

# The Impact of Real-Time and Continuous Auditing on Financial Transparency and Fraud Detection: A Systematic Literature Review

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## Abstract

This study examines the impact of Real-Time Auditing and Continuous Auditing on Financial Transparency and Fraud Detection, with a focus on the application of modern technologies such as Artificial Intelligence (AI), Blockchain, Big Data Analytics, and ERP Systems. This systematic literature review (SLR) evaluates recent studies that discuss the implementation of these auditing techniques in enhancing audit efficiency, financial reporting accuracy, and the timely detection of fraud. The findings reveal that the adoption of Real-Time Auditing and Continuous Auditing significantly improves audit efficiency by automating auditing processes, reducing human errors, and enabling real-time monitoring of financial transactions. Technologies like Random Forests and Real-Time Stream Processing play a key role in enhancing audit accuracy and risk detection speed. Furthermore, the use of AI in the auditing process proves effective in automating repetitive tasks, improving audit accuracy, and ensuring better financial reporting transparency. Moreover, Continuous Auditing significantly contributes to fraud detection and financial data reliability by continuously monitoring financial transactions, identifying discrepancies or fraudulent activities at an early stage. The integration of Big Data Analytics strengthens fraud detection by analyzing large datasets in real-time, uncovering patterns or anomalies that may indicate fraudulent activity. Blockchain and Fintech solutions have emerged as critical tools for fraud prevention by ensuring transparency and real-time transaction verification, safeguarding equity investments. The integration of ERP Systems with Continuous Auditing further enhances the efficiency of financial transaction monitoring and ensures the accuracy of financial reporting. These findings suggest that these modern technologies play a vital role in improving audit efficiency, enhancing fraud detection, and ensuring financial transparency, ultimately reducing fraud risks and enhancing the overall integrity of financial audits.

**Keywords:** Corporate Social Responsibility, Audit Committees, Financial Auditing, CSR Disclosure, Audit Quality Real-Time Auditing, Continuous Auditing, Financial Transparency, Fraud Detection, Audit Technology

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## Introduction

In recent years, the demand for more efficient and reliable auditing processes has grown significantly, driven by the complexities and challenges in financial reporting, fraud detection, and risk management. Traditional auditing methods often struggle to keep up with the increasing volume of financial data and the need for real-time analysis. As a result, Real-Time Auditing and Continuous Auditing have emerged as promising technological advancements in the field of audit and financial transparency. These methods leverage automation and real-time monitoring to enhance audit efficiency, improve the accuracy of fraud detection, and ensure the reliability of financial statements [1].

The integration of Artificial Intelligence (AI) and Big Data Analytics into auditing processes has also introduced significant improvements in audit accuracy, decision-making, and transparency. AI-based tools, such as Random Forests and machine learning algorithms, enable auditors to automate repetitive tasks, uncover anomalies, and gain deeper insights into financial data [2]. Moreover, the use of Continuous Assurance and Blockchain technology has further strengthened the ability to prevent fraud and ensure data integrity by providing continuous monitoring and verification of transactions [3].

The evolving landscape of financial auditing necessitates the adoption of innovative approaches to ensure greater transparency, accuracy, and efficiency in audit practices. As financial markets become more complex, the need for real-time data analysis and continuous monitoring has never been more critical. Traditional audit methods, which often rely on periodic checks and historical data, are increasingly insufficient in detecting fraudulent activities and ensuring financial integrity in an era where transactions are processed at high speeds and on a global scale. This shift has led to the growing prominence of Continuous Auditing and Real-Time Auditing, which offer the ability to monitor financial transactions in real-time, enabling auditors to identify discrepancies and risks at an early stage [4]. Moreover, the application of AI technologies in fraud detection and decision-making is transforming how audits are conducted, offering a more proactive approach to identifying potential issues before they escalate [5]. This review aims to not only evaluate the effectiveness of these technologies but also examine their integration into existing audit frameworks, providing a comprehensive understanding of their role in modernizing audit practices.

This Systematic Literature Review (SLR) seeks to explore the impact of Real-Time Auditing, Continuous Auditing, and emerging technologies such as AI and Big Data on the auditing landscape. The review synthesizes findings from various studies to address key research questions surrounding the effectiveness of these approaches in improving audit processes, enhancing financial transparency, and detecting fraud. Through this review, the paper aims to provide valuable insights into the current state of auditing technologies and their role in shaping the future of financial audits. The review seeks to answer the following research questions:

1. How do Real-Time and Continuous Auditing improve audit efficiency and fraud detection?
2. What impact does AI have on audit accuracy and financial transparency?
3. How does Continuous Auditing help in improving financial data accuracy and fraud prevention?

