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Examining the integrity of whistleblowing systems and apparatus in the context of fraud prevention

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ABSTRACT

This study aims to analyze the impact of the whistleblowing system and personnel integrity on fraud prevention at the Inspectorate Offices in South Sulawesi Provincial and Makassar City, Indonesia. Using a quantitative research design, primary data were collected through electronic questionnaires distributed to 70 auditors in these offices. The relationship between the independent variables (whistleblowing system and personnel integrity) and the dependent variable (fraud prevention) was analyzed using multiple regression. The findings revealed that both variables positively and significantly influence fraud prevention. Specifically, the whistleblowing system enables early detection of fraudulent activities, while high personnel integrity is essential for effective fraud mitigation. These results support the hypothesis that robust whistleblowing mechanisms and strong integrity within institutions play a crucial role in preventing fraud. The study highlights the importance of fostering a culture of transparency and accountability by implementing an integrated whistleblowing system and encouraging individuals to report fraud or violations without fear of retribution. This is vital for maintaining organizational integrity and financial health. Thus, organizations should focus on establishing comprehensive strategies that enhance both whistleblowing mechanisms and personnel integrity to ensure effective fraud prevention and the promotion of ethical conduct within institutions.

Contribution/Originality: This study uniquely examines the dual influence of the whistleblowing system and personnel integrity on fraud prevention within the Inspectorate Offices of South Sulawesi Province and Makassar City. It emphasizes contextual insights specific to Indonesia's public sector, offering novel recommendations for enhancing governance and fraud prevention strategies.

1. INTRODUCTION

Fraud refers to a type of deception intended for personal gain or to inflict harm on others (Alfordy, 2022; Paranoan, Sabandar, Paranoan, Pali, & Pasulu, 2022). Various factors can drive individuals to engage in fraudulent activities, as proposed by Achmad, Ghozali, and Pamungkas (2022) which include pressure, opportunity, and rationalization, forming the basis of the fraud triangle concept. Over time, this concept evolved into the fraud diamond, fraud pentagon, and the most recent iteration, the hexagon fraud, developed by Kakati and Goswami (2019). The ACFE (Association of Certified Fraud Examiners) categorizes organizational fraud into corruption, misuse of assets, and financial statement fraud. According to the Trihargo (2016) survey, organizations face an

average annual loss of 5% of their revenue due to fraudulent activities. Aside from financial losses, fraud also tarnishes a company's reputation, particularly among investors and creditors, leading to their reluctance to invest in or extend loans to the company.

Fraud cases in the public sector of developing countries are particularly concerning. Poor institutional conditions contribute to this (Abdul Aziz & Othman, 2021; Paranoan, Randa, Christy, Pala'langan, & Eda, 2024). Survey *Fraud* Indonesia in 2019 produced by ACFE Indonesia ACFE revealed that as many as 48.5% of respondents stated that the government was the institution that suffered the most losses due to fraud cases. PwC (2022) revealed that for the government and the public sector, asset misuse ranks second (33%) to the type of fraud frequently experienced under cybercrime fraud (36%).

Organizations suffer when fraud cases escalate without prompt attention (Ghani, Mohamed, Tajudin, & Muhammad, 2021). As time goes by, if thefts of small value are conducted continuously, the amount will also increase. Fraudulent acts in organizations include comprehensive actions that result in profits for employees and losses for the organization. The longer asset misappropriation lasts, the greater the destructive impact on an organization's finances (Dani, Mansor, Awang, & Afthanorhan, 2022; Norziaton, Ridhuan, & Adura, 2018).

Research can shift its focus from causes and detection to methods of preventing fraud. Studies examining the prevention and detection of fraud in the public sector are still scarce (Abdul Aziz & Othman, 2021). The urgency of preventing fraud cannot be denied in today's dynamic conditions (Maulidi, Girindratama, Putra, Sari, & Nuswantara, 2024). Organizations must prevent cases of fraud and must be proactive in implementing fraud prevention strategies (Ghani et al., 2021). Government officials and policymakers must increase efforts and improve procedures to prevent fraud in organizations (Dani et al., 2022).

