
The Role of Artificial Intelligence and Electronic Data Processing in Internal Audit Transformation: A Qualitative Descriptive Approach at Bank Mandiri

Herlina R¹, Abd Halim², Ranti Melasari³

PT. BPR GEMILANG (PERSERODA)¹ , Universitas Muhammadiyah Jambi²,
Universitas Islam Indragiri³

Indonesia

herlinarasyid3@gmail.com¹, abdh0074@gmail.com², ranti.akuntansiunisi@gmail.com³

ABSTRACT

This study investigates the role of Artificial Intelligence (AI) and Electronic Data Processing (EDP) in transforming internal audit practices within the Indonesian banking sector, focusing on Bank Mandiri. Using a qualitative descriptive approach through semi-structured interviews with two senior internal auditors, the research identifies how digital technologies reshape audit efficiency and effectiveness. The findings reveal that AI significantly accelerates audit processes, reduces operational costs, and minimizes reliance on manual labor by automating repetitive tasks. Moreover, AI enhances effectiveness by improving the accuracy of findings, enabling real-time fraud detection, and supporting data-driven decision-making. Meanwhile, EDP strengthens efficiency through faster data access, document digitalization, and reduced dependence on physical records, while also improving effectiveness by ensuring data integrity, simplifying verification, and maintaining audit security and confidentiality. This study contributes to the literature by empirically distinguishing the complementary roles of AI and EDP in internal audit transformation, an area previously underexplored. It highlights the strategic implications for the banking sector, emphasizing the need to develop auditors' technical competencies and optimize cross-unit system integration to fully leverage digital audit technologies..

Keyword: Artificial Intelligence, Electronic Data Processing, Internal Audit, Efficiency, Effectiveness, Banking Sector.

INTRODUCTION

Artificial intelligence is considered by many to be a contemporary field that continues to experience rapid progress. This technology is believed to have a promising future and a significant opportunity to shape the direction of human life in the future. (Alassuli, 2025). Decision-making processes and business operations can be more efficient if companies are able to implement

information technology appropriately and effectively (Utomo, 2006). The implementation of good governance is a crucial aspect of running a business, as it can minimize the risk of fraud and encourage efficiency and effectiveness in operational activities (Nurul Tsalatsa Azizah et al., 2023). The idea of machines or human-made creatures capable of thinking, learning, and making decisions independently has long

captivated the public imagination and been a part of popular culture for decades (Wany et al., 2024).

Digital transformation has had a significant impact on various activities in daily life. One technology currently in the spotlight is Artificial Intelligence (AI). (Mawlidly et al., 2024). The role of internal audit and its relationship to artificial intelligence (AI) is now increasingly vital at the macro level, along with the increasing use of AI in various industrial and economic sectors. This situation drives the need to re-evaluate traditional business processes, including the approach used in internal audit. (Paul, 2024). Audits play a crucial role in fraud prevention and detection. However, auditors' failure to identify fraud is often due to a lack of awareness of key risks and a limited understanding of the factors that can trigger fraud (Syahronny & Dewayanto, 2024). Adapting to technological developments is now receiving increasing attention in studies on the impact of information technology on internal audit quality. Auditors are also required to master various new concepts, including the use of more sophisticated audit techniques and technology-based control systems.

Information system audit often also referred to as EDP Audit (Electronic Data

Processing Audit) or computer audit is a process that includes data collection and assessment of evidence to ensure that computer-based application systems have been implemented properly and are supported by an adequate internal control system (Pratama, 2020). An auditor needs to understand and study the characteristics of the Electronic Data Processing (EDP) system in order to be able to accurately review and evaluate computer-based data processing processes, considering that this system has a direct influence on the process (Puspitasari et al., 2022). Internal auditors have a responsibility to thoroughly understand the internal control system. They need to have knowledge of general controls and application controls, and be aware of the various risks that may arise from the use of these systems (Wany et al., 2024). Information Technology in a company does not only include hardware and software, but also involves knowledge, skills, and practices applied to achieve certain goals effectively (Firmansyah et al., 2024). Therefore, humans are required to be able to adapt and overcome various challenges that arise along with technological advances, including in various areas of life such as accounting (Okinaldi & Aziza, 2024). The use of information technology enables analysis, planning, and

trade-off decision-making based on data from all elements of the supply chain. Furthermore, this technology also supports collaboration between supply chain partners through the exchange of information to solve common problems (Jenita, 2024).

