

Scoping Review: Implementing the Three Lines Model through ICOFR in Indonesian Government

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Abstract

Purpose: This study examines how Internal Control over Financial Reporting (ICOFR), mandated by PMK No. 17/PMK.09/2019, operationalizes the Three Lines Model within Indonesian government entities.

Methodology/approach: Scoping Review was conducted using Arksey and O'Malley's framework and reported with PRISMA-ScR guidance. Literature from Scopus, Google Scholar, Garuda, and SINTA. From an initial pool of 253 records, 14 studies and professional reports were deemed relevant and synthesized thematically.

Results/findings:

Four themes emerged

- Role clarity drives effectiveness
Line 1 (management) owns risks and evidence; Line 2 (ICOFR assessor) applies consistent assessment and challenge; Line 3 (audit internal/APIP) conducts pre issuance review.
- Leadership converts policy into practice through resources, KPIs, and follow through that reduce repeat deficiencies.
- Assessment quality depends on clear evidence standards, risk based sampling, and timely independent challenge.
- Capability and technology must move together:
Role based training, shared SOPs/assessor tools, and routine IT control ownership improve consistency and re-performance.

Conclusions: ICOFR effectively translates the Three Lines Model into operational governance when each line fulfills its role with discipline and accountability.

Limitations: Findings rely on available academic and professional literature, which may not capture all government practices.

Contribution: This review maps current practices, clarifies how ICOFR operationalizes the Three Lines in government, and highlights improvement priorities—offering insights for policymakers, auditors, and researchers in public sector governance and internal control.

Keywords: *public sector governance, internal auditor, public sector accounting, tone of the top, information technology general control*

1. Introduction

Internal Control over Financial Reporting (ICOFR) plays a strategic role in ensuring the reliability and accountability of financial reporting, particularly within the government sector in Indonesia (Kementerian Keuangan Republik Indonesia, 2019). The implementation of ICOFR in Indonesia specifically in the public sector is regulated by the Ministry of Finance Regulation (PMK) Number 17/PMK.09/2019. This regulation provides detailed guidelines on the application, assessment, and review of central government ICOFR. The objective is to strengthen government financial governance by offering reasonable assurance that the financial reports produced are reliable and prepared in accordance with government accounting standards (Kemenkeu, 2019).

The implementation of ICOFR in the government sector is a direct response to the need for a robust system of internal control, specifically designed to ensure the delivery of reasonable assurance that organizational objectives are met through effective and efficient operations, reliable financial reporting, the safeguarding of assets, and compliance with prevailing laws and regulations (Kemenkeu, 2019). By designing systematic internal controls, ICOFR enables the identification and mitigation of risks related to errors or irregularities in financial reports, producing accurate and trustworthy reports (Kemenkeu, 2019).

Globally, the concept of ICOFR has long been adopted in the private sector, particularly through regulatory frameworks such as the Sarbanes-Oxley Act (SOX) in the United States (PwC Indonesia, 2024). SOX emphasizes the responsibility of management and the board of directors to establish and maintain effective ICOFR, thereby reducing the risk of misstatements in the company's financial reports through the implementation of ICOFR (PwC Indonesia, 2024). This mandate led to the widespread adoption of the COSO Integrated Framework as the accepted best practice for designing and implementing ICOFR (PwC Indonesia, 2024). COSO as the framework which accepted as a best practice for designing and implementing ICOFR, consists of five components, which are Control Environment, Risk Assessment, Control Activities, Information & Communication, and Monitoring Activities—that collectively help organizations mitigate financial and operational risks effectively (COSO, 2017).

However, implementing ICOFR in the public sector faces distinct, systemic challenges that stem from institutional rigidity. Unlike agile private firms, government entities often contend with complex, bureaucratic organizational structures that are heavily resistant to change. This rigidity makes it particularly difficult to integrate critical governance elements, such as establishing Three Lines Model in the entity, due to constraints related to both organizational structure regulation and limited budgetary flexibility.

In line with this, the implementation of ICOFR is considered the most feasible path for government entities to adopt the Three Lines Model. This approach helps formally establish the Second Line of the Three Lines Model—which monitors risks and supports management in designing controls—especially in organizations where structural rigidity restrains formal change. The model divides control roles into three lines: (1) operational management, (2) risk management and compliance functions, and (3) internal audit, thus enhancing control effectiveness (IIA, 2020). By implementing ICOFR based on PMK No. 17/ 2019 (Kemenkeu, 2019), the government can leverage an internal control foundation to support the effective application of the three lines model, accelerating transparency and accountability in managing public finances in Indonesia.

Despite this potential, there is a distinct gap in empirical evidence evaluating the practical alignment and resultant effectiveness of the PMK No. 17/2019 framework in establishing the Three Lines Model within the Indonesian public sector. Therefore, this study aims to analyze the implementation of ICOFR under PMK No. 17/2019 and assess its contribution to the successful establishment of the Three Lines Model as a contemporary risk governance structure.

Most studies on ICOFR in Indonesia look at single problems and do not explain how PMK No. 17/2019 can put the Three Lines Model (IIA, 2020) into daily practice. This article fills that gap by using a structured scoping review to show how ICOFR can anchor the Three Lines in government work: clarify who does what (Second Line as assessor, earlier Third Line review), set clear evidence standards, and link IT general controls with process testing. To our knowledge, this is the first study that maps PMK 17/2019 to practical steps and turns common implementation issues into workable improvements for implementing the Three Lines Model in the government sector.

