
Strengthening Fraud Prevention Through the Three Lines of Defense in Public Infrastructure Oversight

Deka Bayu Dirgantara, Arum Prastiwi, Virginia Nur Rahmanti

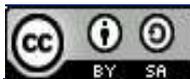
Universitas Brawijaya, Indonesia

Email: dekabayu.dirgantara@gmail.com, arum@ub.ac.id, virginia@ub.ac.id

ABSTRACT

This study examines the effectiveness of fraud prevention in the Directorate General of Infrastructure Financing at the Indonesian Ministry of Public Works using the Three Lines of Defense model. Employing a qualitative ethnomethodological approach, the research explores how actors in each line—the operational units, internal compliance, and internal auditors—perceive and perform their roles in everyday practices. Data were collected through in-depth interviews and focus group discussions with nine informants, representing each line equally. The analysis reveals that formal oversight structures are often interpreted and enacted through informal social norms, with coordination heavily reliant on interpersonal trust and ad hoc communication. The study identifies key challenges, including overlapping responsibilities, limited authority of the second line, and a lack of integrated procedures. Moreover, the findings highlight that the perception of fraud and internal control is shaped by collective social knowledge, which does not always align with institutional policies. This gap between formal frameworks and practical implementation undermines the overall effectiveness of fraud prevention mechanisms. The research suggests that aligning policy and practice requires developing cross-line standard operating procedures, empowering the second line structurally, fostering a culture of risk awareness, and institutionalizing collaborative forums to ensure coherent coordination. These strategies aim to reinforce not only structural integrity but also the social and cultural dimensions of internal oversight.

KEYWORDS Fraud Prevention, Three Lines of Defense, Ethnomethodology, Public Sector Oversight, Internal Control Effectiveness



This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International

INTRODUCTION

Fraud remains one of the most pressing challenges in public financial management, particularly within complex government institutions in Indonesia. Beyond financial losses, fraud undermines public trust and institutional integrity (Othman et al., 2015). A major form of fraud is corruption, and its prevalence continues to rise in Indonesia. Data from Indonesia Corruption Watch (ICW) indicates a total of 791 corruption cases in 2023, with estimated state losses reaching Rp 28 trillion (Anandya & Ramadhana, 2024). These numbers reflect a persistent governance issue that demands a more effective and integrated fraud prevention strategy.

Several structural and behavioral factors contribute to the escalation of fraud, such as high political costs, weak procurement oversight, conflict of interest, lack of transparency, and lenient penalties (KPK, 2025). Particularly in the infrastructure sector, corruption often manifests through procurement violations and project mismanagement. The IPAL Makassar

project, for example, caused state losses of Rp 7.9 billion due to manipulation and collusion (Detik.com). Similarly, the Ministry of Public Works (PU) was involved in irregularities in toll road development specifically, the Ancol Timur–Pluit project was expanded without a tender process, raising concerns of abuse of power and weak internal controls (Bpk.go.id; Samuel, 2022; Tanaka & Hayashi, 2016).

To address such risks, the PUPR Ministry has adopted the Three Lines of Defense Model, which separates roles among the operational units (first line), internal compliance (second line), and government internal auditors APIP (third line) (Kementerian PUPR, 2024). While this model provides a structured control framework, its effectiveness depends heavily on the synergy and shared understanding between these lines. In practice, challenges such as overlapping responsibilities, poor integration, and limited human resource capabilities hinder optimal implementation (Syahlan et al., 2022).

Fraud risk analysis often utilizes theoretical frameworks such as the Fraud Triangle introduced by Cressey (1953), but recent studies have expanded this into the Fraud Hexagon, which includes arrogance, capability, and collusion, making it more relevant in dynamic public sector contexts (Syahlan et al., 2022). Despite the growing literature on internal control and fraud prevention (Ali et al., 2022; Mubarokah & Rahayu, 2023), few studies have specifically assessed the implementation of the Three Lines Model from the perspective of practitioners within public infrastructure sectors.