## Literature Review

The integration of Real-Time Auditing and Continuous Auditing in financial practices has revolutionized how auditing processes are conducted, offering numerous benefits in terms of improving financial transparency and detecting fraud. As traditional auditing practices rely heavily on periodic checks and historical data, they are often insufficient for addressing the increasing complexity and speed of modern financial transactions. This section provides a

comprehensive review of the existing literature, exploring the impact of these auditing methods on financial transparency, fraud detection, and the evolving role of audit technologies.

### **1. Real-Time Auditing and Financial Transparency**

Real-time auditing refers to the continuous evaluation of financial transactions as they occur, leveraging technologies such as Real-Time Stream Processing and Blockchain to monitor data in real-time. One of the primary benefits of real-time auditing is its ability to improve financial transparency by providing auditors with immediate access to up-to-date financial information. This transparency is crucial for organizations to maintain trust with stakeholders, as it ensures that financial reports are accurate and reflective of the current financial state [3]. The immediate feedback provided by real-time auditing allows auditors to detect discrepancies or errors early, enabling them to address issues before they affect financial statements or stakeholder decisions [2].

Real-time auditing technologies, including Artificial Intelligence (AI) and machine learning, further enhance financial transparency by automating the analysis of vast amounts of data, identifying patterns, and flagging potential issues such as errors, fraud, or inconsistencies [2]. AI can significantly reduce the time required to identify financial discrepancies and improve the overall reliability of financial reports, leading to more trustworthy financial disclosures and a higher degree of transparency for investors, regulators, and the public.

### **2. Continuous Auditing and Fraud Detection**

Continuous auditing refers to an ongoing, automated auditing process that continually assesses financial transactions and operations in real-time, detecting discrepancies as they occur. This approach has been shown to significantly improve fraud detection by providing auditors with continuous access to financial data, allowing them to identify fraudulent activities and anomalies quickly [4]. Continuous auditing systems leverage advanced Big Data Analytics, AI, and data mining techniques to analyze large volumes of data in real-time, helping auditors identify fraudulent transactions or suspicious patterns that may go unnoticed in traditional auditing methods [3].

The integration of continuous auditing with Enterprise Resource Planning (ERP) systems and other financial technologies has proven effective in detecting fraud by enabling real-time monitoring of financial transactions, ensuring that any inconsistencies or potential fraud are identified and addressed immediately. For instance, automated alerts can be generated when unusual transactions are detected, prompting auditors to take action before the fraudulent activity can cause significant damage. Moreover, continuous auditing can be particularly beneficial in detecting fraudulent activities in complex environments, such as blockchain-based transactions or fintech applications, where traditional auditing methods may struggle [2].

### **3. Technological Advancements in Auditing**

The adoption of advanced technologies such as Blockchain, Artificial Intelligence, and Big Data Analytics in real-time and continuous auditing has significantly transformed auditing practices. Blockchain, in particular, enhances the security and integrity of financial data, ensuring that transactions are transparent and cannot be altered once recorded [2]. These technologies not only facilitate real-time monitoring and fraud detection but also contribute to the automation of auditing tasks, reducing the reliance on human auditors and minimizing the potential for errors or bias [4].

Big Data Analytics plays a crucial role in improving the effectiveness of continuous auditing by enabling auditors to analyze large datasets for patterns and anomalies in real time [2]. The use of AI and machine learning algorithms further enhances the ability to detect fraud and improve the accuracy of audits by automating the identification of risks and errors. As a result, these technologies allow auditors to focus on higher-level tasks, such as interpreting

findings and making strategic recommendations, while automated systems handle routine data analysis [3].

#### 4. Benefits and Challenges of Real-Time and Continuous Auditing

While the adoption of real-time and continuous auditing technologies offers significant benefits in terms of financial transparency and fraud detection, it also presents challenges. The primary advantage is the ability to detect and address issues in real time, ensuring that financial data is constantly monitored and accurate [6]. This continuous monitoring improves the overall reliability of financial statements and reduces the risk of fraud going undetected [2].

However, the implementation of these technologies requires substantial investment in infrastructure, training, and integration with existing financial systems. Moreover, the reliance on automated systems raises concerns about data privacy, cybersecurity, and the need for skilled personnel to interpret complex data sets effectively [2]. Despite these challenges, the potential benefits of improved financial transparency and more effective fraud detection make real-time and continuous auditing valuable tools for modern auditing practices.

### Research Methodology

This systematic literature review (SLR) investigates the impact of Real-Time Auditing and Continuous Auditing on Financial Transparency and Fraud Detection. The review follows the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure transparency, consistency, and comprehensiveness in the literature selection and analysis process. Below is an outline of the research methodology based on PRISMA guidelines.. This methodology ensures that the review is comprehensive, unbiased, and transparent in its findings.