2. Literature review and hypothesis/es development

2.1 Literature review

Global research on ICOFR shows that effective internal control relies on risk-based scoping, testing of entity-level and IT general controls (ITGCs), and disciplined evaluation, shaped by SOX and the COSO framework (Asare et al., 2012; COSO, 2017). The IIA's Three Lines Model assigns risk ownership to management (Lines 1–2) and independent assurance to internal audit (Line 3), stressing coordination and accountability (The IIA, 2020).

In Indonesia, PMK No. 17/PMK.09/2019 formalizes ICOFR (PIPK) at entity and process levels and can be mapped directly to the Three Lines (Kemenkeu, 2019). Studies report mixed maturity: repeat findings despite “effective” ratings, proxy evidence, narrow risk registers, and weak SOPs; leadership, documentation, and follow-up improve outcomes (Ananda & Wijayati, 2023; Afifah & Siswantoro, 2025; Isnaeni & Anggraita, 2025; Putri & Setyaningrum, 2025). Practice guidance highlights tone at the top, end-to-end coverage, and robust IT controls (PwC Indonesia, 2024).

2.2 *hyphotesis*

In line with the nature of a Scoping Review, this study does not develop hypotheses, as it aims to explore and synthesize existing literature to identify patterns, themes, and research gaps instead of testing predetermined relationships.

3. Methodology

This research uses a descriptive analytical approach using the Scoping Review methodology. The Scoping Review method is a rigorous, systematic process specifically designed to map the existing literature, identify key concepts, and clarify working definitions within a broad or complex research area (Arksey & O’Malley, 2005). Unlike traditional systematic reviews, the scoping approach is particularly advantageous when synthesizing evidence from diverse sources, including both research-based (empirical) and non-research-based materials (e.g., policy documents, guidelines), thereby ensuring a comprehensive overview of the field (Davis et al., 2009). This methodology enables the transparent synthesis of evidence, which is essential for understanding multifaceted policy and governance phenomena, such as the theoretical alignment and practical challenges of integrating the COSO-based ICOFR framework with the Three Lines Model in rigid public sector entities.

The study strictly adheres to the well-established six-stage methodological framework proposed by Arksey and O’Malley (2005), which provides a definitive procedure for conducting and reporting scoping studies. **Figure 1** outlines these six-stage interconnected phases.

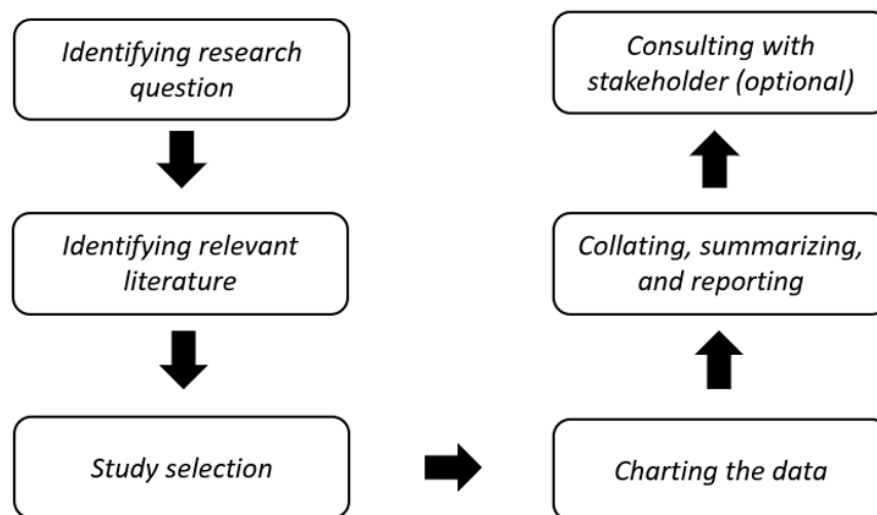


Figure 1 Six-stage Scoping Review
Source: Arksey & O’Malley (2005)

This study utilizes the Scoping Review methodology, following the six-stage framework by Arksey and O’Malley (2005) to systematically map the literature on ICOFR and the Three Lines Model. To ensure reporting transparency and rigor, the review strictly integrates the PRISMA Extension for Scoping Reviews (PRISMA-ScR) Checklist published by (Tricco et al., 2018). PRISMA-ScR principles dictate the detailed and reproducible search strategy, the transparent documentation of the study selection process, and the use of the PRISMA-ScR flow diagram to report included sources (Tricco et al., 2018).

3.1 Step 1: Identifying Research Question

The primary objective of this scoping review is broken down into three specific research questions to guide the data search and synthesis process:

1. How does the ICOFR framework, as regulated in PMK No. 17/2019, reflect and implement the principles of the Three Lines Model within the context of internal control in Indonesian government entities?
2. What implementation challenges, critical success factors, and knowledge gaps have emerged in the application of ICOFR as a manifestation of the Three Lines Model in the Indonesian public sector?

3.2 Step 2: Identifying Relevant Literature

In line with the transparency principles of the PRISMA-ScR Checklist (Tricco et al., 2018), this process utilized four main electronic databases: Scopus and Google Scholar for international and high-repute national literature, and Garuda (Garba Rujukan Digital) and SINTA for comprehensive coverage of Indonesian national publications.

The publication period for the studies was strategically segmented based on relevance to the policy context:

1. National Literature (Public Sector): Studies focusing on ICOFR and the Three Lines Model within the Indonesian government context were strictly limited to 2020 to 2025. This selection ensures the capture of research highly relevant to the adoption and implementation phase following the issuance of PMK No. 17/PMK.09/2019 in 2019.
2. International and Private Sector Literature: Studies covering the foundational principles of ICOFR and the Three Lines Model were limited from 2002 to 2025. This starting point is justified by the first widespread implementation of formal ICOFR requirements in the private sector, driven by the SOX of 2002.

