanced Fraud Detection and Sustainability. *ABAC Journal*, 45(4).
<https://doi.org/10.59865/abacj.2025.38>

Koerniawan, K. A., Triyanto, D. N., Wahyuni, D., & Farida, A. L. (2024c). Fraud Deterrence Propellers for Internal Control Quality Improvement. *Quality-Access to Success*, 25(203), 69-82. <https://doi.org/10.47750/QAS/25.203.08>

KPK. (2024). Laporan Tahunan KPK 2024 (p. 235). Komisi Pemberantasan Korupsi.

Mabel, S. N., Payamta, P., & Winarna, J. (2025). The development of fraud prevention policies in the public sector: A bibliometric analysis. *Jurnal Akuntansi & Auditing Indonesia*, 119-133. <https://doi.org/10.20885/jaai.vol29.iss1.art10>

- Moggi, S., Zardini, A., & Rossignoli, C. (2025). When digitalisation enhances public (in)efficiency. *Journal of Public Budgeting, Accounting & Financial Management*, 1-17. <https://doi.org/10.1108/JPBAFM-10-2024-0216>
- Nadirisyah, Indriani, M., & Mulyany, R. (2024). Enhancing fraud prevention and internal control: The key role of internal audit in public sector governance. *Cogent Business & Management*, 11(1), 2382389. <https://doi.org/10.1080/23311975.2024.2382389>
- Nisa, A. R., Zuhroh, D., & Cahyaningsih, D. S. (2026). Effects of regional information and internal control systems on financial report quality and fraud prevention. *Journal of Contemporary Accounting*, 1-12. <https://doi.org/10.20885/jca.vol8.iss1.art1>
- Perpres 46. (2025). Peraturan Presiden Nomor 46 Tahun 2025.
- Power, M. (2013). The apparatus of fraud risk. *Accounting, Organizations and Society*, 38(6-7), 525-543. <https://doi.org/10.1016/j.aos.2012.07.004>
- PP No. 60. (2008). PP No. 60 tahun 2008 tentang SPIP (Indonesian Government Regulation No. 60 of 2008 concerning the Government Internal Control System). Sekretariat Negara Republik Indonesia.
- Putra, I., Sulistiyo, U., Diah, E., Rahayu, S., & Hidayat, S. (2022). THE INFLUENCE OF INTERNAL AUDIT, RISK MANAGEMENT, WHISTLEBLOWING SYSTEM AND BIG DATA ANALYTICS ON THE FINANCIAL CRIME BEHAVIOR PREVENTION. *Cogent Economics & Finance*, 10(1), 2148363. <https://doi.org/10.1080/23322039.2022.2148363>
- Richter, W. L., & Burke, F. (2007). *Combating Corruption, Encouraging Ethics: A Practical Guide to Management Ethics* (2nd ed.). The American Society for Public Administration, Rowman & Littlefield Publishers. <https://doi.org/10.5040/9798216425090>
- Setiawan, D. A., Mais, R. G., Kurniawan, R. R., & Sari, H. I. (2024). Fraud Control Plan System: The Role Investigation Division In Fraud Prevention. Is The Best Accounting Information Systems and Information Technology Business Enterprise This Is Link for OJS Us, 9(2), 136-150. <https://doi.org/10.34010/aisthebest.v9i2.15053>
- Sugiyono. (2023). *Metode penelitian kuantitatif, kualitatif dan R&D*. CV. Alfabeta.
- Tarjo, T., Vidyantaha, H. V., Anggono, A., Yuliana, R., & Musyarofah, S. (2022). The effect of enterprise risk management on prevention and detection fraud in Indonesia's local government. *Cogent Economics & Finance*, 10(1), 2101222. <https://doi.org/10.1080/23322039.2022.2101222>
- Transparency International (Ed.). (2024). *Corruption Perceptions Index 2023*. Transparency International.