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Rethinking Auditors' Fraud Detection: An Integrative Systematic Literature Review

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Abstract: Auditors' ability to detect fraud is multidimensional, yet the literature remains fragmented across technical, cognitive, and contextual domains. This Systematic Literature Review (SLR) synthesizes 56 empirical and conceptual articles from Scopus and Web of Science to construct an integrative framework of fraud detection determinants. We identify five overarching themes: auditor competency and skills, technology and CAATs, psychological traits, heuristics and cognitive biases, and governance and organizational context. While technical competency and experience remain primary drivers, cognitive biases and environmental pressures frequently impair judgment. Furthermore, while modern audit technologies (e.g., AI and CAATs) offer significant potential to mitigate these limitations, their effectiveness depends heavily on behavioral factors and organizational support. This study provides actionable insights to enhance auditor training, refine the adoption of audit technology, and foster supportive governance.

Keywords: Fraud detection, auditor competence, cognitive biases, psychological traits, CAATs, governance, systematic literature review.

INTRODUCTION

Fraud remains a critical threat to financial reporting and corporate governance, costing organizations an average of 5% of annual profits and often going undetected for 12 months (ACFE, 2024). This highlights the crucial role of auditors' fraud-detection abilities in maintaining public trust and financial stability.

Auditors' ability to detect fraud is multidimensional, influenced by cognitive biases (Fuller et al., 2023; Tversky & Kahneman, 1974), psychological constraints such as relational pressure (Lowe & Reckers, 2024; Zickfeld et al., 2024), and the technology competency gap in using CAATs and audit analytics (Cianci et al., 2024; Ditkaew & Suttipun, 2023). Furthermore, organizational factors, including audit culture and time pressure, also dictate the quality of risk assessments (Chan & Liu, 2023; Messina et al., 2025).

Although the literature in this field is growing rapidly, most studies still focus on one determinant in isolation and have not yet presented an integrative understanding of how cognitive, psychological, technological, and organizational environmental factors interact to influence the effectiveness of fraud detection (Hope et al., 2025; Marzuki et al., 2024). This fragmentation highlights the need for comprehensive mapping to integrate findings across approaches and research designs.

To address this gap, this study employs a Systematic Literature Review (SLR) to synthesize empirical and conceptual findings on auditors' fraud-detection capabilities. Rather than departing from a specific theory, this review integrates findings across behavioral, cognitive, and organizational perspectives to reflect the true complexity of auditors' decision-making processes (Brazel et al., 2013; Reffett, 2011).

Therefore, this study aims to categorize the determinants of fraud detection, integrate findings across various research designs, and propose an integrative theoretical framework. Ultimately, these insights provide a foundation for regulators and public accounting firms to enhance training strategies and fraud-detection policies.

METHODS

This study follows the PRISMA guidelines to conduct a Systematic Literature Review (SLR) (Page et al., 2021). The overall workflow of this review is structured into several phases as illustrated in Figure 1. The primary research question, asking 'What factors influence the ability of auditors to detect fraud?' was formulated utilizing the PICO framework to encompass audit professionals (Population), determinants of their capabilities (Interest), varying audit contexts (Comparison), and fraud detection effectiveness (Outcome).

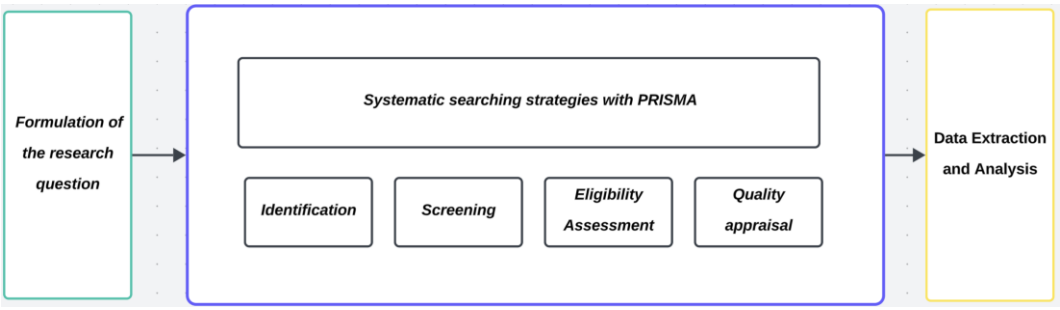

Figure 1. Systematic Literature Review Process

Identification and Screening

Literature searches were systematically conducted across Scopus, Web of Science, and Dimensions, supplemented by manual searches in other prominent databases. The search string combined keywords related to 'determinants', 'fraud detection', and 'auditors' (see Table 1). We included English-language peer-reviewed articles from relevant disciplines (e.g., Business, Economics, Psychology) and excluded non-peer-reviewed works and those from unrelated fields (see Table 2).