#### 1. Eligibility Criteria

The review focuses on studies that meet the following criteria:

- a. Study Type: Empirical research studies, case studies, and theoretical papers published in peer-reviewed journals.
- b. Language: Articles written in English.
- c. Timeframe: Studies published between 2010 and 2025.
- d. Topics: Studies that explore Real-Time Auditing, Continuous Auditing, Financial Transparency, and Fraud Detection in the context of modern auditing technologies like AI, Blockchain, Big Data Analytics, and ERP systems.
- e. Inclusion Criteria: Studies that discuss the application of Real-Time and Continuous Auditing technologies in improving financial processes, transparency, fraud detection, and risk management.

#### 2. Information Sources

The sources of data include:

- a. Academic Databases: Scopus, Web of Science, Google Scholar, SpringerLink, and JSTOR.
- b. Keywords: "Real-Time Auditing", "Continuous Auditing", "Fraud Detection", "Financial Transparency", "Audit Technology", "Artificial Intelligence in Auditing", "Blockchain in Auditing", and "Big Data Analytics".
- c. These databases were searched for relevant articles to ensure comprehensive coverage of the topic.

#### 3. Search Strategy

The search strategy involved identifying and screening studies based on the predefined eligibility criteria. Keywords were combined using Boolean operators, and database-specific filters were applied to narrow down the search results. The initial search returned a total of 73 records.

#### 4. Study Selection

The selection process followed three main stages:

- Initial Screening: Titles and abstracts of the identified studies were reviewed to ensure that they were relevant to the research questions. A total of 51 articles passed this stage.
- Full-Text Assessment: The full-text of these articles was assessed against the inclusion criteria, leading to the exclusion of 26 articles that did not meet the criteria (e.g., articles not focusing on Real-Time or Continuous Auditing).
- Final Inclusion: 25 full-text articles were assessed in detail, and 13 studies were ultimately included in the review for final analysis.

#### 5. Data Extraction

The following information was extracted from each of the 13 selected articles:

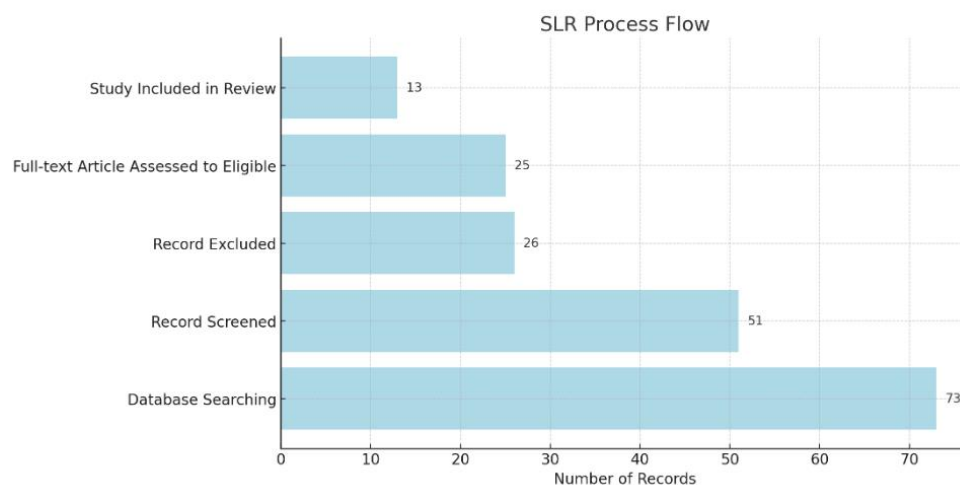
- Study Information: Year of publication, authors, country, and study context.
- Methodology: Research design, data collection methods, and analysis techniques used in the studies.
- Key Findings: Impact of Real-Time Auditing and Continuous Auditing on audit efficiency, fraud detection, and financial transparency.
- Technologies Applied: AI, machine learning, Blockchain, Big Data Analytics, ERP systems, etc.
- Key Variables: Dependent and independent variables related to auditing efficiency, fraud detection, and transparency.

#### 6. Data Synthesis

The findings from the 13 studies were synthesized thematically. A qualitative analysis was performed to identify common trends and areas of agreement among the studies. The key themes identified include:

- Audit Efficiency: The role of Real-Time Auditing and Continuous Auditing in automating audit processes and improving efficiency.
- Fraud Detection: The use of AI, Big Data, and Continuous Auditing to detect fraudulent activities in real-time.
- Financial Transparency: The impact of Continuous Auditing in ensuring real-time visibility and transparency in financial reporting.