Public and private sector organizations create a whistleblowing system to report or provide information about fraudulent acts committed by someone within an entity, either through e-mail, a website, WhatsApp, or other complaint channels. Research by Periansya, Dewata, Sopiyan, Sari, and Basyith (2023) and Winalter, Purnamasari, and Oktaroza (2018) shows the *whistleblowing system* has a positive influence on fraud prevention. Triantoro, Utami, and Joseph (2020) revealed that the violation reporting system (*whistleblowing system*) is not only about openness but also a system that can discourage employees from committing fraudulent acts.

Regardless of how effectively an organization oversees a whistleblowing system and internal control, these efforts will be futile if the individuals within the organization lack integrity in their work (Omar, Nawawi, & Puteh Salin, 2016). Fraud can still occur even when an organization has established proper internal control. Internal control and a whistleblowing system, while effective against fraud, do not guarantee organizational fraud prevention without employee integrity. The same principle applies to public sector organizations; the prevention of fraud is largely dependent on personnel with high integrity who consistently adhere to the code of ethics and exhibit positive moral values in carrying out their duties and responsibilities.

Apparatus integrity refers to person's commitment to ethical and ideological principles, which is demonstrated through their behavior. By having high integrity in every employee/staff in an agency, it is hoped that fraud can be minimized.

There have been varying findings in previous studies regarding the impact of whistleblowing systems and the integrity of the apparatus in fraud prevention. Mandal (2023); Anggoe and Reskino (2023); Periansya et al. (2023); and Winalter et al. (2018) discovered that whistleblowing systems are effective in preventing fraud. Conversely, Inawati and Sabila (2021) and Wardah, Carolina, and Wulandari (2022) reported that whistleblowing systems have not been successful in preventing fraud. Similarly, Widyani and Wati (2020) and Widiawati and Eriswanto (2023) found that the integrity of the apparatus was successful in preventing fraud. On the other hand, Mohd, Hasnan, Ali, and Harymawan (2023) and Khairunnisa, Tutuko, and Wolor (2020) concluded that the integrity of the apparatus was not effective in preventing fraud.

Data from the Indonesia Corruption Watch (ICW) Report indicates that state corruption losses reached IDR 48.79 trillion in 2023, and this figure continues to rise annually. In addition to corruption, there are also bribery cases with losses of IDR 96 billion and fraudulent levies of IDR 2.5 billion. The rampant cases of bribery and corruption that occur among officials have raised public questions about the performance and quality of the Government's Internal Supervisory Apparatus (GISA) as a government supervisor or auditor.

The Government Internal Supervisory Apparatus comprises multiple government organizations, including BPKP (Financial and Development Supervisory Agency), the Financial and Development Supervisory Agency; the Inspectorate General; the Provincial Inspectorate; and the Regency/City Inspectorate. Its primary responsibility involves combating the misappropriation of state assets and fraudulent activities such as corruption, collusion, and nepotism within government entities.

In its role as an internal government auditor, the inspectorate is responsible for overseeing the execution of government activities to enhance transparency and accountability in financial management through the implementation of the government internal control system. Recent events have prompted public inquiries into the function and responsibilities of the provincial inspectorate as a supervisory body within the South Sulawesi Provincial government area.

Given the context above, this study aims to analyze the impact of the whistleblowing system and the integrity of personnel in preventing fraud at the Inspectorate Offices in South Sulawesi Provincial and the Inspectorate Office in Makassar City, Indonesia.

2. THEORETICAL BASIS

2.1. Organisational Governance Theory

The main theory/*grand theory* used as the fundamental basis for this research is organizational governance. This theory of organizational governance was proposed long ago by Smith (1976) in his book *The Wealth of Nations*. *However*, Jensen and Meckling (1976) may be considered the first to popularise the issue of organizational governance in the field of finance. The collapse of a number of companies in 2001-2002 and the financial crisis in 2008, many of which involved fraud in accounting, led to increased interest in corporate governance, especially in relation to accountability (Ghozali, 2020). According to Ghozali (2020) the concept of organizational governance encompasses a set of mechanisms, procedures, and procedures, and associations used to manage and operate an organization. According to Inawati and Sabila (2021) the government must realize effective and strong governance, also referred to as good governance, to establish a well-functioning government. In response to public demands for transparent, accountable, responsive, effective, and efficient government free from fraud, the government initiates changes to achieve good governance. This theory of organizational governance elucidates how whistleblower systems and the integrity of the establishment can prevent fraudulent activities, contributing to the establishment of a competent government.