Table1. Search string used in the selected databases

Database	Search Strings
Scopus	TITLE-ABS-KEY (("determinant*" OR "factor*" OR "antecedent*" OR "predictor*" OR "driver*" OR "influence*" OR "variable*" OR "condition*" OR "element*" OR "contributor*") AND ("fraud detection" OR "fraud risk assessment" OR "fraud examination" OR "forensic audit*" OR "fraud investigation" OR "fraudulent financial reporting" OR "financial statement fraud" OR "red flag*") AND ("auditor*" OR "external auditor*" OR "internal auditor*" OR "forensic auditor*" OR "audit professional*" OR "audit

	practitioner*" OR "accountant*" OR "CPA" OR "audit staff" OR "audit team"))
Web of Science	TS =(("determinant*" OR "factor*" OR "antecedent*" OR "predictor*" OR "driver*" OR "influence*" OR "variable*" OR "condition*" OR "element*" OR "contributor*") AND ("fraud detection" OR "fraud risk assessment" OR "fraud examination" OR "forensic audit*" OR "fraud investigation" OR "fraudulent financial reporting" OR "financial statement fraud" OR "red flag*") AND ("auditor*" OR "external auditor*" OR "internal auditor*" OR "forensic auditor*" OR "audit professional*" OR "audit practitioner*" OR "accountant*" OR "CPA" OR "audit staff" OR "audit team"))

Table2. Inclusion and exclusion criteria

Criterion	Inclusion	Exclusion
Article Type	*Peer-reviewed* journal articles	Conference proceedings, books, reports, and *non-peer-reviewed* works
Language	Articles written in English	Articles written in languages other than English
Research Areas	Business and Economics, Social Sciences (Other Topics), Computer Science, Criminology and Penology, Public Administration, Science & Technology (Other Topics), Psychology	Articles outside the research areas listed in the inclusion column

From an initial 596 records, 284 unique articles were screened. After evaluating titles, abstracts, and full texts against the inclusion criteria, 61 eligible articles proceeded to the quality appraisal stage. The complete screening process is detailed in the PRISMA flow diagram in Figure 2.

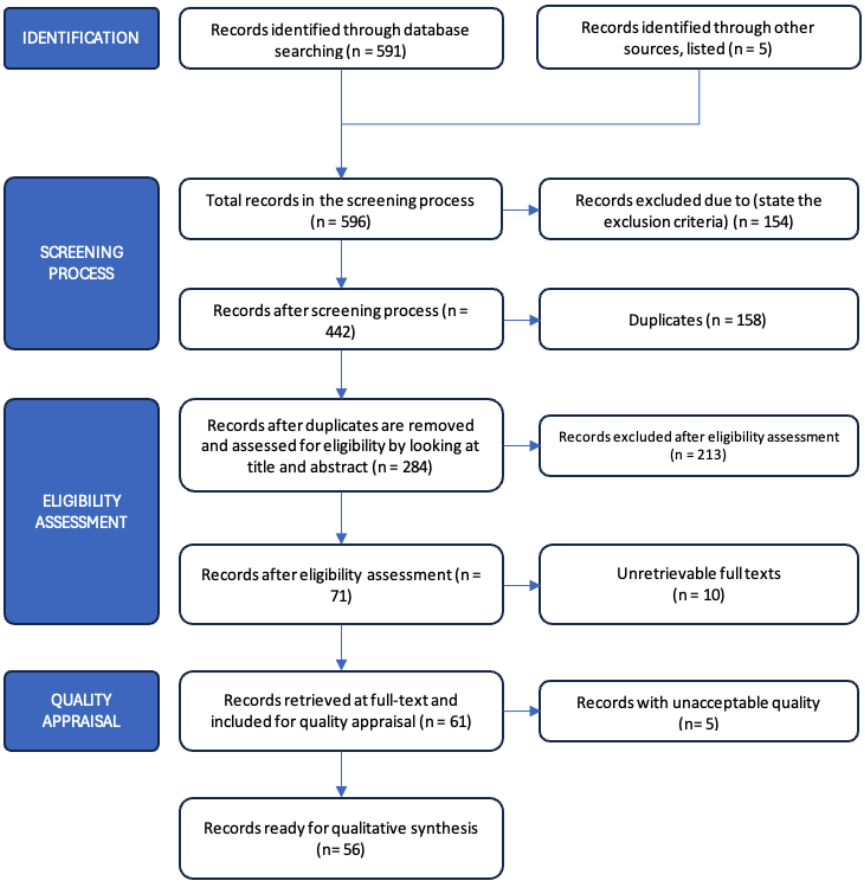

Figure 2. Flow Diagram from the Identification Process to Quality Appraisal

Quality Appraisal

Methodological quality was assessed using the Mixed Methods Appraisal Tool (MMAT) by Hong et al. (2018). The primary author independently evaluated each eligible article across five criteria based on its specific research design, with verifications from two fellow authors to ensure objectivity. Ultimately, 56 articles met the threshold of at least three of five criteria and were included in the final synthesis. The detailed results of this quality assessment for each included study are presented in Table 3.

