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Enhancing Fraud Prevention: The Role of Competence, Anti-Fraud Awareness, and Whistleblowing Systems

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ABSTRACT

Fraud prevention remains a major challenge in public sector organizations due to the increasing risk of corruption and its negative impact on institutional accountability, public trust, and economic stability. Although various control mechanisms and anti-corruption policies have been implemented, fraud cases continue to occur within government institutions, indicating the importance of strengthening organizational and behavioral factors that support fraud prevention. This study aimed to examine the influence of apparatus competence and anti-fraud awareness on fraud prevention, with the whistleblowing system serving as a mediating variable among employees of the Ministry of Finance Regional Offices throughout Indonesia. This study employed a quantitative research design using a survey approach. Primary data were collected through online questionnaires distributed to 101 respondents consisting of Commitment Making Officials, Procurement Officials, and Treasurers selected through purposive sampling techniques. The data were analyzed using Partial Least Squares Structural Equation Modeling. The findings revealed that apparatus competence, anti-fraud awareness, and the whistleblowing system positively and significantly influenced fraud prevention. In addition, the whistleblowing system significantly mediated the relationships between apparatus competence and fraud prevention as well as between anti-fraud awareness and fraud prevention. The study contributes to the fraud prevention literature by integrating competence, anti-fraud awareness, and whistleblowing systems within a single framework in the context of public sector organizations. Practically, the findings emphasize the importance of improving employee competence, strengthening anti-fraud awareness programs, and implementing effective whistleblowing systems to enhance organizational integrity and fraud prevention practices.

1. Introduction

Fraud remains a persistent global and national issue that threatens economic stability, institutional credibility, and public trust. In Indonesia, fraud continues to be a major concern, as reflected in the country's declining Corruption Perception Index (CPI) rankings over recent years (Sihombing et al., 2023). According to Transparency International (2022–2024), Indonesia ranked 96th out of 180 countries in 2021 with a score of 38 out of 100. The ranking declined further to 110th in 2022 and 115th in 2023, with a stagnant score of 34. These declining scores are consistent with the increasing number of corruption cases uncovered in Indonesia. The Indonesian National Police reported 431 corruption cases throughout 2023 involving 887 suspects and state losses amounting to 3.6 trillion Indonesian Rupiah (Wiryono & Prabowo, 2023).

Fraud not only undermines economic order and damages organizational reputation (Yu et al., 2025), but also contributes to

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increasing crime rates (Prenzler, 2020), poverty (Marwata, 2021), and threats to national economic stability (Chairi et al., 2022). Consequently, fraud prevention has become a critical concern for governments and organizations. Several studies propose fraud prevention as an effective strategy to combat fraud (Dimitrijević et al., 2020). Although fraud can be detected after it occurs, recovering stolen assets is often difficult and costly, making preventive measures more efficient than recovery efforts (Hayati & Amalia, 2021).

The Indonesian government has implemented various initiatives to strengthen fraud prevention, including reforms in state financial management, the establishment of the Corruption Eradication Commission, and the digitization of public services (Nahari & Kusuma, 2023). In addition, the government has strengthened the Government Internal Control System through Government Regulation Number 60 of 2008, implemented codes of ethics and conduct, and enforced sanctions based on Law Number 5 of 2014 concerning State Civil Apparatus. Despite these efforts, fraud cases continue to occur, indicating that institutional regulations alone are insufficient and require support from other organizational and behavioral factors.

One important factor associated with fraud prevention is employee competence. Competence is essential for professional workers because it enables individuals to perform tasks effectively in accordance with organizational needs (Syukri Putranto et al., 2022). Competent employees are more capable of delivering optimal performance and avoiding pressures that may encourage fraudulent behavior. Previous studies examining the relationship between competence and fraud prevention have produced inconsistent findings. Several studies found that competence positively influences fraud prevention (Saputra et al., 2022; Wahyudi et al., 2022), while Chairi et al. (2022) reported that competence has no significant effect on fraud prevention.

These inconsistencies may be attributed to differences in research subjects. Previous studies that identified significant relationships mainly involved auditors whose competencies are directly related to fraud detection and prevention (Saputra et al., 2022; Wahyudi et al., 2022). In contrast, Chairi et al. (2022) employed respondents from diverse civil servant backgrounds whose competencies were not specifically linked to fraud prevention. This inconsistency highlights the need for further investigation regarding whether civil servants' competencies can effectively support fraud prevention within government institutions.

In addition to competence, anti-fraud awareness is considered an important factor in preventing fraud. The Indonesian government has attempted to improve anti-fraud awareness by integrating anti-corruption education into the national curriculum and conducting anti-fraud training programs for civil servants (Marwata, 2021). Anti-fraud awareness reflects employees' understanding of the importance of identifying, reporting, and preventing fraudulent activities within organizations. Uys (2008) explained that individuals often fail to report suspected fraud because of limited awareness regarding fraudulent practices.

Empirical studies examining the influence of anti-fraud awareness on fraud prevention remain limited. Existing studies conducted by Shonhadji and Maulidi (2021) and Sihombing et al. (2023) found that anti-fraud awareness positively affects fraud prevention. However, the limited number of studies investigating this relationship indicates that anti-fraud awareness remains underexplored in fraud prevention research. Shonhadji and Maulidi (2021) even suggested that their study was among the first to examine this issue. Therefore, additional empirical evidence is necessary to strengthen and validate previous findings.

Another important mechanism in fraud prevention is the whistleblowing system. Fraud can be prevented more effectively when suspicious actions are detected and reported at

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an early stage. The Association of Certified Fraud Examiners (2022) reported that organizations implementing whistleblowing systems are able to detect fraud more rapidly. Numerous studies have demonstrated that effective whistleblowing systems contribute significantly to fraud prevention (Chairi et al., 2022; Hayati & Amalia, 2021; Magdalena et al., 2020; Park et al., 2026; Shonhadji & Maulidi, 2021; Suh & Shim, 2020). Nevertheless, studies examining whistleblowing systems in non-auditor government organizations remain relatively limited (Chairi et al., 2022).

Previous studies have also investigated the mediating role of whistleblowing systems. Chairi et al. (2022) found that whistleblowing systems mediate the relationship between apparatus competence, morality, and fraud prevention, while Suh and Shim (2020) demonstrated the mediating role of whistleblowing systems in the relationship between corporate ethical culture and anti-fraud strategies. However, as far as the researchers are aware, no previous study has specifically examined the mediating role of whistleblowing systems in the relationship between anti-fraud awareness and fraud prevention. This gap provides a strong academic justification for further investigation.

Despite the growing body of literature on fraud prevention, several important issues remain unresolved. First, previous studies have produced inconsistent findings regarding the influence of competence on fraud prevention. While several studies reported that competence positively affects fraud prevention (Saputra et al., 2022; Wahyudi et al., 2022), Chairi et al. (2022) found no significant relationship between the two variables. These inconsistencies indicate that the effectiveness of competence in supporting fraud prevention may depend on organizational contexts and employee characteristics. Most previous studies focused on auditors or employees whose competencies are directly associated with fraud detection and prevention, whereas empirical evidence involving non-auditor government employees remains limited. Second, studies examining the role of anti-fraud awareness in fraud prevention are still scarce (Shonhadji & Maulidi, 2021; Sihombing et al., 2023), resulting in limited understanding of how employees' awareness of fraud contributes to preventive actions in public sector organizations. Third, although previous studies have demonstrated that whistleblowing systems mediate the relationships between several organizational factors and fraud prevention (Chairi et al., 2022; Suh & Shim, 2020), no prior study has specifically investigated the mediating role of whistleblowing systems in the relationship between anti-fraud awareness and fraud prevention. Consequently, the mechanism through which anti-fraud awareness is translated into fraud prevention practices remains underexplored. Addressing these gaps, the present study simultaneously examines the effects of competence and anti-fraud awareness on fraud prevention through the mediating role of the whistleblowing system among non-auditor employees in the Regional Offices of the Ministry of Finance throughout Indonesia. By focusing on a government institution with relatively high inherent fraud risk and employing anti-fraud awareness indicators adopted from the Otoritas Jasa Keuangan (2019), this study offers theoretical, methodological, and contextual contributions that extend the existing fraud prevention literature.

This study focuses on employees of the Regional Offices of the Ministry of Finance throughout Indonesia. The Ministry of Finance is responsible for managing state revenues, treasury, state assets, and international trade, thereby operating in an environment with a relatively high inherent risk of fraud. To mitigate these risks, the Ministry has implemented codes of ethics, whistleblowing systems, integrity pacts, technical training, anti-fraud awareness campaigns, surveys, and asset reporting mechanisms. However, fraud cases continue to occur within the institution. According to a release from the official Instagram account of the Minister of Finance

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(2023), there were 550 disciplinary sanctions related to fraud cases between 2017 and 2022.

Based on the identified research gaps, this study aims to examine the influence of competence and anti-fraud awareness on fraud prevention, with the whistleblowing system acting as an intervening variable among employees of the Ministry of Finance Regional Offices in Indonesia. Specifically, this study seeks to answer whether competence and anti-fraud awareness significantly influence fraud prevention and whether the whistleblowing system mediates these relationships.