2.2. Theory of Planned Behaviour

The ability to act based on intentions depends on controlling one's behavior. This idea was introduced to recognize the constraints that individuals face in carrying out certain actions. In essence, a person's intention to engage in a behavior is influenced not only by their attitudes and subjective norms but also by their perception of control over that behavior based on their beliefs about that control (Ajzen, 1991).

The theory of planned behavior utilizes three elements, including our attitude toward the behavior, subjective norms, and our belief in our ability to control all factors that influence our willingness to engage in that behavior. According to this theory, individual intentions are formed by each individual's attitudes toward behavior, subjective norms, and perceived behavioral control. This attitude toward behavior is based on ideas about the affect of the behavior, also known as behavioral beliefs.

2.3. Fraud Prevention

Experts estimate that the fraud that has been identified is a small portion of all cases that actually occur. Therefore, fraud prevention should be the focus. Romney and Steinbart (2015) explain the case of Jason Scott, an internal auditor for Northwet Industries. He suggested guidelines for companies to be able to prevent fraud in several ways, including reviewing the internal control system to determine its effectiveness in preventing theft, establishing new controls to improve the fraud detection system, teaching employees about fraud awareness (*fraud awareness*), ethical issues, and security measurements.

2.4. Whistleblowing System

A system for whistleblowing or reporting violations provides a platform for whistleblowers to raise concerns about fraud or breaches committed internally within the organization. This system detects and prevents fraud, which can undermine the company. The implementation of a whistleblowing system can serve as a tool for deterring corruption or fraud in financial management (Inawati & Bayunitri, 2021). Officers need to utilize the whistleblowing system to prevent fraud correctly. The Whistleblowing System acts as a mechanism for lodging complaints about specific criminal activities that have taken place or are likely to occur involving individuals within the organization, with the reporter not being one of the perpetrators of the crime being reported.

2.5. Apparatus Integrity

Commitment to integrity involves maintaining consistency in actions, values, principles, expectations, and outcomes. An individual of integrity possesses honesty and strong character. Despite external pressures, there is a dedication to upholding established principles. The inclination is towards justifying principled conduct, specifically by staying resolute and not compromising on held principles, even in specific circumstances and environments.

3. HYPOTHESIS

H_1: *The Inspectorate Office, South Sulawesi Provincial, and the Inspectorate Office, Makassar City, show a significant and positive impact of the whistleblowing system on fraud prevention.*

H_2: *The integrity of the apparatus positively and significantly influences fraud prevention at the Inspectorate Office, South Sulawesi Provincial, and the Inspectorate Office, Makassar City.*

H_3: *Both the whistleblowing system and the integrity of the apparatus have a positive and significant influence on fraud prevention at the Inspectorate Office, South Sulawesi Provincial, and the Inspectorate Office, Makassar City.*

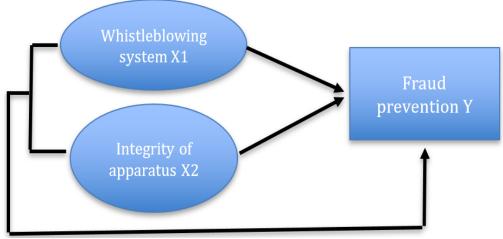Figure 1's theoretical framework explains the relationships between the variables in this study.

Figure 1. Theoretical framework.

4. RESEARCH METHODS

This research employs a quantitative approach, using primary data as the primary source.

4.1. Operational Definition and Variable Measurement

An operational definition is an extension of a concept's definition that is clarified in the form of variables as a guide for measuring and determining the good and bad measurements in a study. In this study, there are two independent variables: the whistleblowing system (X1) and the integrity of the apparatus (X2). The dependent variable in this study is fraud prevention (Y). A Likert scale is used for measurements, with point 1 being the lowest score and point 5 being the highest. The score value indicates the value of the answer to each statement item.

4.2. Population and Sample

The research was conducted in the South Sulawesi Province Inspectorate Office and the Makassar City Inspectorate Office. The research sample consisted of 70 apparatus employees who worked as auditors at the Inspectorate Office of South Sulawesi Province and the Inspectorate Office Makassar City.

4.3. Data Collection Technique

Electronic questionnaires were sent to 82 apparatus staff members working as auditors at the Inspectorate Office of South Sulawesi Province and Makassar City. There were 70 questionnaires completed and returned. A questionnaire is a form of data collection that involves asking respondents questions in hopes that they will respond with a satisfactory response while filling out the questionnaire.