Table33. Result of Quality Assessment

Study	Research Design	Criteria					Number of criteria met	Inclusion the revie
		QA 1	QA 2	QA 3	QA 4	QA 5		
Abu-Tapanjeh and Al-Sarairah (2021)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes
Al-Sendy et al. (2024)	QUAN-Descriptive	✓	?	✓	✓	✓	4	Yes
Alnesafi (2025)	Qualitative	✓	✓	✓	✓	✓	5	Yes
Atmanegara et al. (2021)	QUAN-NonRandomized	✓	✓	✓	X	✓	4	Yes
Balboula and Elfar (2024)	Mixed Methods	✓	✓	✓	✓	✓	5	Yes
Bierstaker et al. (2012)	QUAN-RCT	✓	✓	✓	✓	✓	5	Yes
Bou Reslan and Jabbour Al Maalouf (2024)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes
Brown et al. (2020)	QUAN-RCT	✓	✓	✓	✗	✓	4	Yes
Burton et al. (2013)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes
Carpenter (2007)	QUAN-RCT	✓	✓	✓	✓	✓	5	Yes
Chen et al. (2012)	QUAN-Nonrandomized	✓	✓	✓	?	✓	4	Yes
Chiu et al. (2023)	QUAN-Descriptive	✓	✓	✓	?	✓	4	Yes
Cohen et al. (2017)	QUAN-Descriptive	✓	✓	✓	?	✓	4	Yes
Damayanti and Agustia (2024)	QUAN-Descriptive	✓	?	✓	?	✓	3	Yes
Dewi et al. (2024)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes
DeZoort and Harrison (2018)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes
Fadilah et al. (2019)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes
Gray et al. (2022)	QUAN-RCT	✓	✓	✓	✓	✓	5	Yes
Handoko (2019)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes
Handoko et al. (2019)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes
Hansen et al. (1996)	QUAN-Nonrandomized	✓	✓	✓	?	✓	4	Yes
Harahap (2024)	QUAN-Descriptive	✓	✓	✓	?	✓	4	Yes
Hassan et al. (2025)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes
Hassink et al. (2010)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes
Imjai et al. (2025)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes
Indrijawati and Bandang (2023)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes
Joyce and Biddle (1981)	QUAN-Descriptive	✓	✓	✓	?	✓	4	Yes
Kaplan et al. (2010)	QUAN-RCT	✓	✓	✓	✓	✓	5	Yes
Kassem (2018)	Mixed Methods	✓	✓	✓	✓	✓	5	Yes
Kassem (2024)	QUAN-Descriptive	✓	✓	✓	?	✓	4	Yes
Kennedy (1992)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes

Study	Research Design	Criteria					Number of criteria met	Inclusion the revie
		QA 1	QA 2	QA 3	QA 4	QA 5		
Kinney Jr and Uecker (1982)	QUAN-Descriptive	✓	✓	✓	?	✓	4	Yes
Kleinman and Anandarajan (1999)	QUAN-Nonrandomized	✓	✓	✓	?	✓	4	Yes
Kneer et al. (1996)	QUAN-RCT	✓	✓	✓	✗	✓	4	Yes
Lowe et al. (2002)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes
Maniatis (2022)	QUAN-Descriptive	✓	✓	✓	?	✓	4	Yes
Massi et al. (2020)	QUAN-Descriptive	✓	✓	✓	?	✓	4	Yes
Matsumura and Tucker (1992)	Qualitative	X	X	X	X	X	0	No
Mong and Roebuck (2005)	QUAN-Descriptive	✓	✓	✓	?	✓	4	Yes
Musunuru (2025)	QUAN-Descriptive	X	X	X	X	X	0	No
Nazri et al. (2023)	QUAN-Descriptive	✓	?	✓	?	✓	3	Yes
Nguyen et al. (2024)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes
Nouraldeen (2025)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes
Odukoya and Samsudin (2021)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes
Omidi et al. (2019)	QUAN-Descriptive	✓	✓	✓	?	✓	4	Yes
Popoola et al. (2015)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes
Pourheydari and Abousaiedi (2011)	QUAN-Descriptive	✓	✓	✓	✗	✓	4	Yes
Ramadhany et al. (2025)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes
Razali et al. (2025)	QUAN-Descriptive	✓	?	✓	✗	✓	3	Yes
Riadi et al. (2025)	QUAN-Descriptive	✓	?	✓	?	✓	3	Yes
Rufus and Hahn (2011)	Qualitative	X	X	X	X	X	0	No
Rustiarini et al. (2020)	QUAN-Descriptive	✓	✓	✓	?	✓	4	Yes
Samagaio and Diogo (2022)	QUAN-Descriptive	✓	✓	✓	?	✓	4	Yes
Smith et al. (2005)	QUAN-Descriptive	✓	✓	✓	?	✓	4	Yes
Umar et al. (2020)	QUAN-Descriptive	X	X	✓	X	✓	2	No
Umar et al. (2017)	QUAN-NonRandomized	✓	?	✓	✓	✓	4	Yes
Utami (2023)	QUAN-Descriptive	✓	✓	✓	?	✓	4	Yes
Wahidahwati and Asyik (2022)	QUAN-Descriptive	✓	?	✓	✓	✓	4	Yes
Wu et al. (2023)	Mixed Methods	✗	✗	✗	✗	✗	0	No
Wu et al. (2025)	QUAN-RCT	✓	✓	✓	?	✓	4	Yes
Yaseen and Al-Amarneh (2025)	QUAN-Descriptive	✓	✓	✓	✓	✓	5	Yes

Data Extraction and Analysis

Data extraction and analysis employed a thematic synthesis approach (Braun & Clarke, 2019), which is favored for its flexibility in integrating diverse research designs. Following the steps outlined by Kiger and Varpio (2020), the process involved data familiarization, initial coding of fraud detection determinants, inductive theme generation, and validation. This rigorous process yielded five overarching themes encompassing the cognitive, psychological, technological, and organizational dimensions of auditor capabilities

RESULTS AND DISCUSSION

Results

This section reports the findings from 56 articles that met the inclusion criteria. The review draws on a diverse range of academic sources, including established journals, to provide reliable empirical evidence. A publication-quality bias assessment revealed that the majority of articles are from top-tier journals indexed in Scopus and Web of Science, as detailed in Table 4.

Table44. Journal Quality Assessment Based on Indexing and Quartile Rankings

Journal	Count of selected articles	Indexed by WOS	WOS Quartiles*	Indexed by Scopus	Scopus Quartiles**
Managerial Auditing Journal	5	Yes	Q2	Yes	Q1
Accounting, Organizations, and Society	3	Yes	Q1	Yes	Q1
Journal of Risk and Financial Management	3	No	-	Yes	Q2
The Accounting Review	3	Yes	Q1	Yes	Q1
Cogent Business and Management	2	No	-	Yes	Q2
Journal of Accounting Research	2	Yes	Q1	Yes	Q1
Journal of Business Ethics	2	Yes	Q1	Yes	Q1
Journal of Financial Crime	2	Yes	Q3	Yes	Q2
Journal of Financial Reporting and Accounting	2	No	-	Yes	Q2
Management and Accounting Review	2	No	-	Yes	Q3
Accounting and Finance	1	Yes	Q1	Yes	Q1
Accounting Research Journal	1	No	-	Yes	Q2
Advances in Accounting Behavioral Research	1	No	-	Yes	Q3
Australasian Accounting, Business and Finance Journal	1	Yes	Q3	Yes	Q2
Behavioral Research in Accounting	1	Yes	Q3	Yes	Q2
BMC Medical Informatics and Decision Making	1	Yes	Q1	Yes	Q1
Current Issues in Auditing	1	Yes	Q3	Yes	Q2
Decision Science Letters	1	No	-	Yes	Q2
Discrete Dynamics in Nature and Society	1	Yes	Q3	Yes	Q2
International Journal of Data and Network Science	1	No	-	Yes	Q2
International Journal of Disclosure and Governance	1	Yes	Q2	Yes	Q2
International Journal of Information Management Data Insights	1	No	-	Yes	Q1
International Journal of Innovative Technology and Exploring Engineering	1	No	-	Yes	-
International Journal of Management and Sustainability	1	No	-	Yes	Q4
International Journal of Professional Business Review	1	No	-	Yes	Q2
International Journal of Recent Technology and Engineering	1	No	-	Yes	-
International Review of Management and Marketing	1	No	-	Yes	Q3