The stages of the systematic literature review are comprehensively illustrated in Figure 1.



**Figure 1.** Comprehensively Illustrated

Results and Discussion

These findings are further structured in the PRISMA flow diagram (Figure 2) and expanded upon in the following subsections.

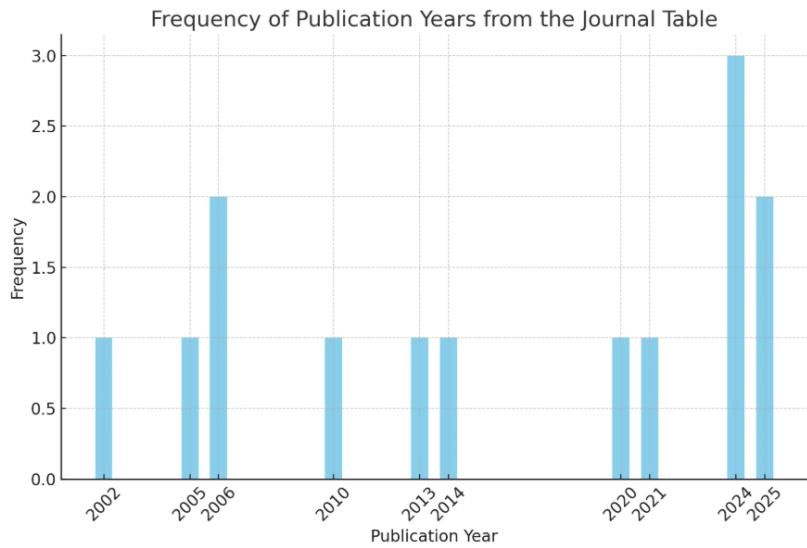


Figure 2. Comprehensively Illustrated

The bar chart illustrates the distribution of publication years from the journal table, showcasing the frequency of articles published in each year. The data reveals that the year 2024 has the highest number of publications, with a total of 3 articles, followed by 2025 with 2 publications. The years 2006 and 2020 also saw 2 publications each. Meanwhile, several years such as 2002, 2010, 2013, 2005, 2021, and 2014 each contributed 1 publication. This pattern indicates that research activity is more concentrated in recent years, especially in 2024 and 2025, while older years contribute less to the overall dataset. The chart highlights a trend of increasing publication frequency in the more recent years, reflecting a growing interest in the subjects studied during those periods. In addition, the 13 chosen papers underwent a qualitative synthesis, as indicated in Table 1.

Table 1. Qualitative Synthesis

No	Year	Author	Title	Country & Sample	Purpose
1	2025	Li, J., Liu, W., & Zhang, J.	Automating Financial Audits with Random Forests and Real-Time Stream Processing: A Case Study on Efficiency and Risk Detection	China, Case study on financial audits	The study aims to explore the efficiency and risk detection capabilities of automating financial audits using Random Forests and Real-Time Stream Processing. The authors highlight how automation can enhance financial audit processes by improving risk detection and audit accuracy, providing a detailed analysis of its implementation.
2	2025	Al-Omush, A., Almasarwah, A., & Al-Wreikat, A.	Artificial Intelligence in Financial Auditing: Redefining Accuracy and Transparency in Assurance Services	Jordan, Case study on AI implementation in financial auditing	The study investigates the role of Artificial Intelligence (AI) in transforming the financial auditing process, specifically focusing on improving accuracy and transparency in assurance services. The authors

No	Year	Author	Title	Country & Sample	Purpose
					explore how AI technologies are redefining auditing practices by enhancing precision in audit results, minimizing errors, and ensuring greater transparency in financial statements.
3	2006	Kuhn, J. R., & Sutton, S. G.	Learning from WorldCom: Implications for Fraud Detection through Continuous Assurance	USA, Case study on WorldCom fraud	The study examines the lessons learned from the WorldCom scandal and explores how continuous assurance methods can be leveraged for fraud detection in financial audits. The authors propose the implementation of real-time auditing techniques to detect fraudulent activities and improve financial statement reliability, using continuous monitoring systems.
4	2006	Kuhn, J. R., & Sutton, S. G.	Learning from WorldCom: Implications for Fraud Detection through Continuous Assurance	USA, Case study on WorldCom fraud	The study examines the lessons learned from the WorldCom scandal and explores how continuous assurance methods can be leveraged for fraud detection in financial audits. The authors propose the implementation of real-time auditing techniques to detect fraudulent activities and improve financial statement reliability, using continuous monitoring systems.
5	2020	Cardoni, A., Kiseleva, E., & De Luca, F.	Continuous Auditing and Data Mining for Strategic Risk Control and Anticorruption: Creating "Fair" Value in the Digital Age	Italy, Case study on continuous auditing and data mining in strategic risk control	The study explores the application of continuous auditing and data mining techniques to enhance strategic risk control and anticorruption efforts in the digital age. The authors investigate how these methods can be used to create "fair" value for organizations, improving transparency and reducing the risks of corruption and fraud in the financial sector
6	2002	Rezaee, Z., Sharbatoghlie, A., Elam, R., & McMickle, P. L.	Continuous Auditing: Building Automated Auditing Capability	USA, Case study on automated auditing systems	The study investigates the development of automated auditing systems, emphasizing the creation of continuous auditing capabilities within organizations. The authors propose a framework for automating the auditing process, enhancing efficiency, accuracy, and real-time monitoring, with the aim of building sustainable auditing practices in a digital environment.