Theoretically, this study contributes to the fraud prevention literature by extending empirical evidence regarding the roles of competence, anti-fraud awareness, and whistleblowing systems within government organizations, particularly among non-auditor employees. This study also enriches the discussion regarding the mediating role of whistleblowing systems, especially in the relationship between anti-fraud awareness and fraud prevention, which remains underexplored in prior studies. Practically, the findings are expected to provide insights for policymakers and government institutions in strengthening fraud prevention strategies through competency development, anti-fraud awareness programs, and more effective whistleblowing systems.

This study offers several novelties compared to previous research. Theoretically, it extends the fraud prevention literature by introducing the whistleblowing system as a mediating mechanism linking anti-fraud awareness and fraud prevention, a relationship that has not been examined in prior studies. Methodologically, this study adopts anti-fraud awareness indicators derived from the anti-fraud awareness program developed by the Otoritas Jasa Keuangan (2019), providing a more contemporary and contextually relevant measurement approach. Contextually, this study focuses on non-auditor employees of the Regional Offices of the Ministry of Finance throughout Indonesia, an institutional setting characterized by high fraud risk but rarely investigated in previous fraud prevention studies. Therefore, this study provides a more comprehensive understanding of fraud prevention mechanisms within government organizations and offers practical insights for strengthening competency development, anti-fraud awareness programs, and whistleblowing systems in the public sector.

2. Literature Review

2.1 Conceptual and Theoretical Foundations

2.1.1 Fraud Hexagon Theory

Fraud Hexagon Theory explains fraudulent behavior through six dimensions: pressure, opportunity, rationalization, capability, arrogance, and collusion (Vousinas, 2019). Compared with earlier fraud models, this theory provides a more comprehensive explanation of fraudulent behavior by incorporating arrogance and collusion as additional dimensions that may influence an individual's tendency to engage in fraud. In the context of fraud prevention, the theory is relevant because it identifies the conditions and behavioral characteristics that can create or facilitate fraudulent actions, while organizational mechanisms can be designed to reduce these conditions and strengthen the ability to detect and prevent fraud.

The six dimensions of Fraud Hexagon Theory can be conceptually related to the constructs examined in this study. Apparatus competence is primarily associated with the capability dimension. Employees with adequate knowledge, skills, and abilities are better positioned to understand organizational procedures, recognize irregularities, and perform their responsibilities appropriately. Conversely, inadequate competence may increase vulnerability to errors, procedural violations, and situations that can be exploited to facilitate fraudulent behavior. Thus, competence is positioned in this study not as a direct component of fraud itself, but as an organizational capability that can reduce conditions under which fraudulent behavior may occur.

Anti-fraud awareness is closely related to

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the rationalization and arrogance dimensions of Fraud Hexagon Theory. Employees who understand the nature, consequences, and risks of fraud are more capable of recognizing unethical conduct and rejecting rationalizations that could be used to justify fraudulent behavior. Strong awareness may also reduce the tendency to disregard organizational rules or consider oneself entitled to violate established procedures. This relationship is consistent with Wahyudi et al. (2022), who demonstrate the relevance of individual and organizational factors in fraud prevention.

The whistleblowing system is conceptually associated with the opportunity and collusion dimensions because an effective reporting mechanism can reduce the opportunity for fraudulent activities to remain undetected and can disrupt coordinated fraudulent behavior. A functioning whistleblowing system provides channels through which employees and other stakeholders can report suspected misconduct, thereby increasing the likelihood that fraudulent activities will be identified. Ratnadewati and Yanto (2026) emphasize the role of whistleblowing in strengthening fraud detection and prevention mechanisms.

Accordingly, Fraud Hexagon Theory provides the first part of the theoretical explanation in this study: fraud may emerge when pressure, opportunity, rationalization, capability, arrogance, and collusion create conditions conducive to fraudulent behavior. Apparatus competence and anti-fraud awareness represent individual and organizational characteristics that can reduce vulnerability to these conditions, while the whistleblowing system represents a control and reporting mechanism capable of reducing opportunities for fraud and increasing its detectability. Therefore, the theory provides a basis for explaining why strengthening employee competence, anti-fraud awareness, and reporting mechanisms is relevant to fraud prevention.

2.1.2 Prosocial Behavior Theory

Prosocial Behavior Theory, introduced by Brief and Motowidlo (1986), defines prosocial behavior as behavior performed by members of an institution that is directed toward individuals, groups, or organizations with the objective of improving collective welfare. This theory provides an important theoretical foundation for understanding why individuals may voluntarily engage in behaviors that protect other individuals and the organization, including reporting unethical conduct and supporting fraud prevention activities.

Whistleblowing can be understood as a form of prosocial behavior because individuals who report fraud seek to protect the organization and its stakeholders from potential losses and negative consequences. By reporting unethical or illegal actions, whistleblowers contribute to organizational integrity and accountability (Miceli et al., 2008). The decision to report misconduct therefore extends beyond individual interests because it can generate benefits for the organization and other stakeholders.

Anti-fraud awareness is also consistent with the prosocial perspective. Employees who understand the harmful consequences of fraud are more likely to recognize that preventing fraudulent behavior serves not only their own interests but also those of colleagues, organizations, stakeholders, and society. Evidence from Shonhadji and Maulidi (2021) and Sihombing et al. (2023) indicates that anti-fraud awareness contributes positively to fraud prevention. Such awareness can encourage employees to support ethical practices and participate in organizational mechanisms designed to prevent fraudulent conduct. The broader social relevance of fraud prevention is also reflected in Marwata (2021), who links stronger integrity and public-sector governance with broader benefits, including public trust, economic activity, investment, public service quality, income equality, and poverty alleviation.

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2.1.3 Theoretical Integration

Fraud Hexagon Theory and Prosocial Behavior Theory provide complementary explanations for the relationships examined in this study. Fraud Hexagon Theory explains the conditions and behavioral dimensions that may give rise to fraudulent behavior, whereas Prosocial Behavior Theory explains why individuals may respond to those conditions by engaging in behaviors intended to protect the organization and its stakeholders.

From the Fraud Hexagon perspective, fraud becomes more likely when pressure, opportunity, rationalization, capability, arrogance, and collusion are present. Consequently, fraud prevention requires mechanisms that reduce opportunities for fraud, weaken rationalizations, strengthen individual capabilities, and increase the probability that misconduct will be detected. Apparatus competence, anti-fraud awareness, and the whistleblowing system can therefore be understood as organizational and individual mechanisms that contribute to reducing fraud risk.

From the Prosocial Behavior perspective, however, the existence of a reporting mechanism alone does not necessarily guarantee that employees will use it. Employees must be willing to act in ways that protect collective interests. Anti-fraud awareness can strengthen employees' recognition of the consequences of fraudulent behavior, while adequate competence can improve their ability to identify irregularities and understand appropriate procedures. These characteristics can encourage employees to use the whistleblowing system when they encounter suspected misconduct. Whistleblowing subsequently represents the behavioral expression of the prosocial orientation because employees voluntarily report conduct that may harm the organization or its stakeholders.

The integration of these theories therefore establishes a sequential theoretical logic. Fraud Hexagon Theory identifies the conditions that make fraud possible or more likely; apparatus competence and anti-fraud awareness represent characteristics that can help employees recognize and resist those conditions; Prosocial Behavior Theory explains the motivation to respond to identified misconduct in ways that protect collective interests; and the whistleblowing system provides the organizational mechanism through which such prosocial behavior can be translated into concrete fraud-prevention action. In this way, the two theories are not used independently but explain different stages of the same fraud-prevention process.

This theoretical integration also provides the basis for proposing the whistleblowing system as a mediating variable. Competence and anti-fraud awareness may contribute to fraud prevention directly, but they may also influence fraud prevention indirectly by encouraging employees to utilize reporting mechanisms. Thus, the whistleblowing system connects individual capabilities and ethical awareness with organizational fraud-prevention outcomes.

2.2 Review of Empirical Studies

Previous empirical studies have examined apparatus competence, anti-fraud awareness, and whistleblowing systems as determinants of fraud prevention. The existing evidence provides support for the proposed direct relationships while also revealing areas that require further investigation.

2.1.1 Apparatus Competence and Fraud Prevention

Competence is essential for employees to perform organizational responsibilities professionally and effectively. Syukri Putranto et al. (2022) emphasized that competence enables employees to perform their duties effectively and supports the achievement of organizational goals. In relation to fraud prevention, adequate competence enables employees to understand procedures, recognize irregularities, and perform control-related responsibilities appropriately.

Empirical evidence from Saputra et al.

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(2022) and Wahyudi et al. (2022) demonstrates that apparatus competence positively affects fraud prevention. These findings indicate that employees with stronger competencies are more capable of complying with operational procedures, identifying potential irregularities, and minimizing circumstances that may facilitate fraudulent activities. Nevertheless, the existing evidence has predominantly emphasized auditors or financial professionals as research subjects. This leaves a contextual issue concerning whether the same relationship applies to non-auditor employees who perform broader organizational functions.

2.2.2 Anti-Fraud Awareness and Fraud Prevention

Anti-fraud awareness represents an employee's understanding of fraud risks, its consequences, and the importance of preventing fraudulent behavior. Sihombing et al. (2023) explain that anti-fraud awareness programs can improve employees' understanding of fraud and its consequences. Such awareness is important because employees who understand fraud risks are more likely to recognize suspicious behavior, reject unethical rationalizations, and support organizational prevention mechanisms.