Journal	Count of selected articles	Indexed by WOS	WOS Quartiles*	Indexed by Scopus	Scopus Quartiles**
Journal of Accounting Literature	1	No	-	Yes	Q1
Journal of Asian Finance, Economics and Business	1	No	-	Yes	Q2
Journal of Governance and Regulation	1	Yes	Q3	Yes	Q2
Journal of Islamic Accounting and Business Research	1	No	-	Yes	Q2
Management Science	1	Yes	Q1	Yes	Q1
Polish Journal of Management Studies	1	Yes	Q3	Yes	Q3
Problems and Perspectives in Management	1	Yes	Q3	Yes	Q3
Psychology and Aging	1	Yes	Q1	Yes	Q1
SAGE Open	1	No	-	Yes	Q2
Security Journal	1	Yes	Q2	Yes	Q2
Sustainability (Switzerland)	1	Yes	Q2	Yes	Q2
Webology	1	No	-	Yes	Q3
World Journal of Entrepreneurship, Management and Sustainable Development	1	No	-	Yes	Q3

The thematic synthesis categorized the literature into five main themes encompassing auditor competency, technology, psychological characteristics, cognitive biases, and governance. The complete thematic mapping of these included studies is presented in Table 5.

Table55. Thematic Mapping of Included Studies

Sources	Heuristics & Cognitive Biases	Psychological Traits	Auditor Competence & Skills	Technology & CAATs	Governance & Environmental Factors
Abu-Tapanjeh and Al-Sarairah (2021)		✓	✓		✓
Al-Sendy et al. (2024)		✓	✓		✓
Alnesafi (2025)			✓	✓	
Atmanegara et al. (2021)			✓		✓
Balboula and Elfar (2024)	✓	✓		✓	
Bierstaker et al. (2012)		✓	✓		✓
Bou Reslan and Jabbour Al Maalouf (2024)			✓	✓	✓
Brown et al. (2020)			✓		✓
Burton et al. (2013)			✓		✓
Carpenter (2007)			✓		✓
Chen et al. (2012)	✓	✓		✓	
Chiu et al. (2023)			✓	✓	
Cohen et al. (2017)			✓		✓
Damayanti and Agustia (2024)		✓	✓		✓
Dewi et al. (2024)			✓	✓	✓
DeZoort and Harrison (2018)		✓	✓		✓

Sources	Heuristics & Cognitive Biases	Psychological Traits	Auditor Competence & Skills	Technology & CAATs	Governance & Environmental Factors
Fadilah et al. (2019)			✓		✓
Gray et al. (2022)	✓		✓		✓
Handoko (2019)			✓		✓
Handoko et al. (2019)			✓		✓
Hansen et al. (1996)		✓		✓	
Harahap (2024)			✓	✓	✓
Hassan et al. (2025)			✓	✓	✓
Hassink et al. (2010)			✓		✓
Imjai et al. (2025)			✓	✓	
Indrijawati and Bandang (2023)		✓	✓		✓
Joyce and Biddle (1981)	✓		✓		✓
Kaplan et al. (2010)		✓		✓	✓
Kassem (2018)			✓		✓
Kassem (2024)			✓	✓	
Kennedy (1992)	✓	✓		✓	
Kinney Jr and Uecker (1982)	✓		✓		✓
Kleinman and Anandarajan (1999)		✓	✓		✓
Kneer et al. (1996)			✓		✓
Lowe et al. (2002)			✓	✓	✓
Maniatis (2022)			✓	✓	
Massi et al. (2020)			✓	✓	
Mong and Roebuck (2005)			✓		✓
Nazri et al. (2023)		✓	✓		✓
Nguyen et al. (2024)			✓	✓	✓
Nouraldeen (2025)		✓	✓		✓
Odukoya and Samsudin (2021)			✓		✓
Omidi et al. (2019)			✓	✓	
Popoola et al. (2015)			✓		✓
Pourheydari and Abousaiedi (2011)		✓		✓	✓
Ramadhany et al. (2025)		✓	✓		✓
Razali et al. (2025)			✓	✓	✓
Riadi et al. (2025)			✓		✓
Rustiarini et al. (2020)			✓		✓
Samagaio and Diogo (2022)			✓	✓	✓
Smith et al. (2005)			✓		✓
Umar et al. (2017)		✓	✓	✓	✓
Utami (2023)		✓	✓		✓
Wahidahwati and Asyik (2022)		✓	✓		✓

Sources	Heuristics & Cognitive Biases	Psychological Traits	Auditor Competence & Skills	Technology & CAATs	Governance & Environmental Factors
Wu et al. (2025)			✓	✓	
Yaseen and Al-Amarneh (2025)			✓	✓	✓

Building on the thematic mapping presented in Table 5, the reviewed determinants can be organized into multiple analytical levels. This multilevel perspective helps explain how the effectiveness of fraud detection is shaped not only by individual auditor characteristics but also by team, organizational, and institutional influences. Figure 3 illustrates this hierarchical structure of determinants identified across the reviewed studies.



