

ARTIFICIAL INTELLIGENCE (AI), AUDIT, FORENSIC ACCOUNTING; LITERATURE REVIEW

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Abstract : Artificial intelligence has become a very useful prima donna in all business activities, especially in the world of accounting and auditing. This can be achieved by automating work processes in real time that prioritize reliability and accuracy. This study aims to map research in the field of artificial intelligence related to auditing and forensic accounting. This research uses a descriptive-qualitative method with a literature review approach. Data sources were collected from articles and journals indexed by Scopus and Sinta, totaling 47 journals with multiple pages such as Emerald, Science Direct, and Google Scholar. The objective of this research mapping is to focus on the application, challenges, opportunities, and strengths of artificial intelligence in fraud prevention and detection. The mapping results show that artificial intelligence related to auditing and forensic accounting is very useful in preventing and detecting financial fraud, with indicators of accuracy, reliability of data, information, and audit evidence. On the other hand, the implementation of artificial intelligence poses serious challenges that will erode the workforce, both in terms of layoffs and income inequality and data security.

Keywords; *artificial intelligence* (AI), audit, forensic accounting

JEL : M41, M42, K42

INTRODUCTION

Over the past few decades, many incidents, some of the biggest financial scandals ever, have taken place in global companies such as Enron, WorldCom, and Tyco. This has a significant impact on the confidence of investors, creditors, and customers in the developments in the business world, especially regarding fraud and financial fraud [1], [2], [3], [4]. This is a particular concern and study, especially for academics and practitioners in finance and auditing, who design and attempt to do various things with the aim of preventing and detecting fraud in the accounting and business world [5], [6], [7].

The practice, the role of auditors is a crucial point in detecting and preventing fraud and deception. In addition, the profession of forensic accountant, internal and external auditor is faced with the challenge of maintaining the quality and analyzing misrepresentations in financial reports, improving the quality of the audit process, assessing and analyzing risks so that they can be consumed by investors and stakeholders of a company [8], [9], [10], [11], [12], [13]. On the other hand, the era of technological development continues to grow rapidly and disrupt various fields and sectors, including the world of accounting and auditing [14], [15], [16], [17]. Moreover, in the world of accounting, the transaction recording system has changed from single entry to double entry and the latest is triple entry [18].

The presence of artificial intelligence capable of collecting, processing, and distributing the required data in a matter of seconds greatly influences the reliability and accuracy of more guaranteed information. This will also have an impact on accountants and auditors in interpreting and describing the information and in carrying out the implications related to it [19], [20]. The development of artificial intelligence has given rise to a new direction in modifying and replacing the work of employees to make it more professional, complex, effective, efficient, and with a shorter task profile [21], [22].

Automation inherent in artificial intelligence supports the work processes of auditors and forensic accountants, who prioritize accuracy, reliability, and efficiency in identifying, reviewing, investigating, and reporting required data. The application of artificial intelligence has been proven to reduce the risk of human error (auditor) in their work and is an innovative step in the world of accounting and auditing [13].

This study aims to provide an in-depth overview of the development of artificial intelligence application in the world of forensic accounting and auditing, hoping to become an additional reference for relevant parties such as academics, forensic accounting and auditing practitioners, investors, and regulators. The initial idea of this research as conducted by [23], [24], [25] which examines the application of artificial intelligence in the world of forensic accounting and auditing and discusses the prevention and detection of corporate fraud [26], [27].

This research was conducted by collecting, filtering, analyzing, and extracting articles based on the research topic. The results of this study provide a comprehensive picture of the development of artificial intelligence in the work processes of forensic and audit accountants, which prioritize accuracy and reliability in the prevention and detection of fraud and financial fraud. The contribution of this research is to enrich the literature on the topic of artificial intelligence and its relationship with the work processes of forensic and audit accountants and to provide opportunities for further research.