The empirical findings of Shonhadji and Maulidi (2021) and Sihombing et al. (2023) consistently demonstrate a positive relationship between anti-fraud awareness and fraud prevention. These findings suggest that stronger awareness can encourage employees to support ethical practices and participate in efforts to prevent fraudulent activities. The Financial Services Authority (2019) further emphasizes that anti-fraud awareness should involve both internal and external stakeholders associated with an organization.

Although the existing evidence establishes the importance of anti-fraud awareness as a direct determinant of fraud prevention, previous studies have generally emphasized its direct effect. Consequently, the mechanism through which anti-fraud awareness may be translated into concrete preventive behavior through organizational reporting mechanisms remains insufficiently addressed.

2.2.3 Whistleblowing System and Fraud Prevention

The whistleblowing system provides an organizational mechanism through which employees and stakeholders can report suspected unethical or illegal activities. According to ACFE (2022), approximately 42% of fraud cases were detected through whistleblowing mechanisms, demonstrating the strategic importance of reporting systems in organizational governance and fraud detection.

Empirical studies by Chairi et al. (2022), Shonhadji and Maulidi (2021), and Suh and Shim (2020) consistently found a positive relationship between whistleblowing systems and fraud prevention. An effective whistleblowing system can facilitate the disclosure of suspected misconduct, increase the likelihood of fraud detection, and discourage individuals from engaging in fraudulent activities because the probability of detection becomes greater.

However, the existing empirical evidence primarily positions whistleblowing systems as an independent variable that directly affects fraud prevention. The findings therefore provide strong support for the direct relationship between whistleblowing and fraud prevention, but they provide less explanation of how whistleblowing may function as an intervening mechanism through which employee competence and anti-fraud awareness contribute to fraud prevention.

2.3 Identification of the Research Gap

The empirical literature provides evidence for the individual importance of apparatus competence, anti-fraud awareness, and whistleblowing systems in fraud prevention, but the relationships among these variables have not been sufficiently integrated into a single explanatory model.

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First, empirical studies have established a positive relationship between competence and fraud prevention. Syukri Putranto et al. (2022) emphasize the importance of competence for effective task performance, while Saputra et al. (2022) and Wahyudi et al. (2022) demonstrate that competence positively affects fraud prevention. However, these studies have largely focused on auditors or financial professionals. The remaining issue is whether competence produces a similar fraud-prevention effect among broader organizational employees, particularly non-auditor employees. This contextual gap is important because fraud risks and prevention responsibilities are not limited to employees who formally perform auditing functions.

Second, empirical studies have demonstrated that anti-fraud awareness contributes positively to fraud prevention. Shonhadji and Maulidi (2021) and Sihombing et al. (2023) show that stronger awareness is associated with stronger fraud-prevention efforts. Nevertheless, these studies predominantly explain anti-fraud awareness as a direct determinant. They provide less explanation regarding the behavioral mechanism through which awareness is transformed into preventive action. This is important because awareness alone may not result in fraud prevention unless employees are willing and able to respond when they encounter suspected misconduct.

Third, previous studies provide evidence that the whistleblowing system contributes directly to fraud prevention. Chairi et al. (2022), Shonhadji and Maulidi (2021), and Suh and Shim (2020) demonstrate the positive role of whistleblowing mechanisms, while ACFE (2022) illustrates their importance in fraud detection. However, the whistleblowing system has predominantly been examined as an independent predictor rather than as a mediating mechanism connecting employee characteristics with fraud prevention.

Fourth, the existing literature provides limited integration between apparatus competence, anti-fraud awareness, and whistleblowing systems within one causal framework. The evidence shows that competence affects fraud prevention, anti-fraud awareness affects fraud prevention, and whistleblowing affects fraud prevention, but these findings do not fully explain whether competence and awareness can influence fraud prevention through the activation of an organizational reporting mechanism.

Finally, the theoretical gap concerns the integration of Fraud Hexagon Theory and Prosocial Behavior Theory. Fraud Hexagon Theory explains the conditions associated with fraudulent behavior, whereas Prosocial Behavior Theory explains why individuals may undertake actions intended to protect collective interests. Integrating the two perspectives allows the present study to explain both the risk conditions surrounding fraud and the behavioral response through which employees contribute to fraud prevention. The whistleblowing system represents the connecting mechanism between these two perspectives because it provides an organizational channel through which employees' competence and anti-fraud awareness can be converted into reporting behavior and ultimately support fraud prevention.

Therefore, the present study addresses these gaps by examining apparatus competence and anti-fraud awareness as antecedents of fraud prevention, while positioning the whistleblowing system as a mediating mechanism. The proposed model extends the existing empirical relationships by examining not only whether competence and awareness directly influence fraud prevention, but also whether these effects occur indirectly through the whistleblowing system.

2.4 Development of the Conceptual Framework

This study examines the relationships among apparatus competence, anti-fraud awareness, whistleblowing systems, and fraud prevention. Apparatus competence reflects employees' ability to perform tasks effectively

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and comply with organizational procedures, thereby reducing the likelihood of fraudulent behavior (Wahyudi et al., 2022). Anti-fraud awareness refers to employees' understanding of fraud risks, ethical values, and the importance of fraud prevention within organizations (Sihombing et al., 2023). Meanwhile, the whistleblowing system functions as an internal control mechanism that facilitates the reporting of unethical or illegal activities and strengthens fraud detection processes (Ratnadewati & Yanto, 2026).

Based on Fraud Hexagon Theory and Prosocial Behavior Theory, this study proposes that apparatus competence and anti-fraud awareness positively influence fraud prevention both directly and indirectly through the whistleblowing system. Employees with higher competence and stronger anti-fraud awareness are expected to support the implementation of effective whistleblowing systems, which in turn enhance fraud prevention efforts within organizations.

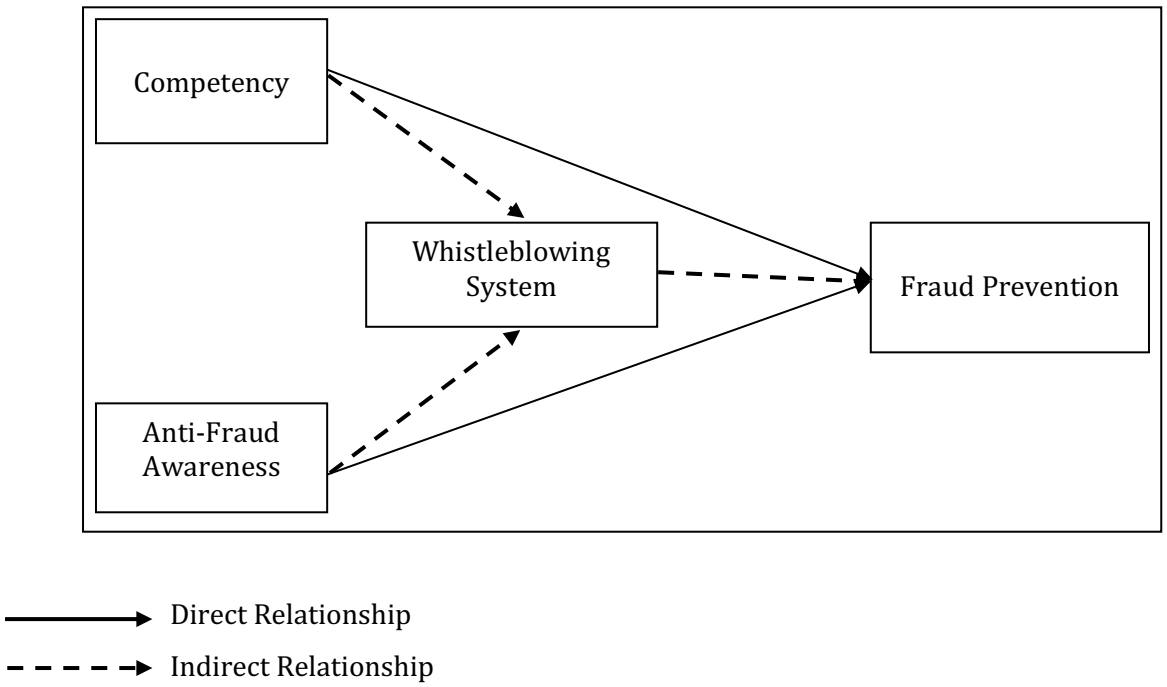

Fig. 1. Conceptual Framework of the Study

2.5 Hypotheses or Research Propositions

2.5.1 The Influence of Apparatus Competence on Fraud Prevention

Competence is considered essential for professional employees in performing their duties effectively (Syukri Putranto et al., 2022). Employees with adequate competence are more capable of fulfilling organizational needs and achieving better performance outcomes. Previous studies conducted by Saputra et al. (2022) and Wahyudi et al. (2022) found that competence positively influences fraud prevention. Competent employees are more likely to comply with operational procedures, identify irregularities, and minimize opportunities for fraud.

Therefore, the first hypothesis is formulated as follows:

H1: Competency has a positive effect on fraud prevention.

2.5.2 The Influence of Anti-Fraud Awareness on Fraud Prevention

Anti-fraud awareness refers to organizational efforts to increase employees' understanding of fraud risks and the importance of fraud prevention (Sihombing et al., 2023). The Financial Services Authority (2019) further emphasized that anti-fraud awareness should involve both internal and external stakeholders associated with the organization. Previous studies by Shonhadji

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and Maulidi (2021) and Sihombing et al. (2023) consistently demonstrated that anti-fraud awareness positively affects fraud prevention.