Figure 3. Multilevel Determinants of Auditor Fraud Detection.
Source: Developed by the authors from the thematic synthesis.

Figure 3 demonstrates that fraud detection effectiveness is influenced by determinants operating across four interconnected levels. At the cognitive level, auditors' judgments are affected by heuristics and cognitive biases that shape information processing and decision-making. At the individual level, competence, experience, professional skepticism, and psychological traits influence auditors' capacity to recognize fraud indicators. At the organizational level, team interactions, technology adoption, and audit culture affect how fraud risks are assessed and investigated. Finally, at the institutional level, governance mechanisms, regulatory environments, and ethical climates provide the broader context within which fraud detection activities occur. This multilevel perspective reinforces the notion that fraud detection is a systemic capability rather than solely an individual skill.

Discussion

The synthesis of the included articles confirms that auditors' ability to detect fraud depends on a complex interplay of technical and behavioral aspects.

Auditor Competence and Skills

Competency remains the primary driver of fraud detection. Experience, education, and specific training significantly improve auditors' risk assessment and organizational commitment (Damayanti & Agustia, 2024). Technical skills in big data provide critical preventive power (Dewi et al., 2024), while risk based audits increase prevention capabilities (Harahap, 2024). Furthermore, field experience enhances the evaluation of management integrity (Kassem, 2024), and a perfectionistic nature helps auditors identify risks with precision (Balboula & Elfar, 2024).

Technology and CAATs

Modern audit technologies, such as Computer Assisted Audit Techniques (CAATs) and artificial intelligence, provide advanced capabilities for deep data analysis. These tools improve transparency and accountability, particularly in government organizations (Harahap, 2024), and support risk management in acquisition processes (Samagaio & Diogo, 2022). Artificial intelligence specifically enhances trustworthiness by rapidly analyzing data patterns (Yaseen & Al-Amarneh, 2025). However, their effectiveness relies heavily on the auditor's digital skills to assess fraud risk effectively (Razali et al., 2025), and on continuous training that emphasizes that technology must always be paired with human professional skepticism (Kassem, 2024).

Psychological Traits

Beyond technical skills, personal traits shape how auditors process evidence. Perfectionism enhances detail orientation under time pressure (Balboula & Elfar, 2024). Conversely, high sociotropy, or the desire to maintain harmonious relationships with management, can diminish professional skepticism and reduce the efficiency of fraud detection (Cohen et al., 2017; Hassan et al., 2025). Auditors with low sociotropy exhibit a more dispassionate attitude and are more willing to ask difficult questions (Kassem, 2024). Furthermore, self efficacy and confidence in using analytical tools proactively encourage auditors to investigate anomalies (Dewi et al., 2024). Team brainstorming also generates more relevant ideas about fraud risk than individual efforts (Carpenter, 2007).

Heuristics and Cognitive Biases

Cognitive limitations frequently impair judgment. Heuristics used to expedite decision making can influence assessments when relying on decision aids (Lowe et al., 2002). These biases can cloud perceptions of management motivation and integrity (Kassem, 2024). Addressing these biases is crucial, and integrating objective artificial intelligence analysis offers a promising avenue to mitigate human cognitive errors by providing independent data analysis (Bou Reslan & Jabbour Al Maalouf, 2024).

Governance and Environmental Influences

Organizational forces determine auditors' working conditions. Strong corporate governance improves perceptions of fraud detection ability (Hassan et al., 2025), while organizational commitment positively affects auditors' responsibilities (Damayanti & Agustia, 2024). Clear reporting mechanisms such as a good whistle blowing system and an information sharing culture minimize the chances of fraud (Kusumawati & Syamsuddin, 2018). Additionally, strong internal controls are essential for managing risk effectively (Harahap, 2024).

Interaction Between Key Factors and Implications

Fraud detection is not driven by a single factor but by multidimensional interactions. Competence forms the foundation (Razali et al., 2025; Samagaio & Diogo, 2022), but its

application depends on psychological confidence (Balboula & Elfar, 2024; Ramadhany et al., 2025) and is constrained by cognitive biases (Carpenter, 2007). Technology acts as a facilitator to mitigate cognitive limitations (Bou Reslan & Jabbour Al Maalouf, 2024), provided auditors possess the necessary skills (Odukoya & Samsudin, 2021). Meanwhile, governance provides the operational context where a politicized or time pressured environment can heighten cognitive biases (Harahap, 2024). These findings imply that audit firms must adopt holistic training programs combining technical expertise with bias management.