To guarantee the broadest possible scope, grey literature, including institutional research reports, theses, dissertations, and conference proceedings from relevant agencies, was also incorporated. The complete search strategy, detailing the keywords and specific syntaxes used for each database, is presented in full in Table 1 to ensure reliability.

Table 1: Keyword Search Strategy

Main Concept	Keywords
ICOFR	“ICOFR” OR “internal control over financial reporting” OR “PIPK” OR “pengendalian intern atas pelaporan keuangan”
Regulation	“PMK 17/2019” OR “PMK.09/2019” OR “public sector accounting”
Governance/Risk Model	“Three Lines Model” OR “3 lines model” OR “risk governance” OR “pertahanan tiga lini” OR “tata kelola risiko”
Combination	(“ICOFR” OR “internal control over financial reporting” OR “PIPK” OR “pengendalian intern atas pelaporan keuangan”) AND (“PMK 17/2019” OR “PMK.09/2019” OR “public sector accounting” OR “government sector”) AND (“Three Lines Model” OR “3 lines model” OR “risk governance” OR “pertahanan tiga lini” OR “tata kelola risiko”)

Source: Processed by authors

The literature identification process was structured to capture both peer-reviewed and grey literature. The primary search for journal articles and working papers was performed on two major academic databases: Scopus and Google Scholar. This was followed by a supplementary search using the Google search engine, which specifically targeted working papers and reports from reputable organizations (e.g., governmental bodies, research institutions, and industry think tanks) to gather evidence and perspectives not always available in academic publications.

3.3 Step 3: Study Selection

In the third stage, the literature was selected to identify studies capable of addressing the formulated research questions. This step required a systematic mechanism to assist the researcher in excluding sources that were not aligned with the study’s objectives (Arksey & O’Malley, 2005). Although the primary goal of this review was to gather comprehensive evidence from the existing body of literature,

practical limitations related to time and resources also needed to be considered during the process (O’Flaherty & Phillips, 2015). Therefore, specific inclusion and exclusion criteria were applied to ensure that all selected studies were relevant to the research objectives. The complete list of inclusion and exclusion criteria is presented in Table 2.

Table 2: Inclusion and Exclusion Kriteria

Criteria	Inclusion	Exclusion
Publication Period	2002– 2025 (for international studies) 2019-2025 (for national)	Before 2002 for international studies Before 2019 for national studies
Language	English and Bahasa Indonesia	Other than English or Bahasa Indonesia
Type of literature	Peer-reviewed journal articles, theses, dissertations, conference proceedings, working papers, and institutional or organizational reports	Books, news articles, non-academic blogs, commentaries, and editorials
Geographical Context	All countries, with emphasis on Indonesia and comparative governance contexts	Studies limited to sub-national (provincial or city-level) analysis without broader public-sector implications
Sectoral Scope	Public and private sectors discussing ICOFR, COSO Framework, or the Three Lines Model	Other than Public and private sectors discussing ICOFR, COSO Framework, or the Three Lines Model
Methodology	All research designs and methodologies (qualitative, quantitative, or mixed methods)	Opinion papers or non-methodological essays lacking analytical framework
Access	Full-text available and accessible through databases or institutional repositories	institutional repositories Unavailable or incomplete full-text documents

Source: Processed by authors

A total of 253 records were identified from four academic databases (Google Scholar, Scopus, Garuda, and SINTA), plus five professional reports from organizations such as PwC, KPMG, and the Institute of Internal Auditors (IIA), as shown in Figure 2.

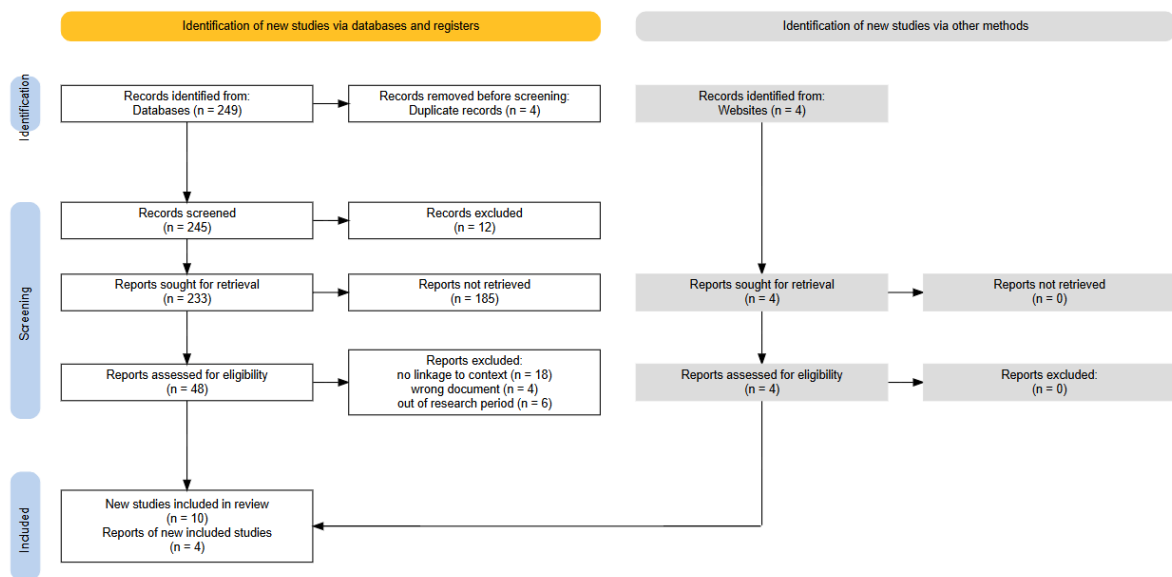


Figure 2: Literature Screening Using the PRISMA Diagram
Source: Processed by author

Finally, 10 academic studies and 4 professional reports met all inclusion criteria. These fourteen sources formed the basis for the scoping review, providing both theoretical and practical perspectives on how ICOFR reflects and supports the Three Lines Model within Indonesia's public sector.