4.4. Data Analysis Technique

The data was analyzed using the Multiple Regression method after data quality checks such as validity and reliability tests, as well as classical assumption tests such as data normality tests, multicollinearity tests, heteroscedastic tests, and autocorrelation tests. The multiple regression model is presented below.

$$Y = a + b_1X_1 + b_2X_2 + \varepsilon$$

Description:

Y: Fraud Prevention.

a: Constant Number.

b1, b2, b3, b4: Regression Coefficient, namely the value of increase/decrease in variable Y.

X1: Whistleblowing System.

X2: Apparatus Integrity.

e: Error term.

5. RESULTS AND DISCUSSION

Variable descriptive statistics analyse respondents' responses based on the *mean* (average) answers for each research variable. Table 1 displays descriptive statistics about the variables.

5.1. Test Research Instruments

5.1.1. Validity Test

The validity test measures the authenticity or validity of a statement or question in a questionnaire. A questionnaire is said to be valid if the statements or questions provide measurable results. In this research, the validity test was conducted by looking at the correlation value (r), where the r table is 0.2319. If the correlation value > 0.2319, we consider the statement in the questionnaire valid.

Table 1. Data validity test.

Correlations					
		Whistleblower X1	X2 apparatus integrity	Fraud prevention Y	Total
Whistleblower X1	Pearson correlation	1	0.938**	0.906**	0.976**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000
	N	70	70	70	70
X2 apparatus integrity	Pearson correlation	0.938**	1	0.913**	0.976**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000
	N	70	70	70	70
Fraud prevention Y	Pearson correlation	0.906**	0.913**	1	0.966**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000
	N	70	70	70	70
Total	Pearson correlation	0.976**	0.976**	0.966**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000
	N	70	70	70	70

Note: **. Correlation is significant at the 0.01 level (2-tailed).

5.2. Reliability Test

Reliability testing aims to determine the reliability of a statement in a research questionnaire. You can measure or assess the reliability of a statement using the Cronbach alpha. If the value of Cronbach *alpha* is greater than 0.600, then the statements in the questionnaire are considered reliable.

Table 2. Reliability test.

Reliability statistics	
Cronbach's alpha	N of items
0.971	3

Table 2 shows that the variables used as instruments in this research have a Cronbach alpha value above 0.60, namely 0.971. This means that the statement of each variable is reliable.
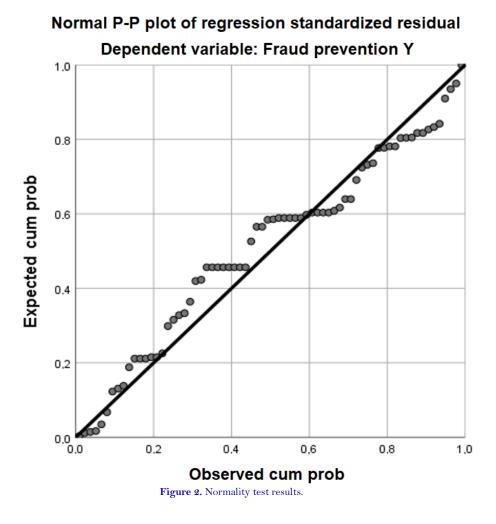
5.3. Classic Assumption Test

5.3.1. Normality Test

This study used the normality test to determine if the regression model for the independent and dependent variables in this study was normally distributed. In this study, normality is tested using the Kolmogorov-Smirnov one-sample approach. The significance value serves as the decision-making basis in this test, with a value greater than 0.05 indicating that the data is normally distributed.

The normality test results indicate that the significance value of variables in this study is 0.285, which is greater than 0.05. As a result, we can conclude that the variables in this study have a normal distribution.

The following P-Plot in Figure 2 also illustrates data normality:

Figure 2. Normality test results.

5.4. Multicollinearity Test

The multicollinearity test is used to determine whether an independent variable has a close relationship with the dependent variables in a study. Tolerance and variance of factor (VIF) values indicate multicollinearity in a regression model equation. On the other hand, if the tolerance value is > 0.10 and VIF < 10, then there is no multicollinearity.

Table 3 concludes that this study's regression model lacks multicollinearity. This is proven by looking at the value tolerance: each variable is more than 0.10, and the VIF value is less than 10.