The business world, as an arena full of dynamics and change, continues to show a rapid rate of growth over time (Jenita, 2024). Accounting is one of the earliest business fields to integrate Information and Communication Technology (ICT) tools and techniques. Initially, ICT was used to run basic accounting systems, but over time, the use of financial modeling software has proven highly effective in supporting accounting analysis (Omoteso, 2012). Artificial intelligence (AI) is expected to open up new job opportunities and shift the role of the human workforce toward a greater emphasis on skills that cannot be replaced by machines, such as creativity, the ability to solve complex problems, and flexibility in adapting (Syamsu et al., 2022). Advances in the use of computers in the business world have had an impact on changing the way audits are conducted and have also influenced various other scientific fields. An organization or company is said to use a computer-based system (CBS) if the data processing process for preparing its financial

reports is carried out with the help of computers, either internally by the company itself or through third-party services (Musaib Ashraf (2024) .

Many countries believe that the global economic integration that occurred in 2020 will have a significant impact on cross-border transactions, especially in commodity trade such as automotive, textiles, agro-based products, logistics, wood-based products, and others (Wijayanto, 2008). The success of an audit in adapting the examination of financial reports to technological developments is highly dependent on the quality of the auditor's human resources who are able to adopt technological advances, particularly in terms of application control and the potential risks posed by the use of information technology (Rizka Khoirotun Nisaa et al., 2024). With the increasingly rapid pace of technological development in recent years, auditors are required to be more flexible and adaptive to changes in audit procedures, as well as to have the ability to process risk information directly. This demand arises with the advent of Robotic Process Automation (RPA) technology, which enables real-time and continuous auditing (Silaen & Dewayanto, 2024). Advances in information technology contribute to increasing the efficiency and effectiveness of various

activities carried out (Okinaldi & Aziza, 2024). Information technology is a combination of computer technology and data communications used to manage and disseminate information (Wany et al., 2024).

The audit function has a strategic role for internal management, particularly in evaluating the accuracy and efficiency of recording and various operational activities that occur within the organization. (Jencks, 1961). The auditor will test the accounting data that forms the basis of a statement by analyzing and reviewing it, retracing the procedures used in the accounting process, recalculating, and reconciling figures related to similar information (Darono, 2022). Auditing, which has long been known as a detailed and labor-intensive process, is now starting to adopt artificial intelligence (AI) technology (Mawliidy et al., 2024). Audits have a crucial role in preventing and uncovering fraudulent acts (Syahronny & Dewayanto, 2024).

This research is motivated by the need to design an artificial intelligence (AI) governance system that can ensure the reliable development and use of AI in audit practice. However, before building a complex governance mechanism, an important first step is to gain a deep understanding of the various risks and

opportunities that arise from the implementation of AI — both for public accounting firms that develop and operate AI-based audit systems, and for their clients, whose use of AI influences their risk profiles and impacts the approaches and tools used during the audit process (Kokina et al., 2025).

The Electronic Data Processing (EDP) system is used as a tool to assist in data processing, considering that the company is a large entity with high data volume, fast information flow, and management needs for data that is always up to date (Lestari et al., 2022). Through the integration of artificial intelligence (AI), companies can automate various repetitive tasks, such as inventory management, accounting records, and supply chain management, thereby increasing operational efficiency and minimizing the potential for human error (Siswanto et al., 2024). Developments in information technology have supported more efficient and effective audit implementation through the use of various digital applications and systems (Apriadi et al., 2024).

According to (Edward Riantono, 2024) In his research, he discovered a phenomenon that in recent years audit practices have undergone significant transformation along with technological advances, particularly through the

application of Artificial Intelligence (AI) and Electronic Data Processing (EDP). Artificial intelligence (AI) technology enables real-time audits, making it easier to identify fraud more accurately and increasing efficiency in the internal audit process. Many large companies, particularly those in the financial and banking sectors, have begun implementing this technology to address the need for effectiveness and accuracy in their internal control systems. Auditing, once a highly precise and labor-intensive activity, is now adopting artificial intelligence (AI) technology to drive increased efficiency, effectiveness, and accuracy in audit results. (Mawlidy et al., 2024). Although AI and Electronic Data Processing (EDP) have significant potential to improve audit process efficiency, many internal auditors still lack the technical skills to manage and optimize the use of these technologies. Therefore, auditors are required to understand various modern concepts, including the application of more advanced audit techniques and technology-based internal controls (Wany et al., 2024). The use of technology in the financial statement audit process will only be effective if supported by competent auditors with expertise in their fields (Rizka Khoirotun Nisaa et al., 2024).