To synthesize the fragmented findings from the reviewed studies, this review develops an integrated conceptual framework that illustrates how auditor fraud-detection effectiveness emerges from the interaction among technical, behavioral, technological, and organizational factors. Rather than operating independently, these dimensions reinforce or constrain one another, shaping auditors' ability to identify and respond to fraud risks. Figure 4 presents the proposed Integrated Fraud Detection Capability Framework derived from the thematic synthesis.

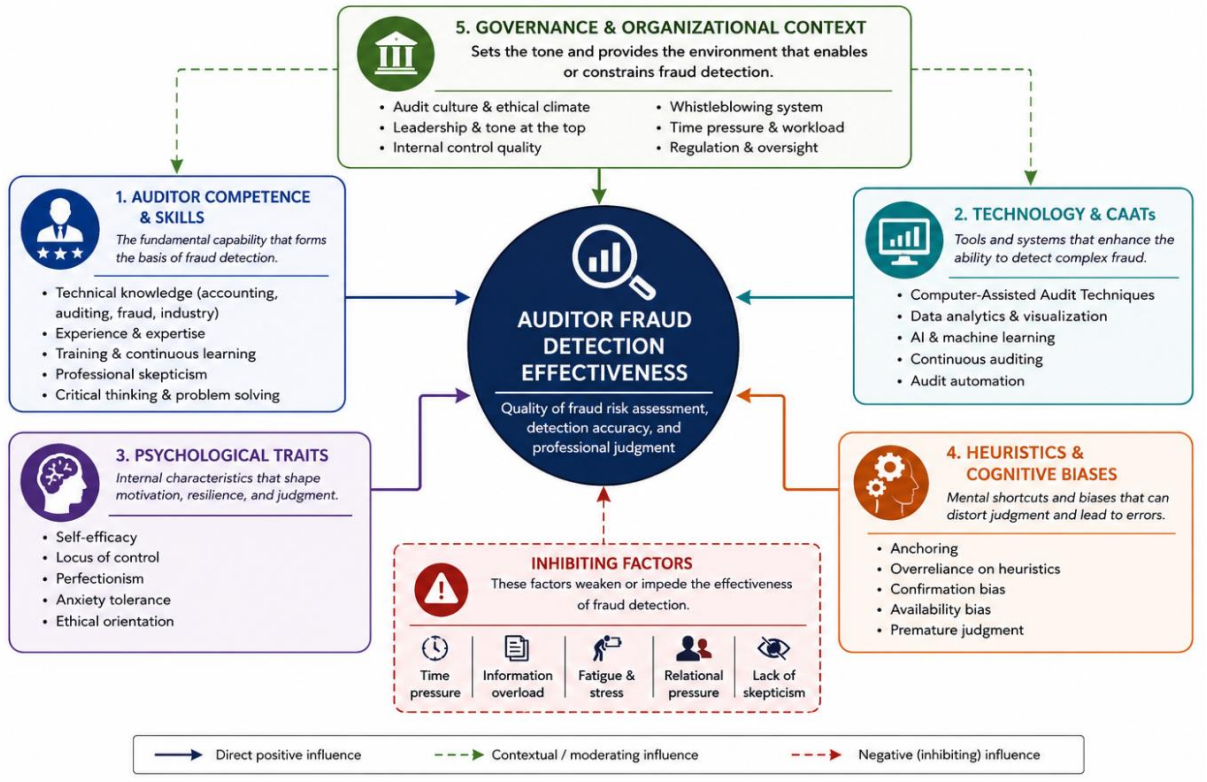

Figure 4. Integrated Fraud Detection Capability Framework.
Source: Developed by the authors based on the systematic literature review.
**Note: Solid arrows indicate factors that enhance fraud detection effectiveness, while dashed red arrows indicate factors that inhibit or weaken it.*

Figure 4 demonstrates that auditor competence and skills constitute the fundamental capability underpinning fraud detection effectiveness. However, the influence of competence is amplified by technological tools such as CAATs and AI-driven analytics, and further shaped by psychological characteristics including self-efficacy, ethical orientation, and resilience under pressure. Conversely, heuristics and cognitive biases may weaken judgment quality and reduce the effectiveness of fraud risk assessments. The framework also highlights the role of governance and organizational context as a higher-level environmental condition that can either facilitate or constrain fraud detection through organizational culture, internal controls, leadership, and reporting mechanisms. Collectively, these findings suggest that effective fraud

detection requires a holistic approach that simultaneously addresses technical proficiency, behavioral factors, technological capabilities, and institutional support.