1. LITERATURE REVIEW

The history of artificial intelligence was first introduced into science in 1956 by Professor John McCharty. It is the development of computer and engineering systems with intelligent machines like the human mind [17]. This artificial intelligence draws on other multidisciplinary sciences such as computer science, psychology, biology, mathematics, and engineering [28]. This artificial intelligence also has 4 intelligences, including mechanical intelligence (the ability to perform routine or repetitive activities), analytical intelligence (the ability to solve problems with relevant information and data), intuitive intelligence (the ability to think creatively and innovatively in an effective manner), and empathy (the ability to understand and respond to the emotions of others) [29]. Therefore, providing more complex information according to human commands.

The multifunctionality of artificial intelligence also contributes to various things, both in the scientific field and in the work professions [20], [30]. This is due to the fact that artificial intelligence-based technology prioritizes data accuracy, reliability, transparency, speed, sophistication, and progressiveness [22], [31], [32]. This means that the presence of artificial intelligence should facilitate and reduce the risk of human error in the execution of tasks.

In the modern business world, artificial intelligence is necessary for cost efficiency, speed, and automation of the operation of all business activities and operations [33]. Moreover, in the era of technological development and disruption, the way businesses operate has changed.

This is inseparable from the management of business operations and the determination of company policies, which heavily rely on accounting as a control for recording transactions that reflect the company's activities. The central focus of accounting and auditing activities lies in financial data, information, and transactions as absolutes. Collecting, analyzing, mapping, interpreting, and communicating the results to investors and stakeholders are the main tasks inherent to an auditor and a forensic accountant [34], [35].

Artificial intelligence, designed from the ground up to be able to think, react, and respond like human thinking, has become an interesting thing in all fields and dimensions, especially in the fields of accounting and auditing. This has also been revealed by the big four like Delloite, according to which artificial intelligence is present as an alternative and answer to services that offer reliability, accuracy, and speed, which, if applied in the world of accounting and auditing, are very relevant [36], [37].

Another dimension offered by artificial intelligence is the ability to effectively monitor, track, and archive data, which will increase the credibility of the profession. In the field of auditing, artificial intelligence is also very useful for reviewing documents and evidence as the main source for exercising the functions and obligations of internal and external auditors and forensic accountants.

2. RESEARCH METHOD

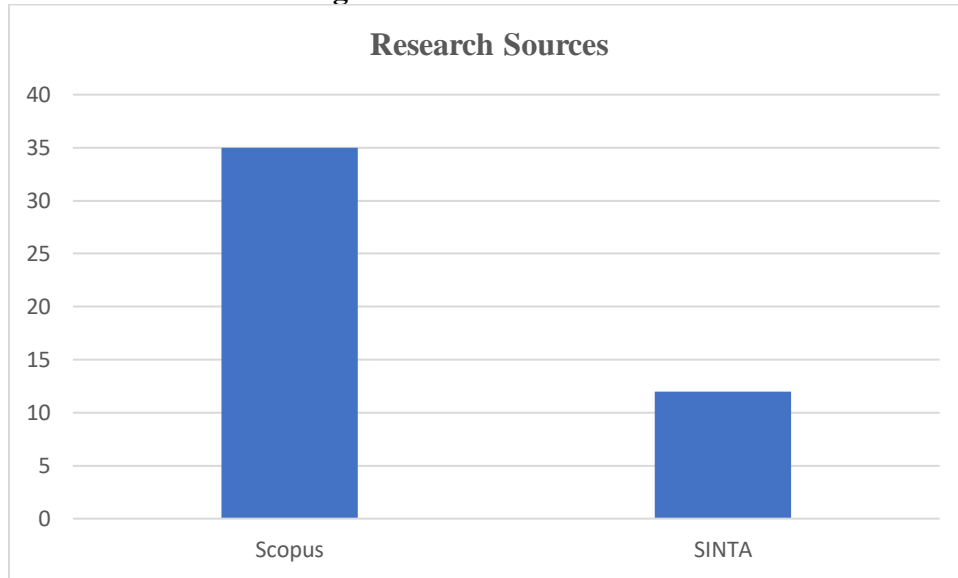
This study uses a descriptive-qualitative method with a literature review approach to identify, discuss, and organize previous literature to provide a comprehensive picture of the topic of artificial intelligence (AI) in the work processes of accountants and auditors. The research will be mapped out in this study: (1) research sources, (2) research type, (3) research year, and (4) research topic and results.