Previous studies have discussed extensively the role of information technology in supporting internal audit activities, especially in terms of implementing computerized systems and automating various audit procedures. According to research (Alghafiqi, 2022), the influence of artificial intelligence (AI) technology on the accounting profession is still discussed in general terms and has not specifically outlined the differences in the roles of AI and Electronic Data Processing (EDP) in efforts to increase the efficiency and effectiveness of internal audits. In fact, these two technologies have fundamental differences, both in terms of characteristics and their functions in supporting audit implementation. On the other hand, studies specifically examining the impact of AI and EDP implementation in the banking sector which is known to have a high level of complexity and demands for a strong internal control system. is still very limited. Therefore, this study aims to fill this gap by conducting an in-depth analysis of the impact of AI and EDP on the efficiency and effectiveness of internal audits, through a case study of their implementation at Bank Mandiri.

Many studies have discussed the role of information technology in supporting

internal audits in general (e.g., Alghafiqi, 2022; Omoteso, 2012). Some studies highlight AI in auditing, but these remain conceptual and do not clearly differentiate between the roles of AI and EDP (Mawlidy et al., 2024; Silaen & Dewayanto, 2024). Studies on EDP emphasize the technical aspects of the system (Pratama, 2020; Puspitasari et al., 2022), but have not yet been directly linked to internal audit effectiveness in the banking sector. No research has specifically compared the roles of AI and EDP in improving internal audit efficiency and effectiveness. Previous research has been limited to general studies or non-banking sectors, despite the banking sector's high complexity and need for strict internal controls. There is a lack of real-world case studies with field data (auditor interviews) that confirm how these technologies are actually implemented. This study offers empirical analysis through interviews with Bank Mandiri auditors, thus providing concrete evidence of the implementation of AI and EDP. Clarifying the differences in the contributions of AI and EDP to efficiency (speed, cost, automation) and effectiveness (accuracy, fraud detection, data integrity). Filling the gap in the literature with a focus on the Indonesian banking sector, which is rarely studied in depth.

Based on the background, this study aims to determine how the application of Artificial Intelligence (AI) and the application of Electronic Data Processing (EDP) affect the efficiency of internal audits in the banking sector and the effectiveness of internal audits in the banking sector and what challenges auditors face in integrating AI and EDP, especially regarding technical competence and cross-unit coordination?

METHOD

Data collection techniques were conducted in several stages: semi-structured interviews with two key informants (internal auditors at Bank Mandiri with over 10 years of experience). Document observation, in which the researcher accessed the bank's official website and digital audit documents to supplement the interview data. Source triangulation was then performed by comparing the interview results with literature and official documents to enhance data validity. For the data analysis stage, this research employed qualitative thematic analysis with systematic steps, including data transcription.

All interview results were transcribed verbatim to ensure the authenticity of the information. Data reduction filtered relevant information according to research indicators

(AI-efficiency, AI-effectiveness, EDP-efficiency, EDP-effectiveness). Initial coding (open coding) labeled informant responses, for example, "fraud detection," "cost reduction," "document digitalization." Categorization (axial coding) grouped codes into broad themes: efficiency and effectiveness. Interpretation (selective coding) developed a thematic narrative explaining how AI and EDP contribute to internal audit. Theoretical and data triangulation compared field findings with previous theory/research to test consistency.



Picture 1. Research Methodology Flowchart

The Validity and Credibility stage, source triangulation, in the form of interview results, is verified with audit documents and

literature. Member checks allow informants to review the interview summary to ensure it aligns with their experiences. An audit trail records the entire analysis process (transcripts, codes, categories) for retraceability. Peer debriefing involves discussions with fellow researchers to test the consistency of interpretations.

With these stages, the research is not only descriptive but also systematic and transparent, ensuring more valid, credible, and accountable results.