3.4 Charting the data

Table 3. Literatures used in scoping review

No.	Literature	Author(s)	Year	Document Type	Country	Methodology	Result
1.	Evaluating Internal Control over Financial Reporting Capacity in Government Ministries and Agencies	Isnaeni, A.; Anggraita, V.	2025	Research Paper	Indonesia	Qualitative multiple-case study; UNDP Capacity Assessment Framework; interviews, questionnaires, documents	Largest capacity gap is leadership, smallest is accountability. Two ministries are more mature; two lag due to limited formalization/resources. Recommends embedding PIPK in leaders' KPIs, adding HR/budget, stronger knowledge systems, and better documentation/follow-up.
2.	Auditors' Internal Control Over Financial Reporting Decisions: Analysis, Synthesis, and Research Directions	Asare, S. K.; Fitzgerald, B. C.; Graham, L.; Joe, J. R.; Negangard, E. M.; Wolfe, C. J.	2012	Literature Review/Synthesis	United States (post-SOX context)	Structured synthesis across planning, scoping, testing, evaluation, reporting	Framework clarifies ICOFR tasks and judgment drivers. Auditors face overconfidence in IT/ERP settings and underuse entity-level/multi-location concepts. AS5 improved risk-based scoping and reduced costs; calls for better risk models, compensating controls, and linking ICOFR with substantive testing.
3.	Disclosing the Practice of Internal Control over Financial Reporting at the Supreme Court of the Republic of Indonesia	Nur, Syarifullah. M.; Sunarsih, U.; Dahlifah	2023	Research Article	Indonesia	Interpretive ethnomethodology; observations, interviews, documentation	PIPK not yet optimal: limited understanding, ad hoc second line, and unsystematic assessments. Recommends clear SPI/PIPK technical guides, formalized second-line unit, more training/socialization, and enhanced e-Bima monitoring.

4.	Analysis of ICOFR on Inventory Accounts: A Case Study at Institution X	Putri, Ni Luh. Putu Ayu. Priscilla. W.; Setyaningrum, D.	2025	Case Study	Indonesia	Qualitative case; document review and interviews; triangulation	Despite “effective” ratings, recurring audit findings show inventory controls are weak. End-to-end process lacks documentation and risk ID is narrow. Proposes complete flowchart from opening balance to FS presentation and a broader risk register aligned with PMK 17/2019.
5.	Evaluation of the Design of ICOFR for Fiscal Year 2021 in Ministry X	Aditya Ananda; Nureni Wijayati	2023	Case Study	Indonesia	Qualitative case; interviews, documents, observation benchmarked to PMK 17/2019, PMK 181/2016, SAP/PP 71/2010	ICOFR design missed key risks/controls; annual physical counts stopped and movement logs used as proxy, undermining existence and completeness; repeated findings ensued. Recommends formal SOPs for counts, segregation of duties, and organized warehouses with stock cards.
6.	ICOFR, Organizational Complexity, and Financial Reporting Quality	Bimo, I. D.; Siregar, S. V.; Hermawan, A. A.; Wardhani, R.	n.d	Empirical Research Article	Indonesia	Panel study of 1,056 firm-years (2007–2012); 24-item ICOFR disclosure index; fixed-effects regressions	Stronger ICOFR associates with better predictability, timeliness, lower discretionary accruals, and higher informativeness. Organizational complexity harms several FRQ dimensions. Note: publication year not stated in source excerpt.
7.	Financial Statement Quality in the Public Sector: ICOFR as a Moderating Factor	Putri, Chintya Maharani; Triyuwono, I.; Rahmanti, V. N.	2025	Research Paper	Indonesia	PLS-SEM survey of 110 staff across 40 units	HR competence and internal audit directly raise information quality. SAKTI and follow-up on audit findings (FoAF) have no direct effects, but ICOFR strengthens the impact of internal audit and FoAF; strict ICOFR can dampen SAKTI’s positive effect. Emphasizes aligning controls, people, and tech.

8.	The Effect of the Three Lines of Defense Model on SOE Performance Moderated by the Audit Committee	Iskak, J.; Muslih, M.	2022	Empirical Research Article	Indonesia	Survey of 128 respondents; OLS models	Line 1 links positively to performance; Line 2 negative; Line 3 no direct effect. Audit committee strengthens Line 2's effect; external control not significant. Suggests boosting risk-management capability and integrating the three lines.
9.	Evaluation of ICOFR on Maintenance Expenditure: Case Study of State Institution X	Fithriyyah Nur Afifah S.; Dodik Siswantoro	2025	Case Study Research Article	Indonesia	Qualitative case (2019–2023); interviews, document analysis, BPK audit review; PMK 17/2019/COSO basis	ICOFR is not fully effective: recurring BPK findings (overpayments, contract mismatches) persist; risks/RCM are incomplete, controls are mostly manual, communication across lines is inconsistent, and monitoring lacks KPIs. Recommends stronger leadership/tone, better risk assessment and RCM ownership, digitized documentation and dashboards, an integrated PIPK platform, and periodic KPI-based evaluations.
10.	Asset Management, ICOFR Implementation, and Organizational Commitment: Effects on Reporting Quality at the Ministry of Marine Affairs and Fisheries	Fitriana, N.; Hoesada, J.	2019	Empirical Research Article	Indonesia	Survey of 70 respondents across 42 units; SmartPLS	Asset management and ICOFR significantly improve reporting quality; organizational commitment not significant. Model explains ~70% of variance. Practical levers include better planning, safeguarding, administration, and stronger ICOFR components.