The data sources for this study come from 47 online media articles and reviews indexed by Scopus and Sinta based on discussion topics, which were selected using purposive sampling. The search engine used is "artificial intelligence for forensic accounting and auditing," "big data and artificial intelligence in fraud prevention and detection." The period used in this study is 2017–2023.

3. RESULT AND DISCUSSION

The results of mapping previous searches from 47 articles published in Scopus and SINTA indexed journals were subjected to the selection and mapping process illustrated in Figure 1, which shows that 35 articles are from Scopus indexed articles. Meanwhile, there are 12 articles from SINTA indexed articles as follows:

Figure 1. Research Sources



Data processed by researchers, 2024

According to Figure 2, the most frequently conducted type of research is qualitative research using the literature review method and the data collection method used is the analysis of articles, official websites and newspapers totaling 29 articles. Meanwhile, quantitative research contributed 15 articles. The research method used is a mixed method consisting of 2 articles and an experimental method consisting of one article, which can be seen in Figure 2 as follows;

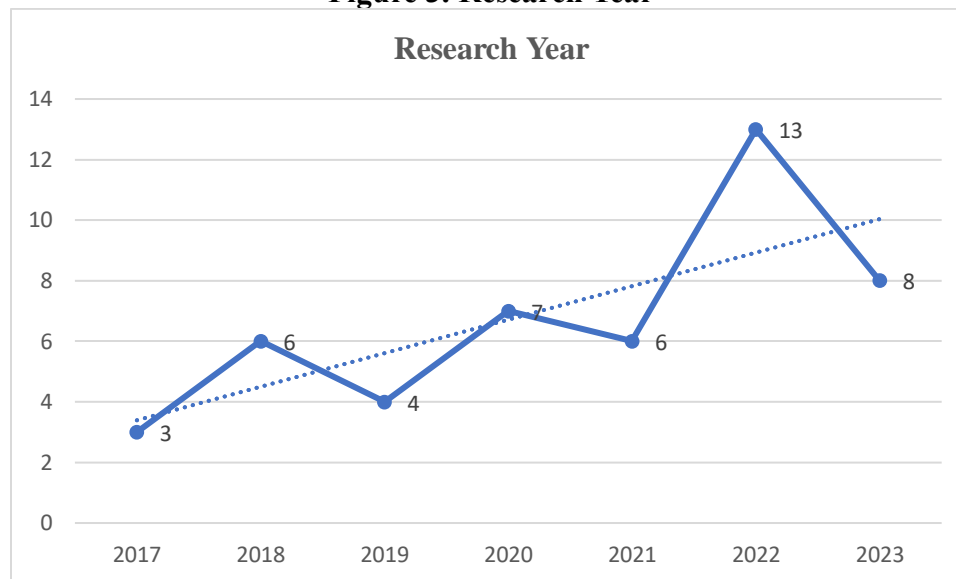
Figure 2. Research Type



Data processed by researchers, 2024

From Figure 3, it can be seen that research on artificial intelligence related to forensic accounting and auditing over a period from 2017 to 2023 shows that in the research year 2017 there were only 3 articles, in 2018 there were 6 articles, in 2019 there were 4 articles, in 2020 there were 7 articles, in 2021 it was stable with 6 articles, in 2022 there were 13 articles and finally in 2023 there were 8 articles. The peak of this research took place in 2022. The development from 2017 to 2023 saw an increase due to the consequences of Covid-19 and the efficiency and transformation of the traditional audit process into a fully automated process based on technology to detect and prevent financial fraud.