Table 1. Interview Question Indicators

N	Indicator	Question
o		
Artificial Intelligence on Internal Audit Efficiency		
1.	AI speeds up the internal audit process	To what extent does the use of AI help speed up the internal audit process?
2.	AI reduces audit costs	Does implementing a technology-based audit system significantly reduce audit costs? Can you explain how this efficiency is achieved?
3.	AI reduces the need for human labor	Has the use of technology in internal auditing reduced reliance on human labor? How has this been implemented in your practice?
4.	Automate repetitive tasks	Has audit technology been used to automate routine and repetitive audit tasks? Can you provide an example?
5.	Increase the use of automated systems	How is the implementation of automated systems in your internal audit process? Is its use optimal, or are there still challenges?
Artificial Intelligence on Internal Audit Effectiveness		
1.	AI improves the accuracy of findings audit	Does AI help auditors improve accuracy in finding irregularities?

2. AI detects fraud faster	Has the use of AI in internal audit processes been proven to help detect fraud more quickly? Can you share your experience or examples?	1. Ensuring data integrity and reliability	What role do technologies such as AI or EDP play in ensuring the integrity and reliability of audit data in your institution?
3. AI supports the decision making process	How big a role does AI play in supporting decision-making during the audit process?	2. Simplify the audit data verification process	Does using a digital system make the audit data verification process easier for you? Could you explain how the process is easier compared to manual methods?
4. AI enables real - time monitoring	Does the AI technology used in internal audits allow you to perform real-time oversight?	3. Supports a strong control system	To what extent does EDP support internal control during the audit process?
5. AI is able to identify risks accurately	In your opinion, is AI capable of accurately identifying and mapping risks in the internal audit process? How do the results compare to previous manual methods?	4. Facilitates identification of errors or deviations	Does the technology used in the audit make it easier for you to identify errors or irregularities? Are there any case studies?
Electronic Data Processing on Internal Audit Efficiency		5. Maintaining the security and confidentiality of audit data	In your opinion, are the current digital-based audit systems capable of effectively maintaining the security and confidentiality of audit data? What are their mechanisms?
1. Reduce auditor manual work	Has the use of technology such as EDP or AI helped reduce manual work for auditors at your location? If so, can you explain what manual tasks have been transferred to the system?		
2. Accelerate access and processing of audit data	To what extent has the digital-based system helped you speed up access and processing of audit data? Are there any significant changes compared to the previous process?		
3. Support document digitalization	What role does technology play in supporting the digitalization of audit documents at your institution? Is it fully implemented or only partially implemented?		
4. Reduce the use of physical documents	Has the use of EDP reduced the need for physical audit documentation?		
5. Improve connectivity between units	Does the technology-based audit system you use improve connectivity or coordination between units or departments? Can you explain how this collaboration will be implemented?		
Electronic Data Processing on Internal Audit Effectiveness			

DISCUSSION

This study employed a qualitative descriptive approach using semi-structured interviews with two informants, Ms. Zaskia and Ms. Indri, both internal auditors. An internal auditor who has been working for more than 10 years at Bank Mandiri, with experience handling audits from manual to digital. He understands conventional audit processes and is currently actively using AI and EDP systems in audits. The interviews aimed to gain an in-depth understanding of the impact of the implementation of Artificial Intelligence (AI) and Electronic Data Processing (EDP) on the efficiency and

effectiveness of internal audits. The following are the interview results categorized based on research indicators :

Table 2. Artificial Intelligence on Internal Audit Efficiency

No	Indicator	Responden 1	Responden 2
1.	AI speeds up the audit process	AI greatly speeds up the audit process because it can analyze data automatically, especially when verifying large-scale transactions.	The audit process, which usually takes several days, can now be done in a matter of hours because the system automatically provides data summaries.
2.	AI reduces audit costs	Internal audit costs are reduced because working hours are shorter and require less overtime or additional manpower.	Cost reductions occur because repetitive work is done by the system and no longer requires paper for audit documentation.
3.	AI reduces the need for human labor	Yes, tasks like transaction recaps and double-checking are now performed by the system. Auditors focus solely on final analysis.	Support staff for data entry is no longer needed because everything is automated.
4.	Automate repetitive tasks	Tasks like invoice matching and transaction proofing are automated. Auditors only check if the system detects anomalies.	Yes, for example, the system can immediately check for duplicate expenses automatically and send notifications.
5.	Implementation of automated systems	It has been implemented, but integration across all divisions is not yet perfect because some units still use manual systems.	The implementation of automation is quite optimal, but further HR training is needed so that all auditors can utilize the system optimally.