Employees with strong anti-fraud awareness understand the negative consequences of fraud and are more likely to support ethical practices and report fraudulent activities. Consequently, higher anti-fraud awareness is expected to improve fraud prevention effectiveness.

Thus, the second hypothesis is formulated as follows:

H2: Anti-fraud awareness has a positive effect on fraud prevention.

2.5.3 The Influence of the Whistleblowing System on Fraud Prevention

The Association of Certified Fraud Examiners (2022) reported that 42% of fraud cases were detected through whistleblowing mechanisms, indicating the strategic importance of whistleblowing systems in organizational governance. Effective whistleblowing systems encourage employees and stakeholders to report unethical practices without fear of retaliation (Chairi et al., 2022).

Empirical studies conducted by Chairi et al. (2022), Shonhadji and Maulidi (2021), and Suh and Shim (2020) consistently found that whistleblowing systems positively influence fraud prevention. Organizations with effective reporting mechanisms are more capable of detecting and preventing fraudulent activities.

Therefore, the third hypothesis is formulated as follows:

H3: An effective whistleblowing system positively impacts fraud prevention.

2.5.4 The Influence of Competence and Anti-Fraud Awareness on Fraud Prevention Through the Whistleblowing System

Most previous studies treated the whistleblowing system as an independent variable, while limited research has examined its role as an intervening variable. In this study, the whistleblowing system is proposed as a mediating mechanism through which competence and anti-fraud awareness influence fraud prevention. Competent employees and employees with strong anti-fraud awareness are expected to support effective whistleblowing practices, thereby strengthening fraud prevention efforts within organizations.

Accordingly, the following hypotheses are proposed:

H4: Competency through the whistleblowing system has a positive effect on fraud prevention.

H5: Anti-fraud awareness through the whistleblowing system has a positive effect on fraud prevention.

3. Research Methods

3.1 Research Design

This research adopted a quantitative research design with a survey approach. The quantitative design was selected because the study aims to test the relationships between independent and dependent variables through statistical analysis. Furthermore, the use of PLS-SEM allows the study to evaluate both measurement models and structural models simultaneously, thereby providing comprehensive insights into the relationships among constructs. The research design ensures methodological consistency in examining the determinants of fraud prevention within public sector institutions.

3.2 Research Context and Setting

The research was conducted within the Ministry of Finance Regional Offices throughout Indonesia. The context of this study is highly relevant because fraud prevention within public sector institutions has become a significant concern in improving accountability, transparency, and governance. The Ministry of Finance Regional Offices were selected as the research setting because they play a strategic role in public financial management and procurement activities, which are vulnerable to fraud risks. Therefore, this setting provides an appropriate context for examining fraud prevention mechanisms in the

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public sector.

3.3 Population and Sample / Research Participants

The population in this study consisted of employees working in the Ministry of Finance Regional Offices throughout Indonesia who are directly involved in financial management and procurement processes. The sample included Commitment Making Officials (CMO), Procurement Officials (PP), and Treasurers.

The planned sample consisted of 176 respondents drawn from the three relevant respondent groups, namely Commitment Making Officials (CMO), Procurement Officials (PP), and Treasurers, across the Ministry of Finance Regional Offices throughout Indonesia. The distribution of the planned respondents was based on the availability of officials holding these positions within the respective Regional Offices. The final sample consisted of 101 respondents, representing 57.39% of the planned sample. Because the data collection was administered through the respective Regional Office Heads, the actual number of completed questionnaires depended on the participation and availability of eligible officials in each office. Accordingly, the final respondents represented the three targeted functional positions, although the number of responses obtained from each position and regional office varied according to questionnaire participation.

The sampling process was conducted using a purposive sampling technique by selecting respondents who possess responsibilities and experiences related to fraud prevention activities. The survey was conducted from September 19, 2023, to November 5, 2023. The total number of respondents who participated in this study was 101 out of the planned 176 respondents, representing a response rate of 57.39%. The selected respondents were considered capable of providing relevant information regarding the implementation of fraud prevention practices within the organization.

The selection of CMO, PP, and Treasurers was based on their direct involvement in organizational financial management, procurement, and accountability processes. These positions require respondents to interact with procedures, controls, financial transactions, procurement activities, and organizational accountability mechanisms that are closely related to fraud prevention. Consequently, their professional responsibilities provide them with relevant knowledge and practical experience to assess apparatus competence, anti-fraud awareness, whistleblowing systems, and fraud prevention practices within their respective organizational settings. Their involvement in these processes also enables them to provide informed perceptions regarding the implementation of internal mechanisms intended to prevent and detect fraudulent activities.

The response rate of 57.39% also indicates the possibility of non-response bias. Non-response bias may arise if employees who completed the questionnaire differ systematically from eligible employees who did not participate, for example in terms of work experience, level of involvement in financial or procurement activities, awareness of fraud risks, or perceptions of organizational control mechanisms. Because information on the characteristics and perceptions of non-respondents was not available, a direct statistical comparison between respondents and non-respondents could not be performed. Therefore, the possibility that the final sample may not fully represent the characteristics of all eligible employees should be acknowledged when interpreting and generalizing the findings. Nevertheless, purposive sampling was applied to ensure that the respondents included in the analysis possessed responsibilities directly relevant to the research variables.

3.4 Data Sources and Data Collection

This study utilized primary data obtained through questionnaire distribution. Data collection was conducted using a Google Form

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questionnaire distributed through the Memorandum of the Head of the Secretariat of the Ministry of Finance Representative Office in Aceh to all Regional Office Heads of the Ministry of Finance in Indonesia via the Nadine Kemenkeu Application.

The questionnaire method was selected because it enables efficient data collection from respondents located across different regions in Indonesia. Furthermore, the online distribution process facilitated broader respondent participation and minimized data collection constraints. The structured questionnaire also supports consistency in respondents' answers and enhances the reliability of the collected data.

3.5 Measurement of Variables and Research Instruments

The dependent variable in this research is fraud prevention (Y), measured using indicators adopted from Chairi et al. (2022), encompassing risk analysis, implementation, sanctions, and monitoring.

The apparatus competence variable was measured using indicators adapted from Chairi et al. (2022) and Potnuru and Sahoo (2016), including individual competence, team competence, change competence, communication competence, and ethical competence.

The anti-fraud awareness variable was measured using indicators derived from the anti-fraud awareness program established by (Otoritas Jasa Keuangan, 2019), encompassing the preparation and socialization of anti-fraud declarations, anti-fraud culture programs for employees, and fraud awareness and vigilance programs for stakeholders.

The whistleblowing system variable was measured using indicators adapted from ACFE, (2022), Ayers and Kaplan (2005), Chairi et al. (2022), Hayati and Amalia (2021), Irwandi et al. (2026), Park et al. (2026), and Shonhadji and Maulidi (2021). The indicators include system existence, reporting channels, security, system management, tone at the top, and training and information.

All variables were measured using a structured questionnaire with indicators adapted from previous studies and relevant institutional frameworks to ensure construct validity and comparability with prior research.

3.6 Data Analysis Techniques

The data analysis in this study employed Partial Least Squares Structural Equation Modeling (PLS-SEM). This analytical technique was selected because it is capable of analyzing complex relationships among latent variables and can accommodate relatively small sample sizes. In addition, PLS-SEM is suitable for predictive and exploratory research models.

The analysis process included the evaluation of the outer model and inner model. The outer model assessment was conducted to evaluate convergent validity, discriminant validity, and reliability of the measurement model. Meanwhile, the inner model assessment was conducted to examine the relationships among variables and test the proposed hypotheses.

3.7 Validity, Reliability, and Trustworthiness

To ensure the quality of the research instruments, validity and reliability testing were conducted within the PLS-SEM framework. Convergent validity was evaluated through factor loadings and Average Variance Extracted (AVE), while discriminant validity was assessed using cross-loadings and related criteria. Reliability testing was conducted using Cronbach's Alpha and Composite Reliability values.

These procedures were implemented to ensure that the measurement instruments accurately and consistently measured the intended constructs, thereby enhancing the robustness and trustworthiness of the research findings.

3.8 Ethical Considerations

This study considered ethical aspects throughout the research process. Respondents participated voluntarily and were informed

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about the purpose of the study before completing the questionnaire. Confidentiality and anonymity of respondents were maintained to ensure that personal information and responses were protected.

Furthermore, the collected data were used solely for academic and research purposes. Ethical compliance was maintained to uphold academic integrity and protect participants from potential risks associated with the research process.

3.9 Research Procedure

The research procedure was conducted systematically through several stages. First, the researcher identified the research problem and developed the conceptual framework based on relevant literature. Second, the research instruments were prepared by adapting indicators from previous studies and institutional frameworks.

Third, the questionnaire was distributed online using Google Forms through the Nadine Kemenkeu Application. Fourth, the collected data were screened and processed to ensure completeness and consistency. Finally, the data were analyzed using the PLS-SEM method to evaluate the measurement model and test the proposed hypotheses.

3.10 Methodological Limitations

This study has several methodological limitations. First, the use of a questionnaire-based survey may lead to response bias because the data rely on respondents' perceptions and self-reported answers. Second, the sample size was limited to 101 respondents, which may affect the generalizability of the findings.