No	Year	Author	Title	Country & Sample	Purpose
7	2010	Chou, C. C., & Janie Chang, C.	Continuous Auditing for Web-Released Financial Information	Taiwan, Case study on web-released financial data	The study explores the application of continuous auditing techniques for web-released financial information, focusing on ensuring the accuracy and integrity of financial data published online. The authors analyze the effectiveness of continuous auditing systems in monitoring and verifying web-based financial disclosures, with the aim of improving transparency and reducing the risk of fraud in the digital space.
8	2013	Shin, I. H., Lee, M. G., & Park, W.	Implementation of the Continuous Auditing System in the ERP-Based Environment	South Korea, Case study on ERP systems	The study examines the implementation of a continuous auditing system within an ERP-based environment, exploring how real-time auditing capabilities can be integrated into enterprise resource planning (ERP) systems. The authors highlight the challenges and benefits of combining continuous auditing with ERP technology, aiming to improve auditing efficiency and real-time monitoring of financial transactions.
9	2005	Flowerday, S., & von Solms, R.	Continuous Auditing: Verifying Information Integrity and Providing Assurances for Financial Reports	South Africa, Case study on financial report verification	The study investigates continuous auditing as a method for verifying the integrity of financial information and providing assurances regarding the reliability of financial reports. The authors explore how continuous auditing can enhance the accuracy of financial statements and improve stakeholders' trust by ensuring the information is free from errors and fraud.
10	2021	Roszkowska, P.	Fintech in Financial Reporting and Audit for Fraud Prevention and Safeguarding Equity Investments	Poland, Case study on fintech in financial reporting and audit	The study explores the role of Fintech in financial reporting and audit processes, focusing on its effectiveness in fraud prevention and the safeguarding of equity investments. The author investigates how fintech solutions, such as blockchain and data analytics, can enhance the accuracy of financial reports, prevent fraudulent activities, and protect investors' equity through real-time monitoring and auditing.



No	Year	Author	Title	Country & Sample	Purpose
11	2024	Shalhoob, H., Halawani, B., Alharbi, M., & Babiker, I.	The Impact of Big Data Analytics on the Detection of Errors and Fraud in Accounting Processes	Saudi Arabia, Case study on big data analytics in accounting	The study explores the influence of big data analytics on the detection of errors and fraud within accounting processes. The authors examine how advanced data analytics techniques can improve the accuracy and efficiency of identifying discrepancies and fraudulent activities in financial records, emphasizing the role of big data in enhancing the integrity of accounting practices.
12	2014	Singh, K., Best, P. J., Bojilov, M., & Blunt, C.	Continuous Auditing and Continuous Monitoring in ERP Environments: Case Studies of Application Implementations	USA, Case studies on ERP environments and auditing implementations	The study investigates the implementation of continuous auditing and continuous monitoring systems within ERP environments, using case studies to analyze the challenges and benefits of integrating these practices into enterprise resource planning systems. The authors aim to demonstrate how continuous auditing can improve financial oversight and risk management in real-time, and enhance the overall efficiency and accuracy of ERP-based financial systems.
13	2024	Awosika, T., Shukla, R. M., & Pranggono, B.	Transparency and Privacy: The Role of Explainable AI and Federated Learning in Financial Fraud Detection	USA, Case study on AI and federated learning in financial fraud detection	The study investigates the use of Explainable AI (XAI) and Federated Learning to enhance transparency and privacy in detecting financial fraud. The authors explore how these advanced AI techniques can improve the interpretability of fraud detection models while ensuring data privacy and security, addressing challenges in financial transactions analysis.