Table 3. Artificial Intelligence on Internal Audit Effectiveness

No	Indicator	Mrs. Zaskia's Response	Mrs. Indri's Response
1.	AI improves the accuracy of audit findings	AI can detect abnormal transactions and minimize the possibility of missing findings.	The system is capable of performing automatic cross-checks between data, thereby reducing errors and increasing the accuracy of findings.
2.	AI detects fraud faster	Have detected potential fraud in branch expenditures that were reported late via system alerts.	AI provides real-time notifications if spending exceeds normal limits. This helps us take action more quickly.
3.	AI supports decision making	AI provides a dashboard that displays a summary of risk indicators in real time, so auditors can suggest more informed decisions.	Management responds more quickly to audit results because AI provides easy-to-understand analysis that allows for immediate decision-making.
4.	AI enables real-time monitoring	The audit system can be accessed at any time to view the current transaction conditions, so that monitoring can be carried out without waiting for the final report.	Real-time monitoring is especially helpful for short-term projects. You can instantly view daily audit data.
5.	AI identifies risks accurately	The system assigns a risk score to each division based on transactions, which is very helpful in determining audit priorities.	AI helps create risk mapping based on transaction type and volume. This is more systematic than previous manual methods.

Table 4. Electronic Data Processing on Internal Audit Efficiency

No	Indicator	Mrs. Zaskia's Response	Mrs. Indri's Response
1.	Reduce auditor manual work	Audit data input, such as cash balances and transactions, is automated. Auditors simply pull up reports and focus on analysis.	Many administrative tasks such as archiving reports are no longer necessary because everything is digital.
2.	Accelerate access and processing of audit data	The required audit data can be directly searched through the system, no longer needing to request physical documents from the finance department.	It's very fast and saves time, especially for cross-unit audits that previously required extensive coordination.
3.	Support document digitalization	Audit documents such as audit forms and transaction receipts are all in PDF format and stored in the internal cloud system.	The process of uploading documents from branches to the headquarters is also more organized. Everything is automatically saved with the date and time.
4.	Reduce the use of physical documents	Nearly 90% of audits are paperless. Only the final report is sometimes printed for physical archives.	Each audit document is simply scanned and uploaded to the system, minimizing paper usage.
5.	Improve connectivity between units	The EDP system allows all branches to upload data to a central server automatically, so audits can be conducted without having to come in person.	Coordination between auditors and branches is more efficient because they can discuss through the same system and view the same data in real-time.

Table 5. Electronic Data Processing on Internal Audit Effectiveness

No	Indicator	Mrs. Zaskia's Response	Mrs. Indri's Response
1.	Ensuring data integrity and reliability	Audit data entered into the system can only be modified by authorized parties and is recorded digitally (system log).	The audit system is equipped with encryption and automatic backup features, so data security is highly maintained.
2.	Simplify the audit data verification process	Simply enter the transaction ID and the system will immediately display all the history and details. No need to manually contact the relevant department.	It's very practical because all the data is integrated. The verification process is faster and more efficient.
3.	Supports a strong control system	The system already has a double validation feature and notification if a transaction exceeds the limit.	EDP helps ensure all transactions receive tiered approval and can be traced back.
4.	Facilitates identification of errors or deviations	There is an automatic notification if there is an entry error or the transaction amount does not match the previous pattern.	We once found double input of expense reports due to the alert system and were able to follow up immediately.
5.	Maintaining the security and confidentiality of audit data	Audit system access is restricted to authorized parties only, and there is two-step authentication.	Audit data is stored on an internal server and backed up regularly. There have been no audit data leaks.