5.5. Autocorrelation Test

The regression output results in Table 4 show that the Durbin Watson value is 2,071, with n= 70 and k=2, and you can get a dL value of 1,554 and a dU value=1,671. So, the value of 4-dU = 2.329. Because the Durbin-Watson value lies between dU and 4-dU (1,452 < 1,794 < 2,329), this means that there is no autocorrelation in the regression model.
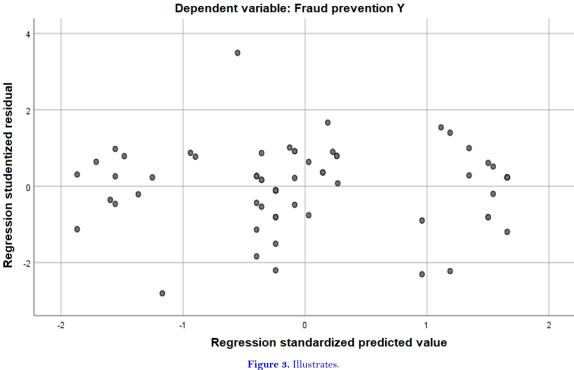
Table 3. Multicollinearity test.

		Unstandardized coefficients		Standardized coefficients			Collinearity statistics	
Model		**B**	**Std. error**	**Beta**	**t**	**Say.**	**Tolerance**	**VIF**
1	(Constant)	2.087	1.392		1.499	0.139		
	Whistleblower X1	0.395	0.128	0.415	3.079	0.003	0.120	8.317
	X2 apparatus integrity	0.536	0.138	0.523	3.878	0.000	0.120	8.317

Coefficientsª

Note: a. Dependent variable: Fraud prevention Y.

5.6. Heteroscedasticity Test

The heteroscedasticity test is conducted to determine whether the variance of the variables remains constant across observations. In this study, the heteroscedasticity test was performed using a scatterplot analysis as shown in Figure 3. The spread out points indicate that the regression model does not exhibit heteroscedasticity.

Figure 3. Illustrates.

5.7. Hypothesis Testing

5.7.1. Multiple Linear Regression Analysis

This research's multiple linear regression analysis was used to test H1, H2, and H3 by regressing the independent variables whistleblowing and apparatus integrity) on the dependent variable (fraud prevention).

Table 4. Multiple linear regression test.

Coefficients^a		Unstandardized coefficients		Standardized coefficients		
Model		B	Std. error	Beta	t	Say.
1	(Constant)	2.087	1.392		1.499	0.139
	Whistleblower X1	0.395	0.128	0.415	3.079	0.003
	X2 apparatus integrity	0.536	0.138	0.523	3.878	0.000

Note: a. Dependent variable: Employee performance AND.

Based on Table 4, it can be described in the regression equation model as follows:

$$Y = 2,087 + 0,395X1 + 0,536X2 + e$$

The constant value in the regression model is 2.087, indicating that if the independent variables (whistleblowing and apparatus integrity) are zero, then fraud prevention will increase by 2.087. The X1 coefficient value is 0.395, which shows that whistleblowing (X1) has a positive influence on fraud prevention. The X2

145

coefficient value is 0.536, which shows that the integrity of the apparatus (X2) has a positive influence on fraud prevention (Y).

5.8. Partial Hypothesis Test (T-Test)

The hypothesis testing in this study aims to assess the influence of each independent variable (whistleblowing and apparatus integrity) on the dependent variable (fraud prevention). A hypothesis is considered significant in the T-test if the significance value is less than 5% (0.05). Based on Table 4, the T-test results show that the whistleblowing variable (X1) has a significance value of 0.03. The t-count of 3.079 surpasses the t-table value of 1.994, suggesting a partial positive and significant effect of (X1) on fraud prevention (Y), thereby confirming the acceptance of H1. The apparatus integrity variable (X2) has a significance value of 0.000, with a t-count of 3.878, which is also greater than the t-table value. This demonstrates that (X2) partially has a positive and significant effect on fraud prevention (Y), thus H2 is accepted. There is also a significant difference between the whistleblowing and apparatus integrity variables, as shown by the ANOVA test in Table 5. The F-count of 195.089 is higher than the F-table value of 3.13. This indicates that whistleblowing and apparatus integrity variables simultaneously have a positive and significant effect on fraud prevention (Y), leading to the acceptance of H3.