This study addresses that gap by offering a novel approach using ethnomethodology a qualitative method focusing on how individuals construct meaning through everyday interactions (Kamayanti, 2020). Unlike previous quantitative or document-based analyses (Aziz & Othman, 2021), this study explores the lived experiences and subjective interpretations of actors in each line of defense at the Directorate General of Infrastructure Financing, Ministry of Public Works.

Given the strategic role of this directorate in managing infrastructure budgets, evaluating how each actor perceives and executes their control functions is crucial. The urgency of this study is underscored by increasing budget allocations and public scrutiny in the infrastructure sector, making it imperative to ensure that fraud prevention mechanisms are both understood and effectively implemented.

Thus, the study aims to (1) analyze the effectiveness of fraud prevention based on practitioners' understanding of their roles in each line of defense and (2) formulate strategies to align policies with actual practices to strengthen fraud prevention efforts. The findings are expected to contribute both theoretically by deepening insights into the social construction of internal control effectiveness and practically, by offering grounded recommendations to improve synergy across the three lines of defense in public sector institutions.

RESEARCH METHOD

This study employed a qualitative approach within an interpretive paradigm using the ethnomethodology method. The research focuses on understanding the perceptions and coordination among the three lines of defense within the Directorate General of Infrastructure Financing (DJPI), Ministry of Public Works. These include the first line (executing units), second line (internal compliance), and third line (internal audit by the Inspectorate General). It investigates how these actors interpret their roles, navigate policy-practice gaps, and coordinate

to enhance the effectiveness of fraud prevention strategies (Ayulestari, 2019; Kamayanti, 2020, p. 157).

Data were collected from both primary and secondary sources. Primary data were obtained through in-depth interviews and Focus Group Discussions (FGDs) involving nine informants. Each line of defense was represented by three informants selected based on their active involvement in fraud prevention and control functions. The first line informants were unit-level practitioners involved in infrastructure financing, the second line represented internal compliance officers responsible for internal control and risk management, and the third line consisted of internal auditors from the Inspectorate General who conducted risk-based performance audits.

Interviews were semi-structured to allow flexible exploration of the subjects' understanding of their responsibilities, fraud risks, coordination practices, and strategic insights (Velardo & Elliott, 2021). FGDs enabled the observation of collective meaning-making and social negotiation among peers.

Secondary data came from relevant documents, including Standard Operating Procedures, audit reports, and internal regulations. These documents helped identify inconsistencies between formal policies and actual practices (Bougie & Sekaran, 2019, pp. 37-38).

Data analysis followed four ethnomethodological stages: identifying indexicality, examining reflexivity, analyzing contextual action, and revealing common sense knowledge of social structures (Kamayanti, 2020, pp. 153-161). Data validation used source and methodological triangulation, comparing interview and document findings while applying member checks to enhance credibility (Creswell, 2023, p. 218; Stake, 1995, pp. 112-114). This methodology ensures a deep understanding of how social practices influence the functioning of fraud prevention systems.

RESULTS AND DISCUSSION

This study reveals how the effectiveness of the fraud prevention system within the Three Lines of Defense framework at the Directorate General of Infrastructure Financing (DJPI) of the Ministry of Public Works is understood and practiced by actors in each line. The findings are structured through four ethnomethodological analysis stages: indexicality, reflexivity, contextual action, and common sense knowledge.

Perceptions and Practices of Fraud Prevention: From Indexicality to Reflexivity

Initial findings from the analysis of indexicality reveal that organizational actors' understanding of the term "fraud" is heavily influenced by their work context, structural position, and individual experience within the three lines of defense. Informants from the first line (operational units) tended to define fraud as administrative irregularities such as documentation mismatches, procedural violations, or data input errors. In contrast, informants from the second and third lines exhibited a more systemic understanding of fraud, viewing it as a deliberate legal violation involving personal gain, collusion, and weaknesses in internal control systems. This contextual interpretation aligns with the concept of indexicality in ethnomethodology, which asserts that the meaning of an action or term can only be understood within its social context (Kamayanti, 2020, p. 154).