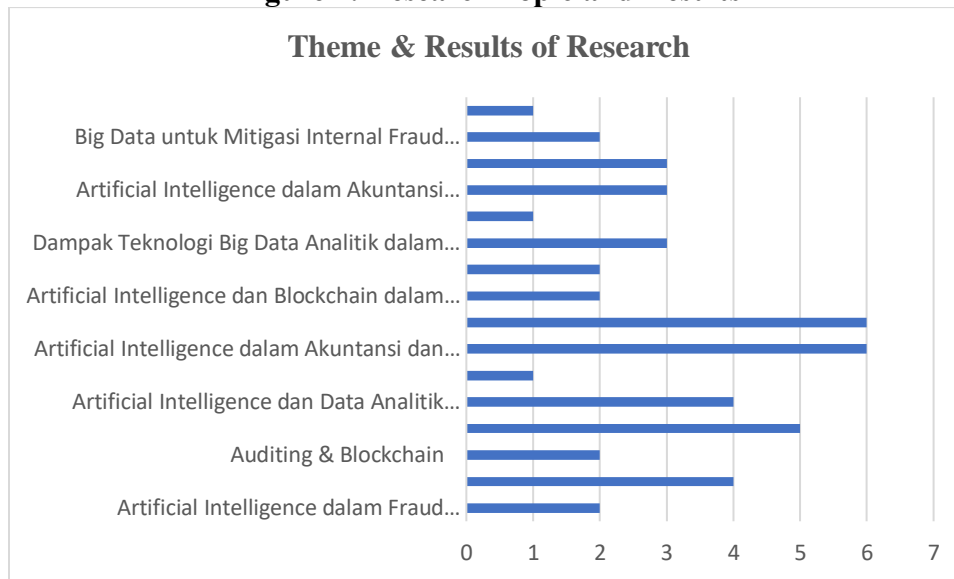
Figure 3. Research Year



Data processed by researchers, 2024

According to Figure 4, artificial intelligence in the world of forensic accounting and auditing is constantly developing with machine learning, big data analysis, and blockchain technology. Moreover, even when this technology is applied, it is capable of evolving the profession of accountants and auditors in their professional tasks. From data and information collection, to analysis, mapping, to the publication of output data that helps managers and investors determine future company policies. This is an interesting challenge and opportunity for academics and practitioners in the future.

Figure 4. Research Topic and Results



Data processed by researchers, 2024

The Implementation of Artificial Intelligence (AI) to Auditing and Forensic Accounting

The fundamental foundation that actually supports the implementation of advanced technology called artificial intelligence is the reason for the reliability and accuracy of the presentation of audit evidence and data [24], [38]. It contains big data that allows changing manual work processes to make them more automatic and professional, as audit evidence and data are not presented on external paper, but all information and data are accessible online and even in cloud systems [6], [14], [39].

Like a Deloitte, Ernst and Young, commonly known as the Big Four, have also implemented artificial intelligence to solve financial fraud cases, but not entirely [36], [40]. The fact that the adoption of artificial intelligence is very useful and reduces the risk of errors and mistakes in the work of accountants and forensic auditors[41].

According to the research conducted [37], it was revealed that the adoption of artificial intelligence in Malaysian companies shows that there is an impact that supports the main accounting work process in processing documents, invoices, information in a more automatic way and is able to track its users. What is even more amazing is that the software of this artificial intelligence is able to improve document management, accelerate the company's productivity, support flexible working styles and reduce labor costs. In addition, the application of artificial intelligence in forensic accounting is also reinforced by the research conducted by [42] which shows that the performance of forensic accountants can increase significantly both in terms of accounting and auditing skills and in terms of competence in controlling the company's finances.