Third, the study focused only on Ministry of Finance Regional Offices in Indonesia, limiting the applicability of the findings to other public sector institutions or organizational contexts. Fourth, the final sample represented 57.39% of the planned respondents, creating a potential risk of non-response bias. Although the respondents were purposively selected based on their direct responsibilities relevant to the research variables, the study did not obtain sufficient information about non-respondents to determine whether they systematically differed from respondents in terms of professional characteristics, experience, involvement in financial and procurement activities, or perceptions of fraud prevention mechanisms. This limitation should therefore be considered when interpreting the findings and assessing their generalizability. Future research is encouraged to involve broader samples and additional variables to provide more comprehensive insights into fraud prevention practices in the public sector.

4. Research Results and Discussions

4.1 Research Results

4.1.1 Sample Description and Descriptive Statistics

This study employed a quantitative research design using primary data collected through questionnaires distributed to respondents. The research sample consisted of respondents involved in village financial management and fraud prevention practices. The collected data were processed and analyzed using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach with the assistance of the SmartPLS 3 application.

Descriptive statistics were used to provide an overview of the research data and respondent characteristics. The analysis includes information regarding the distribution of responses, indicator values, and the overall condition of the variables studied, namely Apparatus Competence, Anti-Fraud Awareness, Whistleblowing System, and Fraud Prevention. The descriptive results indicate that the respondents generally provided positive responses toward the implementation of fraud prevention mechanisms and whistleblowing systems within organizational practices.

4.1.2 Data Quality and Preliminary Analysis

The data quality assessment was conducted through the evaluation of the

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measurement model (outer model) and structural model (inner model). The outer model evaluation included convergent validity, discriminant validity, and reliability testing to ensure that the indicators used in this study were valid and reliable.

The initial convergent validity testing showed that several indicators had outer loading values below the threshold value of 0.70, indicating that these indicators did not meet the validity criteria. Therefore, invalid indicators were removed from the model before conducting further analysis.

The initial measurement model identified seven indicators with substantially low outer loading values, namely KA8 (0.266), KA9 (0.245), KA10 (0.284), KAF4 (0.207), PF8 (0.345), PF9 (0.358), and SW9 (0.063). The decision to remove these indicators was not based solely on their statistical outer loading values. In addition to the statistical criterion, the indicators were reviewed in relation to the conceptual definition and content coverage of their respective constructs. The extremely low loading values indicated that these indicators did not adequately represent the common variance of the constructs in the empirical measurement model. Therefore, retaining them could weaken the measurement quality of the respective constructs.

The removal process was conducted while considering whether the remaining indicators continued to represent the essential dimensions of each construct. For Apparatus Competence, the removal of KA8, KA9, and KA10 left seven indicators (KA1–KA7), all of which showed outer loadings above 0.70 in the final measurement model. For Anti-Fraud Awareness, the removal of KAF4 left three indicators (KAF1–KAF3), which continued to represent the construct in the final model. For Fraud Prevention, PF8 and PF9 were removed, leaving seven indicators (PF1–PF7). For Whistleblowing System, SW9 was removed, leaving eight indicators (SW1–SW8). Thus, indicator deletion reduced the number of observed indicators but did not eliminate the construct itself or prevent each construct from being represented by multiple retained indicators.

The removal of these indicators therefore did not change the conceptual identity of the four constructs. Rather, it resulted in a more parsimonious measurement model in which the retained indicators demonstrated stronger empirical relationships with their respective latent constructs. The final model was consequently based on the retained indicators that satisfied the convergent validity criterion while maintaining the substantive meaning and content representation of Apparatus Competence, Anti-Fraud Awareness, Fraud Prevention, and Whistleblowing System.

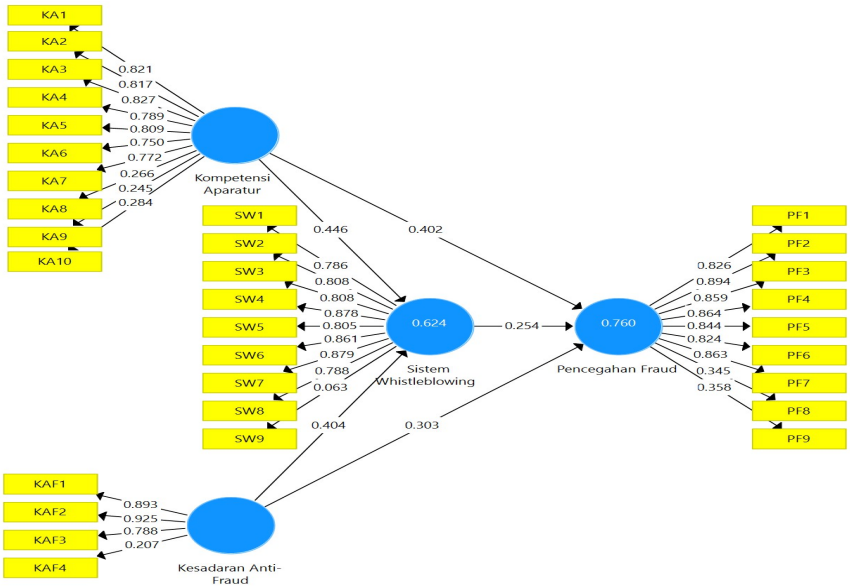

Fig. 2. Outer Structural Model

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a. Convergent Validity Test

Table 1. Convergent Validity Test

Variable	Indicator	Outer Loading	Information
Apparatus Competence	KA1	**0.821**	Valid
	KA2	**0.817**	Valid
	KA3	**0.827**	Valid
	KA4	**0.789**	Valid
	KA5	**0.809**	Valid
	KA6	**0.750**	Valid
	KA7	**0.772**	Valid
	KA8	**0.266**	Invalid
	KA9	**0.245**	Invalid
	KA10	**0.284**	Invalid
Anti-Fraud Awareness	KAF1	**0.893**	Valid
	KAF2	**0.925**	Valid
	KAF3	**0.788**	Valid
	KAF4	**0.207**	Invalid
Fraud Prevention	PF1	**0.826**	Valid
	PF2	**0.894**	Valid
	PF3	**0.859**	Valid
	PF4	**0.864**	Valid
	PF5	**0.844**	Valid
	PF6	**0.824**	Valid
	PF7	**0.863**	Valid
	PF8	**0.345**	Invalid
	PF9	**0.358**	Invalid
Whistleblowing System	SW1	**0.786**	Valid
	SW2	**0.808**	Valid
	SW3	**0.808**	Valid
	SW4	**0.878**	Valid
	SW5	**0.805**	Valid
	SW6	**0.861**	Valid
	SW7	**0.879**	Valid
	SW8	**0.788**	Valid
	SW9	**0.063**	Invalid

Source: Processed data (2023)

Convergent validity testing revealed loading factor values below 0.7, indicating that the constructs for all variables in the model are not yet deemed valid. Consequently, it is imperative to exclude these invalid indicators. Outer model structural model after removing invalid indicators.

The indicators identified as invalid in the initial measurement model were therefore excluded before the final measurement model was assessed. The deletion was undertaken because their loading values were substantially below the 0.70 criterion, while the remaining indicators continued to provide adequate

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representation of each construct. This procedure produced the final measurement model presented in Table 2.

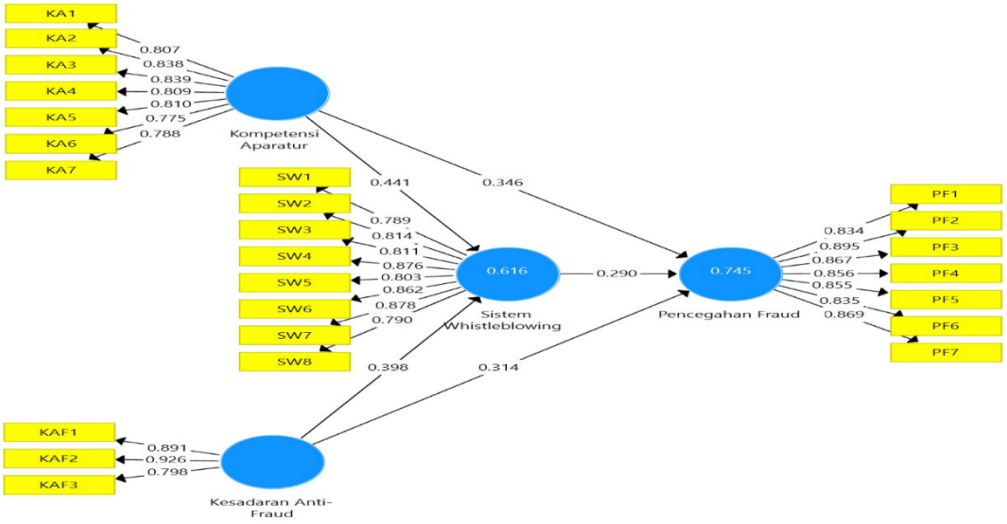

Fig. 3. Outer Structural Model (2)

Table 2. Convergent Validity Test (2)

Variable	Indicator	Outer Loading	Information
Apparatus Competence	KA1	**0.807**	Valid
	KA2	**0.838**	Valid
	KA3	**0.839**	Valid
	KA4	**0.809**	Valid
	KA5	**0.810**	Valid
	KA6	**0.775**	Valid
	KA7	**0.788**	Valid
Anti-Fraud Awareness	KAF1	**0.891**	Valid
	KAF2	**0.926**	Valid
	KAF3	**0.798**	Valid
Fraud Prevention	PF1	**0.834**	Valid
	PF2	**0.895**	Valid
	PF3	**0.867**	Valid
	PF4	**0.856**	Valid
	PF5	**0.855**	Valid
	PF6	**0.835**	Valid
	PF7	**0.869**	Valid
Whistleblowing System	SW1	**0.789**	Valid
	SW2	**0.814**	Valid
	SW3	**0.811**	Valid
	SW4	**0.876**	Valid
	SW5	**0.803**	Valid
	SW6	**0.862**	Valid
	SW7	**0.878**	Valid
	SW8	**0.790**	Valid

Source: Processed data (2023)

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Table 2 explicitly represents the final measurement model used in the subsequent PLS-SEM analysis. The final model consists of seven indicators for Apparatus Competence (KA1–KA7), three indicators for Anti-Fraud Awareness (KAF1–KAF3), seven indicators for Fraud Prevention (PF1–PF7), and eight indicators for Whistleblowing System (SW1–SW8). All retained indicators have outer loading values above 0.70, ranging from 0.775 to 0.926. This confirms that the final measurement model satisfies the specified convergent validity criterion.