When examined further through reflexivity analysis, fraud prevention practices were found to rely heavily on social habits that are not always reflected in written regulations. One such example is the practice of informal “double-checking” or peer cross-verification prior to finalizing a transaction. Although a formal document verification system is in place, actors in the first line often place greater trust in informal mechanisms based on social relationships and personal reputation. This indicates that internal control systems are not implemented solely through formal procedures, but also through trust and social interaction embedded in daily work routines.

In addition, direct supervisors are frequently involved in informal discussions before any official reporting or escalation takes place. This is commonly seen as a strategy to maintain workplace harmony and avoid conflict or negative stigma from peers. However, this reflexivity also raises ethical dilemmas when selective reporting leads to the tolerance of minor fraud cases. The tendency to filter reporting through informal channels without formal documentation reflects practices of collusion—silent cooperation to protect each other and arrogance, where actors feel entitled to decide which violations are worth reporting and which can be ignored. This supports the assertion by Syahlan et al. (2022) that elements of collusion and arrogance within the Fraud Hexagon still frequently emerge in public oversight systems, particularly when organizational culture does not support open and transparent reporting.

Findings at the reflexivity stage suggest that fraud prevention systems cannot rely solely on formal policies and procedures. Instead, their effectiveness heavily depends on how individuals within the organization interpret, adapt, and reconstruct their actions based on the collectively formed social consensus. Therefore, to strengthen fraud prevention mechanisms, organizations must consider the informal dimensions of social interaction, foster a culture of open communication, and create safe spaces for discussion across all lines of defense.

Structural and Institutional Challenges

This study identifies several structural and institutional challenges in implementing the Three Lines of Defense model within the Directorate General of Infrastructure Financing (DJPI) at the Ministry of Public Works and Housing (PUPR), which affect the effectiveness of fraud prevention systems. These challenges do not necessarily indicate systemic weaknesses, but rather reflect the dynamics of policy implementation at the technical level, as well as practical limitations in coordination among oversight lines.

One key finding is the continued overlap of duties between the lines. In practice, the first line sometimes opts to directly discuss or report specific issues to the third line (internal auditors/APIP) without going through the coordination channel via the second line. This is not due to a lack of support from the second line, but is often influenced by limited human resources and is seen as a practical solution by field-level implementers to expedite problem-solving. In addition, there is a prevailing perception within the first line that risk management is solely the responsibility of the second line, rather than being part of their own role. This perception reinforces a delegative tendency and weakens the active involvement of the first line in risk management. Consequently, the coordinating and monitoring function of the second line as a bridge between implementers and independent oversight is diminished, risking overlaps in reporting and inconsistency in follow-up actions.

The organizational structure of the internal compliance unit, which serves as the second line, also affects the effectiveness of oversight. This unit is typically positioned at echelon III (mid-level managerial rank within the Indonesian civil service hierarchy), while many implementing units operate at echelon II (higher-level executive rank). Several informants noted that although the second line possesses technical competence and an understanding of risk management, its lower structural position limits its ability to deliver recommendations or engage in strategic decision-making. This finding aligns with Samuel (2022), who emphasizes that the authority of internal oversight functions is strengthened when supported by an equivalent structural position.

Another emerging challenge concerns uneven comprehension of internal control policies, not in terms of technical SOP implementation, but more fundamentally in the conceptual understanding of how the business processes carried out by each unit are inherently connected to the Three Lines of Defense framework. Some informants indicated that many employees still view fraud prevention or risk management as the responsibility of the second or third line, rather than as an integral part of their own activities. This reveals the need to strengthen awareness of each line's role within an integrated oversight framework. Such differences in interpretation can lead to inconsistent practices across units and weaken the internalization of control culture in daily operations.