Based on interviews with two internal auditors, Ms. Zaskia and Ms. Indri, it can be concluded that the implementation of

Artificial Intelligence (AI) and Electronic Data Processing (EDP) has been proven to have a positive impact on the efficiency and effectiveness of internal audits at Bank Mandiri. This is evident from various predetermined indicators. In terms of efficiency, both informants stated that AI can accelerate the audit process because the system can analyze large-scale data automatically and in real time. This statement aligns with the opinion of Silaen & Dewayanto (2024) who stated that AI can accelerate the audit process and reduce operational costs by automating repetitive tasks. Furthermore, the use of AI also reduces the need for human labor in the audit process because most technical tasks, such as transaction matching and data recapitulation, have been transferred to the system. This strengthens the theory of Mawlidy et al. (2024) who stated that AI optimizes human resource efficiency. In terms of effectiveness, informants explained that AI can improve the accuracy of audit findings and help detect fraud more quickly by providing automatic notifications of suspicious transactions.

The finding that AI accelerates audit processes and reduces operational costs corroborates the findings of Silaen & Dewayanto (2024). However, this study provides direct empirical evidence through

interviews, rather than simply theoretical assumptions. Unlike the study by Mawlidy et al. (2024), which emphasized the potential of AI, this study demonstrates that workforce reduction and automation of routine tasks are already occurring in practice. Thus, the application of AI in internal audit is not only operationally efficient but also improves the quality of audit results.

This research adds a new dimension by demonstrating that AI not only improves the accuracy of findings but also facilitates data-driven decision-making and real-time monitoring. This expands the scope of Wany et al.'s (2024) study, which only focused on fraud detection capabilities.

Implementing EDP, both informants agreed that this digital system is very helpful in reducing manual work for auditors, accelerating audit data access and processing, and supporting document digitization. These interview results align with the opinions of Lestari et al. (2022) and Puspitasari et al. (2022), who emphasized that EDP facilitates the collection and tracking of audit data quickly and accurately. EDP is also considered capable of ensuring the integrity and security of audit data because the entire process is recorded electronically and can only be accessed by authorized parties, as stated in the theory by Pratama (2020). The

data verification process becomes easier and more efficient because the required data can be traced directly through the system without having to manually request documents.

EDP has been shown to support data integrity and internal control systems, corroborating Pratama's (2020) theory. Furthermore, it also provides evidence that this system also accelerates cross-unit verification and collaboration, aspects that have not been widely discussed previously.

Overall, the results of this study are consistent and in line with the theories explained previously. Both the implementation of AI and EDP have been shown to have a significant impact on increasing the efficiency and effectiveness of internal audits. However, several challenges remain, such as the need to improve auditor technical competence and optimize cross-unit systems. Nevertheless, these findings generally support existing literature and strengthen the understanding that technology integration in the audit process is an effective strategic step in addressing the challenges of digital transformation in the banking sector.

This research confirms that AI and EDP are not merely technical tools, but have become strategic components of modern internal audit, transforming the auditor's role

from technical executor to risk analyst and decision-maker.

These findings support the socio-technical systems theory approach, where technology and human competency must interact synergistically to produce an adaptive and effective audit system.

This research also reinforces the notion that digital transformation in auditing requires a redefinition of the concepts of efficiency and effectiveness, which now encompass speed, accuracy, collaboration, and data security.

CONCLUSION

This study confirms that the integration of Artificial Intelligence (AI) and Electronic Data Processing (EDP) significantly enhances both the efficiency and effectiveness of internal audits in the banking sector, as evidenced by empirical findings from Bank Mandiri.

1. Artificial Intelligence (AI):

AI contributes to audit efficiency by automating data analysis, reducing operational costs, and minimizing reliance on manual labor. Routine tasks such as transaction matching and anomaly detection are handled by the system, allowing auditors to focus on strategic evaluation. AI enhances audit effectiveness through real-time fraud

detection, improved accuracy of findings, and data-driven decision support. Risk mapping and monitoring are more systematic and responsive compared to manual methods.

2. Electronic Data Processing (EDP):

EDP improves audit efficiency by accelerating data access, supporting document digitization, and reducing the use of physical documentation. It facilitates seamless coordination across units via centralized systems. EDP strengthens audit effectiveness by ensuring data integrity, simplifying verification processes, and maintaining security through encryption, access control, and automated backups.

The results of interviews with internal auditors indicate that the implementation of AI and EDP has provided real convenience in daily audit activities, although its implementation still requires strengthening in terms of auditor technical competency and cross-unit system optimization. This study offers a clear empirical distinction between the roles of AI and EDP in internal audit transformation—an area previously underexplored in the literature. By focusing on the Indonesian banking sector, it provides contextual insights into how digital technologies reshape audit practices in high-complexity environments. Furthermore, it highlights the need for enhanced auditor

competencies and cross-unit system integration to fully realize the benefits of technological adoption.