11	Study of SOX 404 Internal Control over Financial Reporting Requirements	SEC Office of Economic Analysis	2009	Government Report	United States	Large executive survey merged with market/financial data; interviews; pre/post-2007 analysis	Compliance costs vary with size/experience and declined after 2007 reforms, especially for Section 404(b) filers. Internal labor is the largest cost. Reported benefits include stronger ICFR, higher audit-committee confidence, and better fraud prevention; audits became more risk-focused post-AS5.
12.	Significance of ICOFR in Indonesia's Regulatory Environment: Implementation Perspective for POJK 15/2024	PwC Indonesia	2024	Professional Report	Indonesia	Regulatory synthesis; COSO 2013 and COBIT 2019 mapping; ICOFR lifecycle and roles	POJK 15/2024 requires banks to ensure integrity of financial statements and key ratios with strong internal controls and anti-fraud responsibility; non-compliance can trigger severe administrative sanctions and fines. Effective ICOFR needs tone at the top, cross-functional ownership, end-to-end process coverage, control-oriented culture, and robust IT controls. Lifecycle includes risk-based scoping, documentation/CSA, testing, remediation, reporting, and optional external assurance.
13.	The IIA's Three Lines Model: An Update of the Three Lines of Defense	The Institute of Internal Auditors	2020	Professional Framework	Global	Principles-based governance model	Clarifies roles: management owns risk (first/second line); internal audit provides independent assurance/advice to the governing body; third-line independence is critical. Stresses coordination, communication, and accountability tailored to context.

14.	Embarking on the ICOFR Journey after IA Circular No. (21), 2019	KPMG Lower Gulf	2021	Industry Report	United Arab Emirates	Interview/synthesis of UAE insurers implementing Circular 21	Most insurers used COSO 2013; frequent gaps at entity level and in process/IT (manual interfaces, weak JE controls, access management). Beyond compliance, firms gained close efficiency and monitoring. Roadmap: remediate, test operating effectiveness, obtain external assurance, and mature over 3–5 years.
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Source: Processed by authors

3.5 Step 5: Collating, summarizing, and reporting

The final stage involves synthesizing and reporting the findings on ICOFR/PIPK. Two complementary analyses are applied. First, a descriptive numerical summary presents the overall profile of the included literature—as summarized in Table 4—covering the distribution by year of publication, article type and method, sector and country, and the outcomes examined.

Second, a thematic analysis is conducted to integrate the substantive results. This analysis starts from the extracted data, identifies recurring patterns, and groups them into coherent themes relevant to the ICOFR/PIPK context, including leadership and capacity, documentation quality, risk assessment and control design, the role of audit committees and the Three Lines model, digitalization and IT controls, and cost–benefit dynamics following audit reforms. These themes are then presented as a clear narrative in the Results and Discussion, illustrated with concise examples from the studies, so that differences in study design are accommodated through a structured narrative synthesis rather than statistical pooling.

4. Results and discussion

4.1 Results

This section presents findings from the scoping review in two parts: a descriptive profile of the included literature and a thematic synthesis of substantive insights. The descriptive profile draws on Table 3 (Literatures Used in the Scoping Review) and Table 4 (Descriptive Mapping of Included Studies), which is presented below, while the thematic patterns were derived from the extracted data and are narrated in the subsections below.

Table 4: Descriptive Mapping of Included Studies

Category	Description / Distribution	Interpretation
Total Studies Included	14 academic studies + 5 professional reports	Indicates a balanced corpus combining scholarly and institutional perspectives.
Publication Period	2002–2025	Reflects two distinct periods: (1) global development of ICOFR under SOX (2002–2018) and (2) national adoption and implementation of PMK 17/2019 (2019–2025).
Sectoral Context	Public Sector: 8 studies Private Sector: 6 studies	Demonstrates a strong research focus on government entities while retaining comparative insights from private-sector practices.
Geographical Distribution	Indonesia: 10 studies International: 4 studies	Majority of studies are contextually Indonesian, ensuring relevance to PMK 17/2019 implementation.
Type of Document	Journal articles/ Theses/dissertations: 10 Professional/Institutional reports: 4	Mix of peer-reviewed and grey literature ensures both theoretical grounding and applied insights.
Research Methodology	Qualitative: 8 Quantitative: 3 Mixed-methods: 3	Highlights a predominance of qualitative approaches emphasizing contextual and process-level analysis.
Outcomes Studied	Governance effectiveness, accountability, documentation quality, leadership, and compliance assurance	Shows a convergence of outcomes around transparency and control reliability.

Source: Processed by author

4.1.1 Characteristics of Included Studies

The corpus consists of 14 sources, comprising 10 academic studies and 4 professional or institutional reports. As summarized in Table 4: Descriptive Mapping of Included Studies, publication years span

2002–2025, forming two clear periods: an earlier wave linked to global SOX-related development of ICFR and a later wave reflecting national adoption and implementation of PMK 17/2019 and related guidance. Most items address the public sector (71%), with the remainder focusing on private-sector settings, providing a useful comparison point for governance and control practices. Geographically, the evidence is largely rooted in Indonesia, complemented by international contributions from the United States and the United Arab Emirates, plus global frameworks.

A mix of study designs is represented: journal articles dominate, alongside conference papers, theses/dissertations, and professional reports. Qualitative approaches are most common, with additional quantitative and mixed-methods studies. Across the corpus, the materials reference widely used governance and control frameworks, including COSO 2013, the IIA Three Lines Model, SOX/AS5, COBIT, and national rules such as PMK 17/2019. Outcomes cluster around governance effectiveness, accountability, documentation quality, leadership and capacity, compliance assurance, and links to financial-reporting quality and organizational performance.