Furthermore, cross-line coordination mechanisms have yet to be fully institutionalized. For instance, reporting findings directly from the first to the third line although intended to accelerate resolution can blur the lines of function and authority among the three lines. This suggests a lack of optimal formal communication mechanisms across the lines, which, over time, can erode the integrity of the system's design.

In conclusion, while the Three Lines model is normatively designed to enhance oversight effectiveness, implementation challenges such as unequal structural positioning, misconceptions about the division of risk management responsibilities, and weak integration between business process understanding and oversight roles point to the need for stronger synergy among the lines. Enhancing human resource capacity, establishing more robust cross-line coordination forums, and strengthening the institutional positioning of the internal compliance function are key strategies to address these challenges and ensure that the oversight system functions as originally intended.

Collective Social Knowledge: Effectiveness as Organizational Consensus

This study reveals that the effectiveness of fraud prevention within the three lines of defense system at the Directorate General of Infrastructure Financing (DJPI) of the Ministry of Public Works is not solely dependent on the existence of formal structures and written policies. Instead, it is also shaped through collective social knowledge developed by oversight actors in their daily practices. From an ethnomethodological perspective, effectiveness is a product of meaning construction that is jointly reproduced through social interactions among organizational members (Kamayanti, 2020, p. 154).

One form of collective knowledge identified is the awareness that fraud oversight requires cross-line collaboration and cannot be executed in a siloed manner. However, field practices have not fully reflected this understanding. Informants from both the first and second lines acknowledged the importance of synergy but also noted that inter-unit coordination often

relies on informal initiatives or personal relationships. When facing issues, some actors tend to coordinate directly with the third line (APIP), bypassing the second line. Although this is often done in the name of efficiency, such practices may obscure the roles of each line as originally designed in the Three Lines of Defense model.

Furthermore, the absence of cross-line SOPs (Standard Operating Procedures) that could serve as a shared reference for fraud control efforts was also observed. While each unit has its own internal procedures, the lack of collaborative guidelines has resulted in unstandardized coordination among the lines. Several informants noted that this poses risks of overlapping responsibilities or functional gaps when dealing with complex oversight issues. This situation suggests that effectiveness has not yet been fully understood and implemented as a collective responsibility across the lines but remains confined within the structural boundaries of each unit.

The absence of a formal space to harmonize understanding also emerged as a critical concern. Informants from all three lines agreed on the need for a cross-line collaborative forum to align interpretations of regulations, discuss oversight cases, and collectively formulate prevention strategies. As of now, such a space has not been institutionalized systematically, causing inter-line communication to occur in a sectoral and incidental manner. This finding aligns with (Syahlan et al., 2022), who emphasize the importance of horizontal synergy among the lines in fostering effective oversight.

Therefore, the effectiveness of fraud prevention in DJPI's three-line system depends not only on the completeness of structures and regulations but also on how meanings, understandings, and responsibilities of oversight are socially constructed. Strengthening the system requires not only policy enhancement but also the development of cross-line forums, formulation of collaborative SOPs, and reinforcement of a communication culture that supports inter-unit cooperation. Without collective understanding built from the ground up, the oversight system risks operating in a fragmented manner, ultimately falling short in its goal of preventing fraud.

Strategies to Align Policy and Practice

Based on the contextual action and common-sense knowledge analyses, this study recommends five key strategies to align policy and practice within the Three Lines of Defense model. These strategies also reinforce previous findings by Othman et al. (2015) and Glory et al. (2022), which state that the effectiveness of fraud control in the public sector can be influenced by the active involvement of organizational actors and the system's ability to respond to evolving risk dynamics.

a. Cross-Line SOP Development

The absence of a standard operating procedure (SOP) that explicitly regulates coordination between the three lines has led to overlapping roles and functional gaps. A collaboratively developed cross-line SOP is needed to prevent miscommunication and ensure a common understanding of each line's role in fraud prevention. This aligns with the principle of role clarity in the Three Lines model (The Institute of Internal Auditors (IIA), 2020), which highlights the importance of clearly defined functions among oversight actors.