After removing invalid indicators, the results of processing convergent validity values or correlations between constructs and variables indicate that the overall outer loading value exceeds 0.7, confirming the validity of the constructs for all variables in the model.

b. Discriminant Validity Test

Table 3. Discriminant Validity Testing

	Anti-Fraud Awareness	Apparatus Competence	Fraud Prevention	Whistleblowing System
Anti-Fraud Awareness				
Apparatus Competence	0.846			
Fraud Prevention	0.876	0.846		
Whistleblowing System	0.816	0.787	0.819	

Source: Processed data (2023)

Discriminant validity testing was conducted using the heterotrait-monotrait ratio (HTMT) with a criterion value not exceeding 0.9 (Hair et al., 2017). Table 3 shows that the HTMT values for all variables are below 0.9 (valid).

c. Reliability Test

Table 4. Reliability Testing

Variable	Cronbach's Alpha	Composite Reliability	Rule of Thumb	Model Evaluation
Anti-Fraud Awareness	0.922	0.951	> 0. 70	Reliable
Apparatus Competence	0.900	0.921		Reliable
Fraud Prevention	0.946	0.956		Reliable
Whistleblowing System	0.868	0.897		Reliable

Source: Processed data (2023)

Based on the table above, it can be concluded that the construct for all variables meet the reliability criteria. This is indicated by the Cronbach's Alpha and composite reliability values obtained >0.70 as recommended criteria.

The structural model (inner model) analysis was conducted to examine the relationships among latent variables. The evaluation included collinearity testing, coefficient of determination (R^2), predictive relevance (Q^2), and path coefficient analysis.

4.1.3 Main Analytical Results

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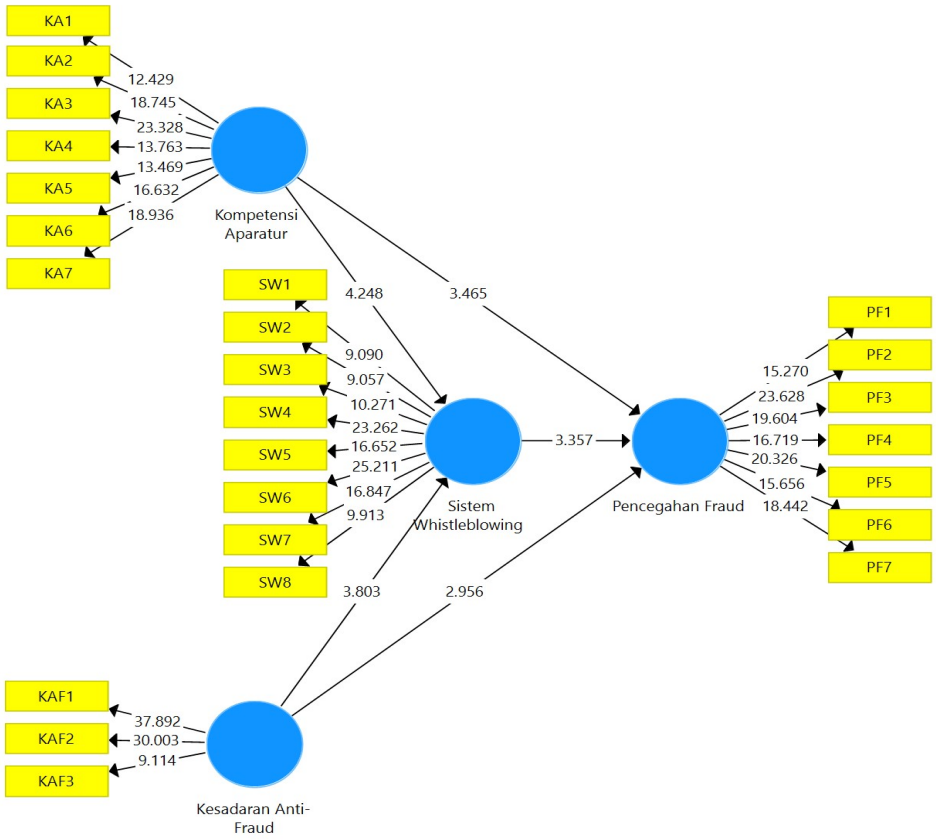

Fig. 4. Inner Structural Model

a. Collinearity Test

Collinearity testing within the structural model (inner model) is conducted by examining the tolerance values of each predictor construct through the inner Variance Inflation Factor (VIF). The inner VIF value should be > 0.20 and < 5. Table 4 shows that the inner VIF value is > 0.20 and < 5, indicating that there is no collinearity.

Table 5. Collinearity Test (Inner VIF Value)

Variable	Anti-Fraud Awareness	Apparatus Competence	Fraud Prevention	Whistleblowing System
Anti-Fraud Awareness			2,678	2,265
Apparatus Competence			2,771	2,265
Fraud Prevention				
Whistleblowing System			2,602	

Source: Processed data (2023)

b. Coefficient of Determination (R^2) and Predictive Relevance (Q^2)

Commonly used metrics to evaluate the structural model (inner model) include the coefficient of determination (R^2) and predictive relevance (Q^2). R^2 represents a measure of predictive power in the sample. On the other hand, Q^2 measures the ability of the model to predict data not used in model building. The resulting Q^2 value greater than 0 indicates that the exogenous constructs have predictive relevance for the endogenous constructs.

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Table 6. R Square and Q Square Values

Variable	R Square	R Square Adjusted	Q Square
Whistleblowing System	0.616	0.608	0.387
Fraud Prevention	0.745	0.737	0,509

Source: Processed data (2023)

The Adjusted R-Square value for the Whistleblowing System variable is 0.608 or 60.8%, indicating that the Apparatus Competence and Anti-Fraud Awareness variables can substantially account for 60.8% of the variability in the Whistleblowing System variable. The remaining 39.2% is influenced by other factors not included in this study's variables. Furthermore, the Adjusted R-Square value for the Fraud Prevention variable is 0.737 or 73.7%, suggesting that the variables Apparatus Competence, Anti-Fraud Awareness, and The Whistleblowing System can significantly explain 73.7% of the variability in the Fraud Prevention variable. The remaining 26.3% is influenced by other unaccounted factors. Additionally, Q^2 values for the fraud prevention variable and the whistleblowing system are 0.509 and 0.387 respectively, so it can be concluded that the model has predictive relevance.

4.1.4 Hypothesis Testing Results / Key Findings

Statistical testing of each hypothesized relationship using PLS is conducted through simulation, specifically by employing the bootstrapping method on the sample. The testing of hypotheses relies on statistical t-values and p-values obtained from the output path coefficients.

Table 7. Direct Influence Between Variables

	Original Sample (O)	T Statistics (|O/STDEV|)	P Values	Criteria	Hypothesis
Anti-Fraud Awareness -> Fraud Prevention	0.314	2.956	0.003	• Original Sample is positive (+) • T Statistics > t-table (1.96) • P values < significance level of 0.05	Accepted
Anti-Fraud Awareness-> Whistleblowing System	0.398	3.803	0.000		Accepted
Apparatus Competence -> Fraud Prevention	0.346	3.465	0.001		Accepted
Apparatus Competence -> Whistleblowing System	0.441	4.248	0.000		Accepted
Whistleblowing System -> Fraud Prevention	0.290	3.357	0.001		Accepted

Source: Processed data (2023)

Table 8. Indirect Influence Between Variables

	Original Sample (O)	T Statistics (|O/STDEV|)	P Values	Criteria	Hypothesis
Apparatus Competence -> Whistleblowing System -> Fraud Prevention	0.128	2.409	0.016	O value is positive (+), T Statistics > t-table (1.96), P values < 0.05	Accepted
Awareness Anti-Fraud -> Whistleblowing System -> Fraud Prevention	0.116	2.339	0.020		Accepted

Source: Processed data (2023)

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4.1.5 Visual Presentation of Results

The research findings are presented using tables and figures to improve clarity and readability. Each table and figure has been provided with a clear title and is explicitly referenced in the text to facilitate understanding of the empirical findings. The visual presentation includes the outer structural model, inner structural model, convergent validity testing, discriminant validity testing, reliability testing, collinearity testing, coefficient of determination analysis, and hypothesis testing results.