Limitations and Future Research

While this review provides a comprehensive synthesis, the reliance on quantitative studies limits deeper behavioral insights. Future research should employ qualitative or mixed methods to explore the cognitive processes of auditors in real time. Additionally, testing hybrid models integrating psychological and technological variables will further advance audit practices. Based on the identified gaps and limitations in the existing literature, this review proposes several promising directions for future research. These directions emphasize the integration of behavioral, technological, governance, and multidisciplinary perspectives to advance understanding of auditor fraud detection capabilities. The proposed agenda is summarized in Figure 5.

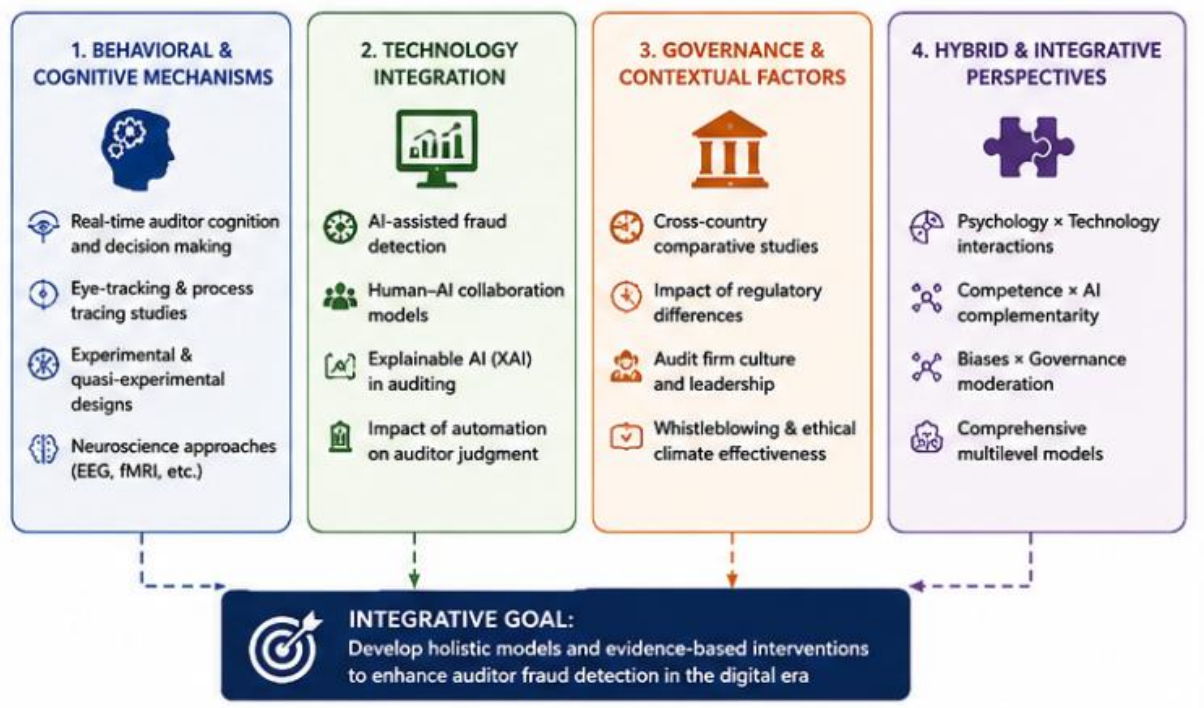

Figure 3. Future Research Agenda.
Source: Developed by the authors based on identified research gaps.

Figure 5 highlights four priority streams for future research. First, behavioral and cognitive studies should investigate how auditors process fraud-related information in real time, particularly through experimental and process-tracing approaches. Second, technology-focused research should examine the interaction between auditors and emerging AI-driven audit tools, including explainable artificial intelligence and automated fraud analytics. Third, governance and contextual studies should explore how cultural, regulatory, and organizational environments shape the effectiveness of fraud detection across jurisdictions. Finally, hybrid and integrative models that combine competence, psychology, governance, and technology offer significant opportunities to develop more comprehensive explanations of auditor fraud-detection performance.

CONCLUSION

This systematic review demonstrates that fraud detection effectiveness extends beyond technical expertise to include psychological traits, cognitive constraints, technological

adoption, and organizational governance. Integrating these dimensions provides a robust framework to enhance auditor training and audit policies. Addressing these multifaceted determinants is essential to equipping the auditing profession to combat increasingly sophisticated financial fraud.

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