b. Integrated Reporting System

An integrated reporting system that enables real-time information exchange among the first, second, and third lines is essential to enhance coordination efficiency and accelerate responses to fraud indications. As found by Othman et al. (2015), the role of technology and internal control mechanisms in fraud detection supports the potential of digital solutions to strengthen connectivity and responsiveness across structurally distinct oversight functions.

c. Risk Awareness Culture

The findings reveal that actors in the first line often conduct control measures based on routine procedures without proactively managing fraud risks. Therefore, it is essential to cultivate an organizational culture that places risk awareness as a collective responsibility. This is consistent with the *Fraud Hexagon* (Syahlan et al., 2022), which emphasizes that organizational values and internal control systems are critical components in preventing fraud in the public sector.

d. Empowerment of the Second Line

Structurally, the second line still faces authority limitations, which hinder its effectiveness as a bridge between implementers and auditors. Strengthening the position and authority of internal compliance units is necessary to enable them to perform their roles optimally. According to the Three Lines model (The Institute of Internal Auditors (IIA), 2020), effective oversight can only be achieved when each line is granted proportionate functional autonomy.

e. Collaborative Forums

A structured cross-line forum is needed to align perceptions, discuss findings, and collectively formulate follow-up actions. The absence of such a forum often leads to siloed supervision practices. Findings from Glory et al. (2022) regarding the importance of internal communication, training, and policy strengthening provide a foundation for developing compliance forums or joint reviews that foster alignment across lines.

These strategies aim to reinforce a monitoring system that is not only structural but also social and cultural. Adapting to organizational dynamics is crucial to ensure that fraud control systems can function collaboratively and effectively over the long term.

CONCLUSION

This study concludes that the effectiveness of fraud prevention within the Directorate General of Infrastructure Financing at the Ministry of Public Works does not solely rely on the formal structure of the three lines of defense system, but also on how oversight actors interpret and perform their roles in daily practices. Suboptimal cross-line coordination, limited authority of the second line, and the absence of integrated procedures are key obstacles to establishing a surveillance system that is both integrated and responsive to fraud risks. The findings highlight that effective oversight cannot be achieved merely through administrative compliance; it must also be supported by a collaborative approach and a collective awareness of risk. Strategies such as developing cross-line SOPs, strengthening integrated reporting systems, empowering the second line, and establishing collaborative forums are crucial steps to align policies with on-the-ground practices. This study is limited in scope to a single institution and involves a relatively small number of participants, thus it is not intended to be generalized. Future research

is recommended to conduct comparative studies across institutions or employ quantitative or mixed-method approaches to broaden understanding and test the consistency of findings in broader contexts.