Here is the table with **Independent Variables (IV)** added for each study from 1 to 13 based on the context:

**Table 2.** Independent Variables (IV)

No	Year	Author	Title	Dependent Variable (DV)	Independent Variable (IV)
1	2025	Li, J., Liu, W., & Zhang, J.	Automating Financial Audits with Random Forests and Real-Time Stream Processing	Audit efficiency, risk detection	Random Forests, Real-Time Stream Processing
2	2025	Al-Omush, A., Almasarwah, A., & Al-Wreikat, A.	Artificial Intelligence in Financial Auditing: Redefining Accuracy and	Audit accuracy, transparency	Artificial Intelligence (AI)

No	Year	Author	Title	Dependent Variable (DV)	Independent Variable (IV)
			Transparency in Assurance Services		
3	2006	Kuhn, J. R., & Sutton, S. G.	Learning from WorldCom: Implications for Fraud Detection through Continuous Assurance	Fraud detection, financial reliability	Continuous assurance, real-time auditing
4	2006	Kuhn, J. R., & Sutton, S. G.	Learning from WorldCom: Implications for Fraud Detection through Continuous Assurance	Fraud detection, financial reliability	Continuous assurance, real-time auditing
5	2020	Cardoni, A., Kiseleva, E., & De Luca, F.	Continuous Auditing and Data Mining for Strategic Risk Control and Anticorruption: Creating “Fair” Value in the Digital Age	Strategic risk control, anticorruption	Continuous auditing, data mining
6	2002	Rezaee, Z., Sharbatoghlie, A., Elam, R., & McMickle, P. L.	Continuous Auditing: Building Automated Auditing Capability	Audit efficiency, real-time monitoring	Automated auditing, continuous auditing
7	2010	Chou, C. C., & Janie Chang, C.	Continuous Auditing for Web-Released Financial Information	Financial data accuracy, fraud risk	Continuous auditing, web-released financial data
8	2013	Shin, I. H., Lee, M. G., & Park, W.	Implementation of the Continuous Auditing System in the ERP-Based Environment	Audit efficiency, financial transaction monitoring	Continuous auditing, ERP systems
9	2005	Flowerday, S., & von Solms, R.	Continuous Auditing: Verifying Information Integrity and Providing Assurances for Financial Reports	Information integrity, financial report reliability	Continuous auditing, financial report verification
10	2021	Roszkowska, P.	Fintech in Financial Reporting and Audit for Fraud Prevention and Safeguarding Equity Investments	Fraud prevention, equity investments protection	Fintech, blockchain, data analytics
11	2024	Shalhoob, H., Halawani, B., Alharbi, M., & Babiker, I.	The Impact of Big Data Analytics on the Detection of Errors and Fraud in Accounting Processes	Error detection, fraud detection in accounting	Big data analytics
12	2014	Singh, K., Best, P. J., Bojilov, M., & Blunt, C.	Continuous Auditing and Continuous Monitoring in ERP Environments: Case Studies of Application Implementations	Financial oversight, risk management	Continuous auditing, continuous monitoring, ERP environments
13	2024	Awosika, T., Shukla, R. M., & Pranggono, B.	Transparency and Privacy: The Role of Explainable AI and Federated Learning in Financial Fraud Detection	Fraud detection, model interpretability	Explainable AI (XAI), Federated learning

Here is the table with a summary of the impact of independent variables (IV) on dependent variables (DV).

**Table 3.** Independent Variables (IV) on Dependent Variables (DV)

No	Dependent Variable Group	Dependent Variable (DV)	Independent Variables (IV)	Summary of Impact
1	Audit Efficiency	Audit efficiency	Random Forests, Real-Time Stream Processing	The use of Random Forests and Real-Time Stream Processing significantly enhances audit efficiency by automating audit processes and improving the accuracy of risk detection.
2	Audit Accuracy & Transparency	Audit accuracy, Transparency	Artificial Intelligence (AI)	AI improves audit accuracy by automating repetitive tasks and enhancing transparency in financial reporting, ensuring a more precise and transparent audit outcome.
3	Fraud Detection	Fraud detection, Financial reliability	Continuous assurance, Real-time auditing	Continuous assurance and real-time auditing systems contribute to more timely fraud detection and enhance the reliability of financial statements by continuously monitoring transactions and detecting anomalies.
4	Strategic Risk Control	Strategic risk control, Anticorruption	Continuous auditing, Data mining	Continuous auditing and data mining provide insights that help organizations mitigate strategic risks and prevent corruption by ensuring better decision-making based on accurate, real-time data.
5	Audit Efficiency	Audit efficiency, Real-time monitoring	Automated auditing, Continuous auditing	Automated auditing and continuous auditing improve efficiency by automating tasks, reducing human error, and enabling real-time monitoring of financial transactions, improving audit accuracy.
6	Financial Data Accuracy	Financial data accuracy, Fraud risk	Continuous auditing, Web-released financial data	Continuous auditing techniques improve financial data accuracy by verifying web-published financial information, reducing fraud risk, and ensuring data integrity in online financial reporting.
7	Transaction Monitoring	Financial transaction monitoring	Continuous auditing, ERP systems	The integration of continuous auditing with ERP systems enhances the monitoring of financial transactions, improving the efficiency and effectiveness of audits in real-time.
8	Financial Integrity	Information integrity, Financial report reliability	Continuous auditing, Financial report verification	Continuous auditing improves financial report reliability by ensuring the integrity of financial information, allowing for the early detection of discrepancies and ensuring accurate financial reporting.
9	Fraud Prevention	Fraud prevention, Equity investments protection	Fintech, Blockchain, Data analytics	Fintech solutions, especially blockchain and data analytics, play a crucial role in fraud prevention by ensuring the transparency of transactions and safeguarding equity investments in real-time.
10	Fraud Detection in Accounting	Error detection, Fraud detection in accounting	Big data analytics	Big data analytics improve fraud detection and error identification in accounting processes by analyzing vast datasets in real-time and uncovering discrepancies that could indicate fraudulent activity.