REFERENCES

- Alassuli, A. (2025). Impact of artificial intelligence using the robotic process automation system on the efficiency of internal audit operations at Jordanian commercial banks. *Banks and Bank Systems*, 20(1), 122.
- Alghafiqi, B. (2022). The Impact of Artificial Intelligence Technology on the Accounting Profession. *Fair Value: Scientific Journal of Accounting and Finance*, 4 (6), 2158–2174. <https://doi.org/10.32670/fairvalue.v5i0.1.865>
- Apriadi, A., Bagus, M., Mokoginta, R., & Kuntadi, C. (2024). PT. Media Akademik Publisher The Effect Of Information Technology And Blockchain Technology On Audit Performance Reports. *Jma*, 2 (5), 3031–5220.
- Ashraf, M. (2024). Does automation improve financial reporting? Evidence from internal controls. *Review of Accounting Studies*, 30(2), 436–479. <https://doi.org/10.1007/s11142-024-09822-y> (doi.org in Bing)
- Azizah, N. T., Rahmadina, R., Mumtaza, W., & Kusumastuti, R. (2023). The role of internal audit in preventing fraud in companies. *Jurnal Akuntansi, Ekonomi Dan Manajemen Bisnis*, 3(2), 230-236.
- Darono, A., & Pratama, A. (2022). Tax audit in the era of big data: The case of Indonesia. *Journal of Tax*

-
- Administration*, 7(2), 27-50. <https://doi.org/10.1016/j.accinf.2025.100734>
- Riantono, E. (2024). Transformasi praktik audit melalui penerapan Artificial Intelligence (AI) dan Electronic Data Processing (EDP). Universitas Bina Nusantara.
- Firmansyah, PD, Fauzi, A., Barja, R., Mulyana, AP, Putri, TN, Surachman, A., & Ramadhan, G. (2024). Security Management in the Digital Era to Optimize Data Protection with Advanced Technology. *Journal of Entrepreneurship and Multi-Talent*, 2 (2), 112–125. <https://siberpublisher.org/index.php/JKMT/article/view/160>
- Handoko, BL, Lindawati, ASL, & Mustapha, M. (2020). Application of computer assisted audit techniques in public accounting firms. *International Journal of Management*, 11 (5), 222–229. <https://doi.org/10.34218/IJM.11.5.2020.022>
- Jencks, W. B. (1961). Electronic Data Processing and Auditing (Book). *Accounting Review*, 36 (4), 685. <http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=7097756&site=ehost-live>
- Jenita, Z. (2024). Analysis of the Effect of Using Audit Data Analytics Technology in Improving the Quality of Financial Audits. *Journal of Education and Teaching Review*, 7, 3758–3764.
- Kokina, J., Blanchette, S., Davenport, T.H., & Pachamanova, D. (2025). Challenges and opportunities for artificial intelligence in auditing: Evidence from the field. *International Journal of Accounting Information Systems*, 56 (April 2024), 100734.
- Lestari, V., Hariki, NM, & Izzalqurny, TR (2022). *Proceedings of the National Seminar on Accounting, Finance, Analysis Of The Impact Of Electronic Data Processing (Edp) Utilization On The Auditing Process In*. 2 (6), 98–105.
- Mawlidly, E.R., Dio, R., & Lorensa, L. (2024). The Ability of Artificial Intelligence to Detect Fraud: A Literature Review. *Accuracy: Journal of Accounting and Financial Studies*, 7 (1), 89–104. <https://doi.org/10.29303/akurasi.v7i1.488>
- Muhammad Fauzi Ilmi, Siti Ayu Pramudita, Rifda Aliyatul Bilbina Achmadi, Sarah Putri Aurellia, & Yuni Sukandani. (2024). The Impact of Information Technology Use on the Audit Process. *GEMILANG: Journal of Management and Accounting*, 4 (3), 158–164. <https://doi.org/10.56910/gemilang.v4i3.1586>
- Nurul Tsalatsa Azizah, Rahmadina Rahmadina, Warda Mumtaza, & Ratih Kusumastuti. (2023). The Role of Internal Audit in Preventing Fraud in Companies. *Journal of Accounting, Economics, and Business Management*, 3 (2), 230–236. <https://doi.org/10.55606/jaemb.v3i2.1715>
- Okinaldi, J., & Aziza, N. (2024). Implementation of Audit Technology in the Digital Era. *Scientific Journal of Management, Economics, & Accounting (MEA)*, 8 (2), 146–159. <https://doi.org/10.31955/mea.v8i2.4016>
- Omoteso, K. (2012). The application of