Table 5. ANOVA test.

ANOVA[a]						
Model		Sum of squares	df	Mean square	F	Say.
1	Regression	813.325	2	406.662	195.089	0.000[b]
	Residual	139.661	67	2.084	0.000	0.000
	Total	952.986	69	0.000	0.000	0.000

Note: a. Dependent variable: Fraud prevention Y.
b. Predictors: (Constant), apparatus integrity X2, Whistleblower X1.

5.9. Coefficient of Determination Test (R²)

In this research, the coefficient of determination was tested to determine the magnitude of the role of the independent variable (*whistleblowing*, apparatus integrity) in explaining the dependent variable (fraud prevention).

Table 6. Coefficient of determination test (R²).

Model summary					
Model	R	R square	Adjusted R square	Std. error of the estimate	Durbin-watson
1	0.924[a]	0.853	0.849	1.444	1.794

Note: a. Predictors: (Constant), apparatus integrity X2, Whistleblower X1.
Dependent variable: Fraud prevention Y.

Based on the results of the coefficient of determination test in Table 6, the R value² (*Adjusted R Square*) is 0.849. Whistleblowing and apparatus integrity influence 84.9% of fraud prevention, while variables not examined in this study influence the remaining 15.1%.

6. DISCUSSION

6.1. Influence Whistleblowing Against Fraud Prevention

This study results validate the hypothesis (H1) that whistleblowing influences fraud prevention. These results are not in line with Maulida and Bayunitri (2021) research, which states that internal and external factors influence a person's actions or behavior; in this case, whistleblowing, several things need to be considered, for example, *self-efficacy*, risks, threats, and protection against a whistleblower.

Meanwhile, Anggoe and Reskino (2023) research aligns with the principles of governance theory. Whistleblowing can prevent fraud from occurring so that later, it will help create a good government that encourages people to do whistleblowing.

6.2. The Influence of Apparatus Integrity on Fraud Prevention

This study results validate the hypothesis (H2) by demonstrating a positive and significant impact of apparatus integrity on fraud prevention. These results are in line with research by Widyani and Wati (2020) which examined fraud that occurred in the management of village fund allocations in Bali. This study supports the Theory of Planned Behaviour, which states that individuals need control over their behavior to act on their intentions.

In other words, to prevent fraud from happening, the internal auditor, as a supervisor, must have high integrity in evaluating the implementation of controls within the organization/agency to ensure that fraud does not occur within the organization.

7. CONCLUSION

Based on the results of the research analysis conducted on the influence of the whistleblowing system and apparatus integrity in preventing fraud at the Inspectorate Office of South Sulawesi Province and the Inspectorate Office of Makassar City, the following conclusions can be drawn:

1. The whistleblowing system variable (X1) has a positive and significant influence on fraud prevention (Y). This is evidenced by the t-test results, where the t-count is greater than the t-table and the significance value is less than 0.05. These results confirm the hypothesis that the whistleblowing system positively and significantly impacts fraud prevention.

2. The apparatus integrity variable (X2) also has a positive and significant effect on fraud prevention (Y). This is proven by the t-test results, where the t-count is greater than the t-table and the significance value is less than 0.05. These findings support the hypothesis that apparatus integrity positively and significantly influences fraud prevention.

3. The results of the F Test (ANOVA) indicate that the whistleblowing system and apparatus integrity variables simultaneously have a significant effect on fraud prevention (Y). This is demonstrated by the F-test results, where the F-count is greater than the F-table and the significance value is less than 0.05, specifically 0.000.

The results of this study provide implications both theoretically and practically. Theoretically, it can be a consideration for companies and other institutions to implement an integrated whistleblowing system so that it can help in detecting indications of fraud or violations early (early warning). Practical implications: This study can provide considerations so that people are more courageous in reporting known fraud or violations.

8. PRACTICAL IMPLICATIONS

The practical implications of this research serve as a reference for organizations to help prevent fraud and minimize losses. Furthermore, the management structure of the whistleblowing system must be well-designed to prevent fraud.

In the use of the whistleblowing system, the mechanism related to the submission of asset misuse reports and the handling process of asset misuse must be communicated to all employees within the organization. This study can also provide considerations so that people are more courageous in reporting known fraud or violations.

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