No	Dependent Variable Group	Dependent Variable (DV)	Independent Variables (IV)	Summary of Impact
11	Risk Management	Financial oversight, Risk management	Continuous auditing, Continuous monitoring, ERP environments	Continuous auditing and monitoring in ERP environments significantly enhance financial oversight and help manage risks by providing a comprehensive and real-time view of financial transactions and operations.
12	Fraud Detection & Model Interpretability	Fraud detection, Model interpretability	Explainable AI (XAI), Federated learning	Explainable AI (XAI) and Federated learning improve fraud detection by enhancing model interpretability, ensuring that fraud detection systems are both effective and transparent in their decision-making processes.

The systematic literature review (SLR) explored the impact of Real-Time Auditing and Continuous Auditing on Financial Transparency and Fraud Detection, focusing on key technologies such as AI, Blockchain, Big Data Analytics, and ERP systems. The studies reviewed provided valuable insights into how these technologies contribute to enhancing auditing practices, addressing the three main research questions posed earlier.

The review identified several ways in which Real-Time Auditing and Continuous Auditing enhance audit efficiency and contribute to fraud detection:

**Audit Efficiency:** Real-Time Stream Processing and Random Forests (DV: Audit Efficiency) were shown to significantly automate the audit process, thereby improving audit efficiency and the accuracy of risk detection (Study 1). Automated auditing systems, combined with continuous auditing, help reduce human errors, allowing for real-time monitoring of financial transactions (Study 5). These technologies help auditors detect errors or discrepancies early, which improves audit accuracy and operational efficiency.

**Fraud Detection:** Continuous assurance and real-time auditing systems (Study 3) significantly improve fraud detection by continuously monitoring financial transactions and detecting anomalies. In particular, Big Data Analytics (Study 10) is crucial in detecting fraud within accounting by analyzing large datasets in real-time, allowing auditors to identify discrepancies that might indicate fraudulent activity. The use of blockchain and data analytics (Study 9) in fintech solutions also plays a pivotal role in fraud prevention, as it ensures transaction transparency and helps safeguard equity investments in real-time.

AI's role in improving audit accuracy and financial transparency was a prominent theme across the studies reviewed:

**Audit Accuracy:** AI applications, particularly those using machine learning and Random Forests (Study 1), have been shown to automate repetitive audit tasks, improving the accuracy of audits. AI's ability to uncover anomalies in vast datasets enhances audit precision and ensures that the outcomes of audits are both accurate and consistent, reducing human errors and bias.

**Financial Transparency:** AI also supports financial transparency by automating tasks such as the verification of financial data, allowing auditors to focus on more strategic decision-making processes. The integration of AI ensures that auditors have access to precise, real-time data, thereby increasing the reliability of financial reporting (Study 2).

**Fraud Detection:** Continuous auditing systems contribute to more timely fraud detection by providing real-time monitoring capabilities (Study 3). The ability to monitor financial transactions continuously ensures that discrepancies or fraudulent activities are detected and addressed at the earliest possible moment. Big Data Analytics (Study 10) further enhances fraud detection by analyzing vast datasets for errors, fraud, and inconsistencies. These techniques significantly improve the effectiveness of fraud detection within accounting processes.

**Financial Data Reliability:** Continuous auditing ensures the reliability of financial data by monitoring transactions in real-time and verifying financial reports (Study 8). This allows

discrepancies to be detected early, ensuring that the integrity of financial data is maintained. Additionally, ERP systems integrated with continuous auditing improve the efficiency of financial transaction monitoring (Study 7), thereby enhancing overall data reliability.