- artificial intelligence in auditing: Looking back to the future. *Expert Systems with Applications* , 39 (9), 8490–8495.
<https://doi.org/10.1016/j.eswa.2012.01.098>
- Paul, A.L. (2024). The Role of Artificial Intelligence in Enhancing Data Security. *Journal of Data Security* , 3 (2), 64–89.
https://www.researchgate.net/publication/n/381004546_The_Role_of_Artificial_Intelligence_in_Enhancing_Data_Security
- Pokhrel, S. (2024). Digital Technologies in Physics Education: Exploring Practices and Challenges. *Teacher Education Advancement Network Journal*, 15(1), 37-48.
- Pratama, SK (2020). Implementation of Planning and Internal Control of Information System Audit. *Journal of Accounting, Taxing and Auditing (JATA)* , 1 (2), 1–10.
<https://doi.org/10.57084/jata.v1i2.180>
- Puspitasari, T., Sarifah, L., & Izzalqurny, TR (2022). Analysis of the Impact of Electronic Data Processing (EDP) Utilization on the Auditing Process in Internal Control. *Proceedings of the National Seminar on Accounting, Finance, and Economics (NSAFE)*, 2 (6), 98–102.
<http://conference.um.ac.id/index.php/nsafe/article/view/2829/2048>
- Rizka Khoirotun Nisaa, Salsabila Maulidya Supriadi Bahrim, & Irda Agustin Kustiwi. (2024). Digital Technology and Internal Audit Transformation on Financial Report Treatment: A Literature Study. *Journal of Accounting Sciences* , 2 (2), 263–277.
<https://doi.org/10.55606/jumia.v2i2.259>
- 6
- Silaen, RP, & Dewayanto, T. (2024). The Use of Various Artificial Intelligence in the Audit Process - a Systematic Literature Review. *Diponegoro Journal of Accounting* , 13 (2), 1–15.
<http://ejournal-s1.undip.ac.id/index.php/accounting>
- Siswanto, T., Sari, S., Hartini, H., & Teruri, S. (2025). Integrasi Artificial Intelligence Pada Aplikasi ERP: Systematic Literature Review. *Jurnal Teknik Informatika UNIKA Santo Thomas*, 1-13.
- Syahronny, MR, & Dewayanto, T. (2024). Application of Artificial Intelligence and Blockchain Technology in Detecting Fraud in the Audit Process: A Systematic Literature Review. *Diponegoro Journal of Accounting* , 13 (3), 1–14. <http://ejournal-s1.undip.ac.id/index.php/accounting>
- Syamsu, M., Terisia, V., & Yusuf, D. (2022). Application of Artificial Intelligence Infrastructure Model as a Driver of Industry 4.0. *Journal of Information Technology (JUTECH)* , 3 (1), 1–14.
<https://doi.org/10.32546/jutech.v3i1.2375>
- Titarsole, V., Nangoi, GB, & Kalalo, MYB (2019). Analysis of the Impact of Electronic Data Processing (EDP) on the Implementation of Internal Audit at PT. BPR Bank Prisma Dana Manado. *EMBA Journal: Journal of Economics, Management, Business and Accounting Research* , 7 (3), 3179–3188.
- Utomo, A. P. (2006). Dampak pemanfaatan teknologi informasi terhadap proses auditing dan pengendalian internal. *Jurnal Teknologi Informasi DINAMIK*,

9(2), 66-74.

Wany, E., Widjaja1, AT, & Budi Prayitno. (2024). Analysis of the Use of Information Technology on Tax Audit Effectiveness. *Accounting: Integrative Accounting Journal* , 10 (1), 69–78. <https://doi.org/10.29080/jai.v10i1.1574>

Wijayanto, W. (2008). Audit Evidence in an Electronic Data Interchange (EDI) Environment. *Wahana: Journal of Economics, Management and Accounting* , 11 ((2)), 151–161.