REFERENCES

- Ali, F., Handro, A., Caltex Riau, P., & Umbansari No, J. (2022). Accountants and auditors' perceptions of technology and attitude of integrity in preventing fraud. *Jurnal Akuntansi*, 13(2).
- Anandya, D., & Ramadhana, K. (2024). Laporan hasil pemantauan tren korupsi tahun 2023. *Indonesia Corruption Watch*, 1–51.
- Ayulestari, N. (2019). *Surprise audit dalam pencegahan fraud: Studi etnometodologi pada kasus perusahaan X* [Unpublished manuscript]. Universitas Muhammadiyah Surakarta. <http://eprints.ums.ac.id/id/eprint/80514/Naskah%20Publikasi%20Ilmiah.pdf>
- Aziz, F. L. A., & Othman, I. W. (2021). Internal auditors' perception on the efficacy of fraud prevention and detection in the public sector. *Universal Journal of Accounting and Finance*, 9(4), 764–772. <https://doi.org/10.13189/ujaf.2021.090422>
- Badan Pemeriksa Keuangan Republik Indonesia. (n.d.). *BPK ungkap temuan penting dalam LHP DTT penyelenggaraan jalan tol Kementerian PUPR*. Retrieved February 21, 2025, from <https://www.bpk.go.id/news/bpk-ungkap-temuan-penting-dalam-lhp-dtt-penyelenggaraan-jalan-tol-kementerian-pupr>
- Bougie, R., & Sekaran, U. (2019). *Research methods for business: A skill building approach* (8th ed.). John Wiley & Sons.
- Cressey, D. R. (1953). *Other people's money: A study in the social psychology of embezzlement*. Free Press.
- Creswell, J. W. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). SAGE Publications.
- Detik.com. (n.d.). *Ketua pokja jadi tersangka baru korupsi proyek IPAL Makassar Rp 7,9 M*. Retrieved January 20, 2025, from <https://www.detik.com/sulsel/makassar/d-7612968/ketua-pokja-jadi-tersangka-baru-korupsi-proyek-ipal-makassar-rp-7-9-m/amp>
- Glory, G. M., Lazaro, A. M., & Alexis, N. (2022). Effectiveness of fraud prevention and detection methods in the public sector in Tanzania. *Journal of Accounting and Taxation*, 14(1), 30–36. <https://doi.org/10.5897/jat2021.0496>
- Kamayanti, A. (2020). *Metodologi penelitian kualitatif akuntansi: Pengantar religiositas keilmuan* (Ed. 2, A. D. Mulawarman, Ed.). Penerbit Peneleh.
- Kementerian Pekerjaan Umum dan Perumahan Rakyat. (2024). *Best practices of public sector risk management: Studi kasus Kementerian PUPR professional recognition program qualified government internal auditor*.
- Komisi Pemberantasan Korupsi. (2025). *Mengkaji untuk membasmi*. https://cms.kpk.go.id/storage/6588/MENKAKJI-UNTUK-MEMBASMI_KAJIAN-MONITORING-2020-2024-ISBN.pdf
- Mubarokah, N. L., & Rahayu, S. I. (2023). Determining factors for fraud prevention. *Journal of Accounting, Management, and Economics Research (JAMER)*, 2(2), 93–104. <https://doi.org/10.33476/jamer.v2i2.152>

- Othman, R., Aris, N. A., Mardziah, A., Zainan, N., & Amin, N. M. (2015). Fraud detection and prevention methods in the Malaysian public sector: Accountants' and internal auditors' perceptions. *Procedia Economics and Finance*, 28, 59–67. [https://doi.org/10.1016/s2212-5671\(15\)01082-5](https://doi.org/10.1016/s2212-5671(15)01082-5)
- Samuel, O. A. (2022). Internal audit efficiency and fraud prevention: Empirical study of listed manufacturing companies in Nigeria. *International Journal of Management and Economics Invention*, 8(9), 5338–5357. <https://doi.org/10.47191/ijmei/v8i9.04>
- Stake, R. E. (1995). *The art of case study research*. SAGE Publications.
- Syahlan, K., Febriani, F., Sayyid, M., Widiyawati, W., & A'alia, P. S. (2022). Peran three lines model dalam mendeteksi fraud hexagon model berdasarkan sudut pandang mahasiswa akuntansi. *E-Prosiding Akuntansi*, 3(1), 37–50. <https://doi.org/10.31326/V3I1.1179>
- Tanaka, S., & Hayashi, S. (2016). Collusion between public procurers and suppliers in the context of Japan's public procurement: The role of the risks of "unsuccessful procurement." *Journal of Public Procurement*, 16(3), 291–311. <https://doi.org/10.1108/JOPP-16-03-2016-B003>
- The Institute of Internal Auditors. (2020). *The IIA's three lines model: An update of the three lines of defense*. <https://www.theiia.org/en/content/position-papers/2020/the-iias-three-lines-model-an-update-of-the-three-lines-of-defense/>
- Velardo, S., & Elliott, S. (2021). Co-interviewing in qualitative social research: Prospects, merits and considerations. *International Journal of Qualitative Methods*, 20, 1–14. <https://doi.org/10.1177/16094069211054920>