## Conclusion

The results of this SLR indicate that Real-Time Auditing and Continuous Auditing have a profound impact on improving audit efficiency, enhancing fraud detection, and ensuring financial transparency. The use of AI, Big Data Analytics, and Blockchain technologies play an instrumental role in these improvements by automating auditing tasks, identifying discrepancies in real-time, and ensuring that financial reports are accurate and transparent. These findings directly address the three research questions:

1. Audit Efficiency and Fraud Detection: Real-Time and Continuous Auditing significantly improve audit efficiency by automating processes and reducing human error. They also enhance fraud detection by enabling continuous monitoring and early detection of anomalies.
2. AI's Role in Audit Accuracy and Transparency: AI improves audit accuracy by automating repetitive tasks and improving transparency in financial reporting, ensuring more reliable and accurate audit outcomes.
3. Continuous Auditing's Impact on Fraud Detection and Financial Data Reliability: Continuous Auditing strengthens fraud detection and financial data reliability by continuously monitoring transactions and detecting discrepancies at an early stage, ensuring that financial data remains accurate and trustworthy.

By leveraging these advanced auditing technologies, organizations can not only enhance the quality and transparency of their financial reporting but also significantly reduce the risk of fraud and improve the overall effectiveness of their audit processes.

## References

- [1] Chou, C. C., & Janie Chang, C. (2010). Continuous auditing for web-released financial information. *Review of Accounting and Finance*, 9(1), 4-32.
- [2] Li, J., Liu, W., & Zhang, J. (2025). Automating Financial Audits with Random Forests and Real-Time Stream Processing: A Case Study on Efficiency and Risk Detection. *Informatica*, 49(16). Chaudhuri, A., & Bozkus Kahyaoglu, S. (2023). Cybersecurity assurance in smart cities: A risk management perspective. *Edpacs*, 67(4), 1-22.
- [3] Al-Omush, A., Almasarwah, A., & Al-Wreikat, A. (2025). Artificial intelligence in financial auditing: redefining accuracy and transparency in assurance services. *EDPACS*, 70(6), 1-20.
- [4] Mohd Razali, F., Sulaiman, N., Abdul Manan, D. I., & Said, J. (2025). Sustainability of Audit Profession in Digital Technology Era: The Role of Competencies and Digital Technology Capabilities to Detect Fraud Risk. *SAGE Open*, 15(1), 21582440241304974.
- [5] Zhong, H., Yang, D., Shi, S., Wei, L., & Wang, Y. (2024). From data to insights: the application and challenges of knowledge graphs in intelligent audit. *Journal of Cloud Computing*, 13(1), 114.
- [6] Kuhn, J. R., & Sutton, S. G. (2006). Learning from WorldCom: Implications for fraud detection through continuous assurance. *Journal of Emerging Technologies in Accounting*, 3(1), 61-80.
- [7] Saleem, K. A. (2024). The impact of continuous auditing on financial fraud: A qualitative study of Jordanian industrial enterprises. *Migration Letters*, 21(3), 577-589.
- [8] Cardoni, A., Kiseleva, E., & De Luca, F. (2020). Continuous auditing and data mining for strategic risk control and anticorruption: Creating “fair” value in the digital age. *Business Strategy and the Environment*, 29(8), 3072-3085.

- [9] Rezaee, Z., Sharbatoghlie, A., Elam, R., & McMickle, P. L. (2002). Continuous auditing: Building automated auditing capability. *Auditing: A Journal of Practice & Theory*, 21(1), 147-163.
- [10] Shin, I. H., Lee, M. G., & Park, W. (2013). Implementation of the continuous auditing system in the ERP-based environment. *Managerial Auditing Journal*, 28(7), 592-627.
- [11] Flowerday, S., & von Solms, R. (2005). Continuous auditing: verifying information integrity and providing assurances for financial reports. *Computer Fraud & Security*, 2005(7), 12-16.
- [12] Roszkowska, P. (2021). Fintech in financial reporting and audit for fraud prevention and safeguarding equity investments. *Journal of Accounting & Organizational Change*, 17(2), 164-196.
- [13] Shalhoob, H., Halawani, B., Alharbi, M., & Babiker, I. (2024). The impact of big data analytics on the detection of errors and fraud in accounting processes. *Revista de Gestao Social e Ambiental*, 18(1), 1-25.
- [14] Singh, K., Best, P. J., Bojilov, M., & Blunt, C. (2014). Continuous auditing and continuous monitoring in ERP environments: Case studies of application implementations. *Journal of Information Systems*, 28(1), 287-310.
- [15] Awosika, T., Shukla, R. M., & Pranggono, B. (2024). Transparency and privacy: the role of explainable ai and federated learning in financial fraud detection. *IEEE access*, 12, 64551-64560.