4.2 Research Discussion

4.2.1 Interpretation of Key Findings

a. The Influence of Apparatus Competence on Fraud Prevention

The test results in this research state that apparatus competency has a positive effect on fraud prevention. These findings align with the research conducted by Saputra but differ from the research results of (Chairi et al., 2022). Thus, this study contributes to the diverse range of results observed in previous research.

Chairi et al. (2022) and Syukri Putranto et al. (2022) used auditors as the subject of their research, so it is considered natural that the competence of auditors has an influence on fraud prevention. Chairi et al. (2022) argue that apparatus competency did not positively affect fraud prevention because their research subjects were state civil servants (ASN) with diverse competencies.

In contrast to prior research, this study reveals a positive relationship between apparatus competency and fraud prevention, focusing on a specific group of state civil servants (ASN) comprising Commitment Making Officials (PPK), procurement officials, and treasurers. Even though they are not auditors, the three targeted ASN groups are positions that are closely related to the budget execution process, possess special access to office assets, and play a pivotal role in financial reporting preparation. Therefore, ASNs who occupy these three groups of positions are selected ASNs whose competencies are required and prepared so that they are expected to be worthy of occupying these positions, including ethical competencies related to fraud prevention.

According to the hexagon fraud theory, one of the contributing factors to fraud is pressure (Vousinas, 2019). Elaborates that such pressure may arise from personal, work-related, or external sources. Sahla and Ardianto (2023) specifically highlight that excessive workloads can lead to fraudulent behavior. In this context, individuals with strong apparatus competence can mitigate such pressure through individual competence in task completion, team competence in group dynamics, change competence in adaptation, communication competence in understanding, and ethical competence in distinguishing right from wrong. Ultimately, the competence exhibited by the apparatus can serve as a deterrent against fraud by enabling individuals to fulfill organizational needs and perform their duties effectively (Wahyudi et al., 2022).

b. The Influence of Anti -Fraud Awareness on Fraud Prevention

The findings of this study indicate a positive and significant relationship between Anti-Fraud Awareness and fraud prevention. This suggests that employees with a higher level of Anti-Fraud Awareness are more likely to implement effective fraud prevention measures. These results align with previous research, which also demonstrates a positive impact of Anti-Fraud Awareness on fraud prevention (Shonhadji & Maulidi, 2021; Sihombing et al., 2023).

These results strengthen the diversity of respondents in previous studies with similar results. Sihombing et al. (2023) uses respondents in the form of employees at the Syarif Hidayatullah State Islamic University, uses respondents in the form of local government employees who work in the field of procurement, Shonhadji and Maulidi (2021) using respondents in the form of auditors at 13

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leading public accounting firms in East Java. Meanwhile, this research used respondents in the form of PPK, procurement officials and treasurers at Regional Offices of the Ministry of Finance throughout Indonesia.

Good anti- fraud awareness understand that fraud has a negative impact on efforts to increase economic growth, provide public facilities, provide employment opportunities, and efforts to reduce poverty. In short, employees with good anti- fraud awareness understand that fraud is detrimental to the interests of the wider community. Therefore, these employees will try to prevent fraud , either by maintaining personal integrity, warning others, or by reporting indications of fraud. This attitude is in accordance with the definition of social behavior theory Brief and Motowidlo (1986) which states that social behavior aims to achieve the welfare of individuals, groups and/or institutions. Thus, the higher the anti- fraud awareness that employees have, the better the fraud prevention will be, and vice versa.

c. Whistleblowing System on Fraud Prevention

This research found that the whistleblowing system has a positive and significant effect on fraud prevention. The results of this research show that the better the implementation of the whistleblowing system in an agency, the better the prevention of fraud committed by that agency. The results of this research are in line with the results of research conducted by Chairi et al. (2022) and Shonhadji and Maulidi (2021).

This research is related to the framework of the fraud hexagon theory which reveals the causes of fraud through six elements, namely pressure, opportunity, rationalization, capability, arrogance and collusion. The whistleblowing system is a tool for agencies to prevent and detect fraud so that the six elements that cause fraud can be suppressed because fraud perpetrators can be reported through the whistleblowing system by someone without them realizing it. The theory of prosocial behavior also supports this research, where in this theory whistleblowing is considered a positive social behavior because whistleblowers can stop mistakes or fraud with the aim of benefiting people inside or outside the institution.

ACFE (2022) found that an appropriate whistleblowing policy in an organization can significantly reduce the detection and disappearance period of fraud. It is hoped that an effective whistleblowing system will encourage public participation and agency employees to be more courageous in acting to prevent fraud by reporting it to parties who can handle it.

d. The Influence of Apparatus Competence and Anti -Fraud Awareness on Fraud Prevention by Mediating the Whistleblowing Systems

The results of this research show that the system Whistleblowing has a mediating effect, both on apparatus competence and morality. System Whistleblowing positively can mediate the relationship between organizational competence and anti - fraud awareness towards fraud prevention. The results of this research are supported and consistent with the fraud hexagon theory, which posits that the whistleblowing system serves as a crucial tool for organizations to prevent and detect fraud by addressing the underlying causes, including pressure, opportunity, rationalization, capability, arrogance, and collusion. Through whistleblower reports, these factors can be addressed covertly, without the reporter's knowledge. The presence of a whistleblowing system provides employees with a platform to report fraud, thus complementing other factors such as apparatus competence and anti-fraud awareness in the agency's efforts to prevent fraud.

4.2.2 Comparison with Previous Studies

a. The Influence of Apparatus Competence on Fraud Prevention

The test results in this research state that apparatus competency has a positive effect on

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fraud prevention. These findings align with the research conducted by Saputra et al. (2022) and Wahyudi et al. (2022), but differ from the research results of Chairi et al. (2022). Thus, this study contributes to the diverse range of results observed in previous research.

Saputra et al. (2022) and Wahyudi et al. (2022) used auditors as the subject of their research, so it is considered natural that the competence of auditors has an influence on fraud prevention. Chairi et al. (2022) argue that apparatus competency did not positively affect fraud prevention because their research subjects were state civil servants (ASN) with diverse competencies.

In contrast to prior research, this study reveals a positive relationship between apparatus competency and fraud prevention, focusing on a specific group of state civil servants (ASN) comprising Commitment Making Officials (PPK), procurement officials, and treasurers. Even though they are not auditors, the three targeted ASN groups are positions that are closely related to the budget execution process, possess special access to office assets, and play a pivotal role in financial reporting preparation. Therefore, ASNs who occupy these three groups of positions are selected ASNs whose competencies are required and prepared so that they are expected to be worthy of occupying these positions, including ethical competencies related to fraud prevention.

b. The Influence of Anti-Fraud Awareness on Fraud Prevention

The findings of this study indicate a positive and significant relationship between Anti-Fraud Awareness and fraud prevention. These results align with previous research, which also demonstrates a positive impact of Anti-Fraud Awareness on fraud prevention (Shonhadji & Maulidi, 2021; Sihombing et al., 2023).

These results strengthen the diversity of respondents in previous studies with similar results. Sihombing et al. (2023) uses respondents from commercial bank employees in several African countries, Sihombing et al. (2023) uses respondents in the form of employees at the Syarif Hidayatullah State Islamic University, Sihombing et al. (2023) uses respondents in the form of local government employees who work in the field of procurement, while Shonhadji and Maulidi (2021) use respondents in the form of auditors at 13 leading public accounting firms in East Java. Meanwhile, this research used respondents in the form of PPK, procurement officials, and treasurers at Regional Offices of the Ministry of Finance throughout Indonesia.

c. Whistleblowing System on Fraud Prevention

This research found that the whistleblowing system has a positive and significant effect on fraud prevention. The results of this research are in line with the findings of Chairi et al. (2022), Shonhadji and Maulidi (2021), and Suh and Shim (2020).

Compared to prior studies, this research strengthens the evidence that whistleblowing systems are effective not only in private organizations or auditing environments but also in public sector institutions, particularly within Regional Offices of the Ministry of Finance throughout Indonesia. The findings demonstrate that the better the implementation of the whistleblowing system in an agency, the better the prevention of fraud committed within that agency.

d. The Influence of Apparatus Competence and Anti-Fraud Awareness on Fraud Prevention by Mediating the Whistleblowing System

The results of this research show that the whistleblowing system has a mediating effect on the relationship between apparatus competence and anti-fraud awareness toward fraud prevention. The whistleblowing system positively mediates the relationship between organizational competence and anti-fraud awareness toward fraud prevention.

Compared with previous studies, this research extends the discussion by integrating

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competence, anti-fraud awareness, and whistleblowing systems into a single framework. Earlier studies generally examined these variables separately, while this study demonstrates that the whistleblowing system strengthens the influence of apparatus competence and anti-fraud awareness on fraud prevention simultaneously.

4.2.3 Theoretical Contributions

This research contributes to the development of the Fraud Hexagon Theory proposed by Vousinas (2019). According to the fraud hexagon theory, one of the contributing factors to fraud is pressure. Elaborates that such pressure may arise from personal, work-related, or external sources, while Sahla and Ardianto (2023) specifically highlight that excessive workloads can lead to fraudulent behavior. In this context, individuals with strong apparatus competence can mitigate such pressure through individual competence in task completion, team competence in group dynamics, change competence in adaptation, communication competence in understanding, and ethical competence in distinguishing right from wrong. Ultimately, the competence exhibited by the apparatus can serve as a deterrent against fraud by enabling individuals to fulfill organizational needs and perform their duties effectively (Wahyudi et al., 2022).