4.1.2 Thematic map of findings

The thematic mapping produced four interrelated themes that link directly to the ICOFR/PIPK framework and the Three Lines Model under PMK No. 17/2019. Together, these themes show how governance, processes, and organizational capability shape ICOFR maturity in Indonesian government entities, while also signaling barriers and enablers of effective implementation.

1. Theme 1: ICOFR role clarity and accountability within the Three Lines Model

Findings indicate that ICOFR effectiveness depends on clear ownership by Line 1 (process units as risk owners), structured risk and compliance oversight by Line 2, and independent assurance by Line 3.

2. Theme 2: Governance and leadership commitment to ICOFR maturity

Tone at the top is decisive. Entities with strong leadership support tend to allocate dedicated resources to ICOFR, embed compliance targets in leadership KPIs, and maintain discipline in addressing audit and monitoring results.

3. Theme 3: ICOFR assessment quality and professional rigor

This theme concerns the credibility of ICOFR evaluations—how capable, objective, and methodical the assessors are across the Three Line Model. Independence threat is appear when Line 2 is informal. Professional rigor requires clear evaluation protocols under PMK No. 17/2019, trained assessors with defined competencies, and quality-assurance reviews of workpapers. Strengthening these elements improves the reliability of conclusions on design and operating effectiveness and reduces repeat audit findings.

4. Theme 4: ICOFR capacity building and digital enablement

Implementation success is shaped by staff competence, targeted training, and documented knowledge systems. A balanced approach that couples capability development with process standardization and automation is essential to keep ICOFR effective and sustainable.

4.2 Discussion

This chapter presents an in-depth analysis and synthesis of the four main themes identified in the findings. The discussion interprets the key results, connects them to the broader issues of public-sector financial-management reform—especially the implementation of ICOFR/PIPK under PMK No. 17/2019 and the Three Lines Model—and highlights their theoretical and practical implications for Indonesian government entities. It also outlines areas where evidence remains limited and where further inquiry could strengthen policy and practice.

4.2.1 Theme 1: Defining ICOFR's Place in the Three Lines: Resolving Role Overlaps and Strengthening the Second Line

The evidence consistently indicates that ICOFR is most effective when responsibilities are clearly distributed across the Three Lines: Line 1 owns risks and controls within business processes, Line 2 provides structured risk and compliance oversight and challenge, and Line 3 delivers independent assurance to the governing body. In several Indonesian government entities, role ambiguity—especially

an informal or ad hoc Second Line—has produced weak challenge functions and, although sampling guidelines are in place, the practical selection of sample documents is delegated to the Second Line, which retains considerable discretion in choosing the sampling approach within the framework; as a result, repeated audit findings persist even when the ICOFR assessment report concludes “effective.” Case evidence from ministries shows that where the Second Line lacks mandate, resources, and standardized procedures, management testing relies on proxies that cannot substantiate core assertions (existence, completeness), and remediation stalls across cycles (Afifah & Siswantoro, 2025; Ananda & Wijayati, 2023; Syarifullah M Nur et al., 2023).

Based on PMK 17 (2019), PIPK/ICOFR covers three scopes—implementation, assessment, and review—with implementation and assessment carried out at both the entity level and the process/transaction level, including IT general controls (ITGC). In this structure, the Second Line is the formally appointed ICOFR assessor for each cycle (which may rotate), while the Third Line (Internal auditor & government internal oversight apparatus/APIP) provides an independent review of that assessment (Kemenkeu, 2019; The IIA, 2020). Even with this complete scoping, problems often arise from subjectivity inside the Second Line (the assessor): judgments on design and operating effectiveness or materiality lean optimistic, sampling and timing choices tend to favor cleaner evidence, and the roll up of results can mask weaknesses at the process or ITGC layer. The result is “effective” assessment conclusions that coexist with repeat findings (Asare et al., 2012).

Implications are straightforward for resolving overlaps and strengthening the Second Line. Entities should (i) formalize a Second Line (as the ICOFR assessor) that is clearly separated from day to day activity; (ii) calibrate ratings across units using shared criteria from PMK 17 (2019) and enhance assessor skill; (iii) standardize sampling protocols and timing windows to reduce bias; and (iv) require timely challenge from the Third Line on scoping, evidence sufficiency, and conclusion roll ups (The IIA, 2020). When these conditions are met, repeat deficiencies decline, and ICOFR conclusions better reflect actual control effectiveness.

4.2.2 Theme 2: Turning “Tone at the Top” into Action: Securing Resources, KPIs, and Follow-up Discipline for ICOFR

Leadership is the tipping point between paper compliance and working controls. When executives set clear expectations, fund the Second Line, and track fixes to closure, repeat findings drop and the financial close stabilizes (Isnaeni & Anggraita, 2025). Where support is mostly symbolic, documentation lags, and the same issues reappear each cycle, undermining the credibility of “effective” conclusions (Afifah & Siswantoro, 2025). Several case studies show that missed basics—like inventory counts and segregation of duties—persist when leaders do not enforce remedial actions (Ananda & Wijayati, 2023).

Strong governance also aligns people, process, and systems. ICOFR is associated with better reporting quality, especially when internal audit work and follow-up are reinforced by management attention (Fitriana & Hoesada, 2019). In practice, technology alone does not solve control problems unless it is paired with clear Risk and Control Matrixs (RCMs) and competent users (Putri et al., 2025). Industry guidance echoes this: tone at the top should translate into cross-functional ownership, ITGC discipline, and routine monitoring—not just policies on paper (PwC Indonesia, 2024).