The Challenges and Opportunities of Artificial Intelligence (AI) in Auditing and Forensic Accounting

Artificial intelligence models and big data analytics to support fraud prevention and detection are considered capable of improving audit quality [31], [43], [44]. Although artificial

intelligence has many features and benefits to assist and facilitate the work of accountants and auditors in reviewing and investigating fraud cases. However, the big question is how this ultra-sophisticated technology obtains all the accurate data and information in a particular case [14], [19]. Because to issue an audit opinion, only accurate audit evidence, materiality, and misstatements form the main basis for providing an audit opinion statement [45], [46], [47]. Challenges related to data security, business issues, and legal issues are serious problems due to the adoption of artificial intelligence [48].

A common problem in the world of work and one that extends to other areas of discussion is that the emergence of artificial intelligence will cause serious problems for employee recruitment in accounting and auditing firms. According to [49], [50], Ernst and Young, which is one of the Big Four, lays off many employees every year and this will of course greatly affect the employment model in the future due to the emergence of artificial intelligence.

The other consequences and risks arising from this are income inequality, a declining workforce, rising unemployment, and, ultimately, everything will be done through technology. This means that the uniqueness of technology is the main thing in the world of work [51]. The inherent elements of the audit process that will be lost are sampling during verification, confirmation to the client or related company, manual and traditional analysis when collecting evidence in fraud cases [52]. This means that the next generation of audits is a real necessity in handling financial fraud cases.

The Power of Artificial Intelligence (AI) in Fraud Prevention and Detection

The inherent greatness of artificial intelligence with machine learning has indeed been widely applied in all fields, including the world of accounting and auditing. In fact, the examination and detection of fraud in forensic accounting are increasingly used [20]. Some of the strengths of artificial intelligence in the world of forensic accounting and auditing include:

1. Anti-money laundering (AML) and suspicious activity monitoring: This artificial intelligence model will automatically flag transactions that indicate suspicious activity and financial crimes using its algorithm. It can also monitor fraudulent activities within the company, such as expense items in financial reports and employee payroll.
2. Insurance claims investigation: This can identify patterns, unusual trends, or anomalies that could lead to fraudulent claims against the insurance company. By implementing artificial intelligence, financial losses due to financial fraud in the industry will be minimized.
3. Credit card fraud detection: This is usually performed in real time by the perpetrator. Optimizing artificial intelligence in financial institutions or banks will help prevent unusual transactions.
4. Detecting tax evasion, which is generally achieved by failing to report income to the tax authorities, even though this is an inherent obligation of taxpayers as regulated by law. Using artificial intelligence, it will check for suspicious schemes regarding taxpayers' income, expenses, and tax deduction points.
5. Bankruptcy and insolvency analysis, as it is very important for various parties such as investors, creditors, regulators, and other stakeholders to determine the right policies to avoid financial losses for the company. With the presence of artificial intelligence, it will be possible to analyze and identify the causes of business collapse and predict signs of bankruptcy.

4. CONCLUSION

Based on the results of the research mapping that was carried out by discussing and describing artificial intelligence in forensic accounting and auditing, it shows that the basic foundations of forensic accounting and auditing are very oriented towards reliability, speed, transparency, accuracy and this is very useful when artificial intelligence is applied to the world of forensic accounting and auditing. It has been proven that artificial intelligence is capable of replacing manual audit work processes with automation. In addition, thanks to Big Data and machine learning, we are able to accurately collect and analyze the data or information needed by auditors and forensic accountants to examine and invest in the phenomena of fraud and financial fraud.

The limitation of this research is the lack of reference sources to describe artificial intelligence, auditing and forensic accounting and in this research, only a descriptive and qualitative approach is used. Meanwhile, future research opportunities can be realized by using quantitative data analysis methods and increasing the literature as a research reference. In addition, this can be done with certain research objects to better illustrate the effectiveness and significant contribution of the application of artificial intelligence in the world of auditing and forensic accounting.

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CONTRIBUTION

All authors contributed to this research. From designing the research framework, through reference collection, discussions, compilation, review, and editing processes according to team agreement.

CONFLICT OF INTEREST

The author has no conflicts of interest, financial or otherwise, that might inappropriately influence his or her work.

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