This study also strengthens the relevance of Prosocial Behavior Theory (Brief & Motowidlo, 1986). Good anti-fraud awareness enables employees to understand that fraud has a negative impact on efforts to increase economic growth, provide public facilities, provide employment opportunities, and reduce poverty. Employees with good anti-fraud awareness understand that fraud is detrimental to the interests of the wider community. Therefore, these employees will try to prevent fraud either by maintaining personal integrity, warning others, or reporting indications of fraud. This attitude is in accordance with Prosocial Behavior Theory, which states that social behavior aims to achieve the welfare of individuals, groups, and/or institutions.

Furthermore, this research extends the Fraud Hexagon Theory by demonstrating that the whistleblowing system acts as an important organizational mechanism to suppress the six elements of fraud, namely pressure, opportunity, rationalization, capability, arrogance, and collusion. Through whistleblower reports, these factors can be addressed covertly, without the reporter's knowledge. Thus, the presence of a whistleblowing system complements apparatus competence and anti-fraud awareness in strengthening fraud prevention efforts.

4.2.4 Practical and Policy Implications

The findings of this study provide several practical and policy implications for public sector organizations, particularly within the Ministry of Finance. First, organizations need to improve apparatus competence through continuous education, technical training, certification programs, and ethical development programs. Since PPK, procurement officials, and treasurers are directly involved in budget execution and financial reporting, strengthening their competence can minimize pressures and opportunities that may lead to fraud.

Second, organizations should enhance anti-fraud awareness among employees by conducting regular anti-fraud campaigns, ethics training, and integrity programs. Employees with strong anti-fraud awareness are more likely to maintain personal integrity, encourage ethical behavior, and actively participate in fraud prevention efforts.

Third, agencies need to strengthen the implementation of whistleblowing systems by ensuring confidentiality, protection for whistleblowers, accessibility of reporting channels, and timely follow-up of reports. ACFE (2022) found that an appropriate whistleblowing policy in an organization can significantly reduce the detection and disappearance period of fraud. An effective whistleblowing system is expected to

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encourage public participation and agency employees to be more courageous in acting to prevent fraud by reporting it to parties who can handle it.

From a policy perspective, policymakers are encouraged to integrate competence development, anti-fraud awareness programs, and whistleblowing mechanisms into broader public sector governance and fraud prevention strategies.

4.2.5 Integration with the Research Gap

This study addresses the research gap identified in previous literature regarding inconsistent findings on the influence of apparatus competence on fraud prevention, especially within public sector institutions. Previous studies showed varying results because they involved respondents with different backgrounds and competencies. This research fills the gap by focusing specifically on PPK, procurement officials, and treasurers within Regional Offices of the Ministry of Finance throughout Indonesia, who possess strategic responsibilities in budget execution and financial reporting.

In addition, prior studies generally examined apparatus competence, anti-fraud awareness, and whistleblowing systems separately. This research contributes originality by integrating these variables into a comprehensive framework and demonstrating the mediating role of the whistleblowing system in strengthening the relationship between apparatus competence, anti-fraud awareness, and fraud prevention. The integrated framework also clarifies the theoretical mechanisms underlying these relationships: apparatus competence is empirically related to the capability-related mechanism without being equated with capability itself, anti-fraud awareness can shape responses relevant to rationalization and arrogance without directly representing those dimensions, and whistleblowing provides a prosocial behavioral mechanism through which competence and awareness can be translated into fraud-prevention action. Therefore, this study provides a more comprehensive understanding of fraud prevention mechanisms in the public sector context.

4.2.6 Acknowledgement of Study Limitations

This study has several limitations that should be acknowledged. First, the research context is limited to Regional Offices of the Ministry of Finance throughout Indonesia, which may limit the generalizability of the findings to other public sector institutions or private organizations with different organizational characteristics and governance systems.

Second, the respondents in this study were limited to Commitment Making Officials (PPK), procurement officials, and treasurers. Although these positions are highly relevant to fraud prevention, the findings may not fully represent the perspectives of other employees or stakeholders within public sector organizations.

Third, this study focuses on apparatus competence, anti-fraud awareness, whistleblowing systems, and fraud prevention. Other potential factors influencing fraud prevention, such as organizational culture, leadership style, internal control effectiveness, or technological systems, were not examined in this study. Therefore, future research is encouraged to explore additional variables and broader organizational contexts to provide a more comprehensive understanding of fraud prevention practices.

5. Conclusion

5.1 Summary of Key Findings

This This study demonstrates that apparatus competency has a positive influence on fraud prevention in Regional Offices of the Ministry of Finance throughout Indonesia. The direct effect of apparatus competency on fraud prevention was statistically significant and positive, confirming that higher apparatus competency contributes to more effective fraud prevention. The findings indicate that the better the competence possessed by the

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apparatus, the more effective fraud prevention efforts become. In addition, anti-fraud awareness was found to positively affect fraud prevention, with its direct effect on fraud prevention also statistically significant and positive. This finding indicates that higher employee awareness regarding anti-fraud values and behaviors contributes significantly to reducing the potential occurrence of fraud.

Furthermore, the whistleblowing system also has a positive impact on fraud prevention. The direct effect of the whistleblowing system on fraud prevention was statistically significant and positive, indicating that an effective reporting mechanism strengthens fraud prevention within government institutions. This finding implies that the implementation of an effective whistleblowing system can strengthen fraud prevention mechanisms within government institutions. The study also reveals that the whistleblowing system acts as a mediating variable in facilitating the positive influence of apparatus competency and anti-fraud awareness on fraud prevention in Regional Offices of the Ministry of Finance throughout Indonesia. Specifically, the indirect effect of apparatus competency on fraud prevention through the whistleblowing system was statistically significant, demonstrating that the whistleblowing system significantly mediates this relationship. Similarly, the indirect effect of anti-fraud awareness on fraud prevention through the whistleblowing system was statistically significant, confirming that the whistleblowing system also mediates the relationship between anti-fraud awareness and fraud prevention. Thus, the findings support both direct relationships and indirect relationships involving the whistleblowing system as a mediator, rather than indicating only a general contribution of all variables to fraud prevention. These findings confirm the importance of integrating human resource competence, ethical awareness, and reporting mechanisms in strengthening organizational fraud prevention practices.

5.2 Theoretical Contributions

This study contributes to the development of fraud prevention literature, particularly within the public sector context, by providing empirical evidence regarding the relationships between apparatus competency, anti-fraud awareness, whistleblowing systems, and fraud prevention. The findings extend the application of fraud-related theories by emphasizing that fraud prevention is not only influenced by individual competence and ethical awareness, but also strengthened through institutional mechanisms such as whistleblowing systems.

In addition, this study enriches previous research by positioning the whistleblowing system as a mediating variable that bridges the influence of apparatus competency and anti-fraud awareness on fraud prevention. This contribution provides a broader understanding of how organizational control mechanisms interact with human resource factors in preventing fraudulent behavior, especially in government institutions.

5.3 Practical and Policy Implications

The findings of this study imply that government agencies should prioritize the development of apparatus competence and anti-fraud awareness as strategic efforts to mitigate fraud. This can be achieved through transparent and equitable recruitment processes, continuous competency development programs, ethics training, and the implementation of anti-fraud awareness campaigns among employees.

Moreover, government institutions are encouraged to establish and strengthen effective whistleblowing systems that ensure confidentiality, protection, and trust for whistleblowers. A robust whistleblowing mechanism can increase employee confidence and public participation in reporting suspected fraud, thereby supporting the creation of transparent, accountable, and fraud-resistant public sector governance. Policymakers may also utilize these findings as a reference in

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designing policies related to internal control systems, employee competency standards, and fraud reporting mechanisms within public institutions.

5.4 Limitations of the Study

This study has several limitations that should be considered when interpreting the findings. First, the study only examines apparatus competency, anti-fraud awareness, and whistleblowing systems as determinants of fraud prevention. There are still many other variables that may influence fraud prevention but were not included in this research, such as organizational culture, leadership style, internal control effectiveness, and technological support systems.

Second, the analysis of questionnaire data revealed that all responses to negative statements were categorized as invalid. This condition likely occurred because some respondents were not aware of the presence of negative statements in the questionnaire. In addition, the use of Google Forms as the survey platform limited the ability to emphasize negative statements through formatting features such as bold text, which may have affected respondents' understanding of several questionnaire items.

5.5 Directions for Future Research

Future studies are recommended to explore additional variables that may influence fraud prevention in public sector organizations, such as organizational culture, ethical leadership, internal control systems, digital governance, and technological innovation. Expanding the research model may provide a more comprehensive understanding of the factors contributing to fraud prevention.

Further research is also encouraged to apply different methodological approaches, such as mixed methods or longitudinal studies, to obtain deeper insights into fraud prevention practices over time. Additionally, future studies may examine different institutional contexts, including local governments, state-owned enterprises, or private organizations, in order to enhance the generalizability of the findings. Researchers are also advised to improve questionnaire design and data collection techniques to minimize respondent misunderstanding, particularly regarding negatively worded statements.

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