Government entities should strengthen the ICOFR assessor (the Second Line) by establishing clear evidence standards from PMK 17 (2019) and by aligning ratings across units through shared criteria and periodic moderation sessions. The Organization should rotate assessors on a regular cycle to preserve objectivity and to reduce local bias in scoping, sampling, and conclusions (Asare et al., 2012). Management should provide concise, role-based training on risk assessment, sampling design, materiality, and deficiency aggregation, supported by practical guidance and templates (PwC Indonesia, 2024). These actions collectively reinforce the quality of assessments and enhance the reliability of ICOFR conclusions.

4.2.3 Theme 3: Objectivity and Rigor in ICOFR: Strengthening Assessor Independence and Evidence Standards

Assessment quality determines whether ICOFR conclusions can be trusted, and the evidence shows that weak protocols invite optimistic ratings and repeat findings (Afifah & Siswantoro, 2025). Cases that rely on indirect evidence—such as movement logs instead of physical counts, fail to test key assertions

and leave design and operating effectiveness unproven (Ananda & Wijayati, 2023). Clear criteria for design tests, operating tests, materiality, and deficiency roll-ups are required to anchor judgments and reduce discretion (Kemenkeu, 2019).

Compared with post SOX practice, stronger results come from risk based scoping, direct tests of entity level controls and ITGCs, and explicit links to financial statement assertions (Asare et al., 2012). When assessments focus effort where risk is highest and recognize compensating controls, costs fall and conclusions improve (US Securities and Exchange Commission, 2009). By contrast, Indonesian cases with narrow risk registers and manual control environments struggle to maintain consistency across cycles (Putri et al., 2025).

To enhance greater objectivity and methodological rigor, formalize the assessment procedures by clearly defining sampling techniques, sample sizes, and testing timelines to minimize bias and allow re-performance (Kemenkeu, 2019). To uphold independence, the internal auditor/APIP (The Third Line) should review scope determinations, adequacy of evidence, and assessment results prior to final approval (The IIA, 2020). Enhancing coverage and consistency requires integrating ITGC evaluations with process-level assessments and maintaining workpapers that meet a transparent re-performance standard through the use of standardized templates and checklists (PwC Indonesia, 2024). Finally, to foster continuous improvement and accountability, engage peer reviewers or independent assurance providers to assess adherence to assessment standards (KPMG, 2021).

4.2.4 Theme 4: Combining Capability and Technology: Aligning Training, SOPs, and IT Controls for ICOFR

Capability gaps and manual processes continue to weaken ICOFR, especially where documentation is uneven, risk registers are narrow, and controls are performed without clear SOPs or evidence trails (Afifah & Siswantoro, 2025). Entities that pair targeted training with simple, standardized tools—like RCM templates, flowcharts, and checklists—show steadier results across cycles and fewer repeat findings (Isnaeni & Anggraita, 2025). Technology helps only when basic methods are in place and users understand how to apply controls consistently from transaction entry to financial close (Putri et al., 2025).

Compared with private-sector and international practice, stronger outcomes come from “controls by design” in core systems, disciplined IT general controls, and dashboards that surface exceptions early in the close (PwC Indonesia, 2024). Industry experience also shows that organizations mature faster when they digitize RCMs and testing plans, automate access reviews, and integrate business and IT ownership of key controls (KPMG, 2021). The Three Lines Model adds value when Lines 1 and 2 share the same control language and control evidence, and Line 3 can re-perform tests from adequately organized documentation (The IIA, 2020).

Theme 4 indicates that capability and technology need to advance together to strengthen ICOFR in practice (Afifah & Siswantoro, 2025). Organizations that pair short, role-based training with clear SOPs and a common assessor tool achieve more consistent methods and fewer repeat findings (Isnaeni & Anggraita, 2025). Assigning clear responsibility and conducting routine reviews help ensure IT controls are consistently checked and function effectively. (PwC Indonesia, 2024). When all three lines use the same control language and maintain organized evidence, the Third Line (internal auditor/APIP) can re-perform tests and provide stronger assurance (The IIA, 2020). As these elements take hold, ICOFR assessments become more consistent, evidence is easier to re-perform, and repeat deficiencies decline, strengthening assurance over control effectiveness (The IIA, 2020).

4.3 Critical Analysis

This section takes a closer look at two substantive issues that emerged from the review, framed through the lens of the Three Lines Model. The first addresses why “effective” ICOFR conclusions can coexist with recurring deficiencies when roles and challenge mechanisms across the lines are not working as intended. The second examines how to balance standardized routines and tools across the lines with the operational flexibility public entities need, particularly for training, SOPs, and IT controls.

4.3.1 *Why ICOFR assessments continue to conclude as “effective” alongside recurring deficiencies in transactions*

Interpretation The paradox typically arises when the Three Lines do not execute their distinct roles with sufficient discipline. Line 1 does not fully own process risks and evidence; Line 2 conducts assessments with optimism bias or uneven methods; and Line 3 challenges late or narrowly. In this setting, sampling choices favor clean evidence, assertion coverage is incomplete, and deficiency aggregation dilutes weaknesses. The label “effective” reflects documentation compliance more than control performance.

Comparison where the Three Lines function as intended, Line 1 produces assertion-linked evidence, Line 2 applies consistent criteria and risk-based testing, and Line 3 performs pre-issuance challenge on scope and sufficiency. This sequence yields fewer false positives and faster learning across cycles. By contrast, in many public-sector contexts Line 2 operates informally or alongside operations, Line 1 relies on proxies rather than assertive testing, and Line 3 reviews after conclusions are formed. The result is stable paperwork but unstable control outcomes.

The remedy is role-specific. Line 1 should maintain clear risk registers and assertion-ready evidence for key processes. Line 2 should enforce non-negotiable assessment standards—covering scope, sampling, and deficiency roll-ups—and document judgments to a re-performance level. Line 3 should provide pre-issuance challenge on scoping and sufficiency, rather than limiting its role to retrospective critique. Establishing a simple set of shared artifacts (e.g., process inventories, risk–control summaries, and test result summaries) and maintaining a fixed review frequency can help keep judgments aligned and minimize recurring deficiencies.

4.3.2 *Implementation Gaps and Success Factors in Making the Three Lines Work in ICOFR*

There are challenges when implementing the Three Lines Model in the context of ICOFR. Three clusters of issues commonly emerge. First, capability and communication gaps reduce the quality of management’s (the first line) support to ICOFR assessor (the second line), limiting the latter’s ability to perform an effective challenge. Staff are generally familiar with control procedures but often lack the analytical understanding or contextual insight needed to provide meaningful evidence and feedback. Second, capability and process inconsistencies continue to weaken control execution. Many assessments are supported by uneven documentation, unclear SOPs, and manual processes that limit traceability and consistency. Without standardized tools or digital enablers, evidence remains fragmented and difficult to verify across cycles. Third, the process for reviewing and fixing issues often happens too late and without enough follow-through. The internal auditor (the third line) usually steps in only after conclusions are already made, roles are unclear, and corrective actions have no clear deadlines or completion criteria. As a result, the same problems tend to reappear in the next cycle.

These gaps arise not because the Three Lines Model is flawed, but because of how it is applied in practice. If the First Line views controls only as routine checklists to complete, the process becomes mechanical and the resulting evidence lacks context, making it difficult for assessors to form sound judgments. When the Second Line has no shared guidance, each unit applies different methods, leading to inconsistent scoping, sampling, and ratings. When the Third Line

steps in only after conclusions are finalized and responsibilities are unclear, remediation becomes a paperwork exercise without real follow-up. Together, these patterns show that although much effort is invested, progress remains limited and recurring issues persist.

Implications The fixes are practical and role-specific. Line 1 should assign clear process owners, run brief pre-close checks, and keep evidence organized so it can be re-performed. Line 2 should use a common assessor toolkit with minimum testing rules, standard templates, and a fixed cadence for reviews and moderation. Line 3 should move its challenge forward in time, agree on closure criteria with management, and verify that fixes work before issues are closed. Across all lines, leaders should track a few simple outcomes—such as repeat findings, timeliness of remediation, and readiness for re-performance to reinforce accountability and shorten the cycle from issue to durable fix.

5. Conclusion

5.1. Conclusion

5.1.1 Synthesis of Main Findings: From Framework to Working Governance

The review shows that ICOFR can translate the Three Lines Model into day-to-day governance when roles are executed with discipline. Results are strongest where Line 1 owns risks and prepares assertion-ready evidence, Line 2 applies consistent methods and challenge, and Line 3 reviews scope and sufficiency before conclusions are finalized. In entities where the Second Line remains informal or under-resourced, assessments often appear “effective” on paper while the same deficiencies resurface. Leadership attention, clear evidence standards, and simple shared tools help convert policy requirements into stable practice and reduce variability across cycles.

5.1.2 Theoretical and Practical Implications

Theoretically, the findings reinforce that assurance quality in public-sector ICOFR depends on role clarity combined with assessment discipline; adopting a framework is necessary but not sufficient. A small common floor—shared control language, explicit evidence expectations, and predictable review routines—can coexist with guided flexibility for diverse processes and legacy systems. Practically, the most reliable gains come from making the Second Line real in practice, bringing Line 3’s challenge earlier in the cycle, and pairing short, role-based training with baseline SOPs and concise assessor artifacts.

5.2 Limitation

This review is predominance of qualitative and case-based designs. These factors limit generalizability and restrict causal claims about specific practices. Several conclusions also rest on self-reported assessment outcomes, which may reflect optimism in the absence of external verification. Despite these constraints, consistent patterns across sources provide a credible basis for the conclusions drawn.

Based on these findings and limitations, several recommendations are formulated.

1. Institutionalize the Second Line
Appoint assessors with clear authority, separated from day-to-day operations, with rotation and conflict-of-interest safeguards.
2. Require pre-issuance Line 3 challenge
Have internal audit/APIP review scope, evidence sufficiency, ratings, and closure criteria before conclusions are finalized.
3. Set common assessment standards
Define non-negotiable rules for scoping, sampling, materiality, deficiency

- aggregation, and explicit linkage to assertions.
- 4. Deliver role-based training
 - Provide short, targeted training for Lines 1–3 tied to SOPs and a shared assessor tool (e.g., Tables A–D) to align methods across units.
- 5. Embed IT controls in daily ownership
 - Assign named owners for access, change, and operations controls and conduct periodic effectiveness reviews aligned to process.

5.3 Suggestion

Future research directions future work should track multiple assessment cycles to test whether stronger Second Line practices and earlier Line 3 challenge reduce repeat deficiencies and shorten remediation time. Comparative studies across ministries with different complexity, system maturity, and regional contexts can identify which enablers travel well and which are setting-specific. Method and tooling trials—such as standardized assessor tools, sampling playbooks, and lightweight digital platforms—could measure impacts on assessment quality and re-performance. Behavioral studies on incentives, KPIs, and consequence management would clarify how leadership attention and accountability shift behaviors across the Three Lines. Finally, research on joint business–IT ownership models can examine how integrated governance of IT controls affects exception rates and the stability of ICOFR outcomes.

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