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Application of artificial intelligence in the prevention of fraud in financial statements

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ABSTRACT
This study examines the use of artificial intelligence (AI) through the ACL Analytic programme to avoid fraud on financial accounts. The findings demonstrate that the ACL Analytic programme is proficient in detecting possibly deceptive transactions, enhancing temporal efficiency in the audit procedure, and aiding in scrutinising substantial amounts of data with superior swiftness and precision compared to conventional approaches. Traditional techniques for preventing fraud are often inadequate against the evolving strategies employed by fraudsters, necessitating a more advanced and adaptable strategy. Due to the exponential increase in data volume, firms have challenges in conducting comprehensive analysis of financial information. Artificial intelligence (AI) presents a potential solution to this problem by offering the capability to process and analyse data on a significantly greater magnitude. The research employed a case study approach, enabling the researcher to thoroughly examine the implementation of artificial intelligence using the ACL Analytic application within the realm of preventing financial statement fraud. The study's findings offer a thorough comprehension of the efficacy of utilising artificial intelligence via ACL Analytic for the purpose of preventing financial statement fraud. Additionally, it offers valuable insights for other companies and financial institutions considering the adoption of similar technology.

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INTRODUCTION

The development of Artificial Intelligence (AI) in accounting can help create calculation systems and identify finances more quickly, and can simplify practices and help reduce human error effectively by digitalization[1]–[5]. In an accounting context, Artificial Intelligence can be used to conduct credit analysis, evaluate investment risks, and identify financial fraud[6]–[8].

In a business, the accounting recording process is not free from threats, one of which is fraud. Based on the explanation from the Association of Certified Fraud Examiners (ACFE, 2016), fraud is an unlawful act or action carried out by a certain party intentionally and with the aim of being able to manipulate or provide false reports to other parties.[9]–

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[11]. Fraud in accounting can cause financial losses which will have a negative impact on both the perpetrator and the company.

Fraud cases in financial reports have become a serious concern in various countries. According to the Global Fraud and Risk Survey report, 49% of companies experienced losses due to fraud in financial reports. In May 2023 there will be 864 companies listed on the Indonesian Stock Exchange (BEI) which is managed by the Central Statistics Agency (BPS)[12], so it does not rule out the possibility of fraud crimes occurring in Indonesia. This shows the urgency to develop more effective methods in preventing and detecting fraud. Fraud can not only be committed by lower level employees, but can also be committed by company managers and directors, both individually and in groups.

The reliability of financial information is vital in making business decisions. Loss of public trust due to inaccurate financial reporting can have a negative impact on companies and financial markets as a whole. Therefore, efforts to prevent fraud in financial reports have huge implications. Conventional methods of fraud prevention, such as simple statistical analysis, tend to be less effective in dealing with new tactics used by fraud perpetrators. This demands a more adaptive prediction approach[13]–[15].

With the rapid growth in data volumes, companies face difficulties in analyzing all financial information comprehensively. AI can be a potential solution in overcoming this challenge with its ability to process and analyze data on a much larger scale[16]–[18]. AI offers the ability to analyze data at scale and detect complex patterns. By utilizing techniques such as machine learning and text analysis, AI can help identify indications of fraud that are difficult to detect by conventional methods.

METHODS

Definition of Fraud

Fraud is an unlawful act or action carried out by a certain party intentionally and with the aim of manipulating or providing false reports to another party.[9], [19]. Fraud in financial statements is an intentional act by one or more members of management, or managers, or employees, or third parties, through fraud to obtain illegal or unlawful profits.[20].

So it can be concluded that the definition of Fraud is an act of cheating or fraud committed by a person or group of people to gain profit by breaking the law. According to explaining the elements of fraud in general from several definitions or meanings of fraud. However, in general, the elements of fraud (all elements must be present, if some are not present then it is considered that fraud did not occur)[21]. These elements include: There must be a misstatement (misrepresentation), Done by people from inside and outside the organization, To gain personal and group benefits, Done intentionally or without calculation (make-knowingly or recklessly), With intent (intent) To cause a party to act, the aggrieved party must act (act) against the misrepresentation which is detrimental to him (detriment).

Factors that influence the occurrence of Fraud

According to the fraud triangle theory developed by Donald R Cressy in observing the causes of fraud, there are three stages to detecting the causes of fraud[20], [22]. Cressy decided this based on the answers from respondents in her research.

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Figure 1. Fraud Triangle

The explanation from figure 1 is that there are three stages that cause this fraud, including:[23]:

a. Pressures
   A person can commit acts of fraud because of internal encouragement caused by economic conditions, or it could also be because of emotions caused by a high lifestyle, etc. In general, fraud occurs because of financial conditions, but many people also do it because of greed.
b. Opportunities
   When you get the opportunity, it is possible for fraud to occur. This is usually caused by weak internal organizational context, lack of supervision and abuse of authority. Opportunity is an element that can be minimized through the implementation of processes, procedures, controls and fraud detection efforts[24].
c. Rationalization
   This factor occurs when an act of fraud has been detected, usually the perpetrator will provide a rational justification as a form of self-defense against the fraud he committed. That reasonfor example, the perpetrator's work period is quite long and he feels he should be entitled to more than what he is getting now (position, salary, etc.).

Research methods

Case study research methodology is employed. Case studies enable researchers to conduct in-depth analyses of the financial statement fraud prevention application of artificial intelligence (AI) via the ACL Analytic application. By employing this approach, scholars will have the capacity to gather data from authentic instances, comprehend the implementation context, scrutinise outcomes, and assess their efficacy [25], [26]. The research subject under investigation is the Maju Madani Cooperative. Case studies may encompass the gathering of data from financial institutions or corporations that have adopted ACL Analytic for the purpose of preventing misconduct [21], [27]. Financial transaction analysis outcomes, fraud detection discoveries, and the effects of AI implementation on fraud prevention may be among the data collected. Furthermore, this approach enables researchers to gain an in-depth comprehension of the obstacles, achievements, and determinants that impact the deployment of this technology. Researchers can offer a comprehensive understanding of the efficacy of integrating artificial

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intelligence via ACL Analytic to prevent fraud on financial statements by employing a case study methodology. Additionally, they can provide insightful observations that can be utilised by other organisations and businesses contemplating the adoption of comparable technologies.

RESULTS AND DISCUSSION

In this research, ACL Analytics software is used, which is a software that is included in the forensic accounting software category. This software allows auditors to dig into data and carry out in-depth analysis to detect fraud. ACL (Audit Command Language) Analytic software is a software that is often used in examining financial reports to detect fraud and errors. This software allows auditors to perform in-depth data analysis, including identifying suspicious patterns, monitoring financial transactions, and compliance checks. Some examples of the application of ACL Analytics in preventing fraud in financial reports include Detection of Unnatural Patterns, namely ACL Analytics allows auditors to carry out analysis of financial transaction data as a whole, so that they can detect unnatural or suspicious patterns, such as repeated transactions in large amounts or unusual transaction patterns[5]. Compliance Monitoring, namely by using ACL Analytics, auditors can monitor the level of compliance with company policies and procedures, so that they can detect potential violations or errors that occur in business processes [5]. This software allows auditors to perform in-depth data analysis, including identifying suspicious patterns, monitoring financial transactions, and compliance checks[5]. By implementing ACL Analytics, companies can strengthen their financial report audit process, thereby preventing fraud and errors that are detrimental to the company. Apart from that, using this software can also help companies comply with applicable regulations and standards in the industry.

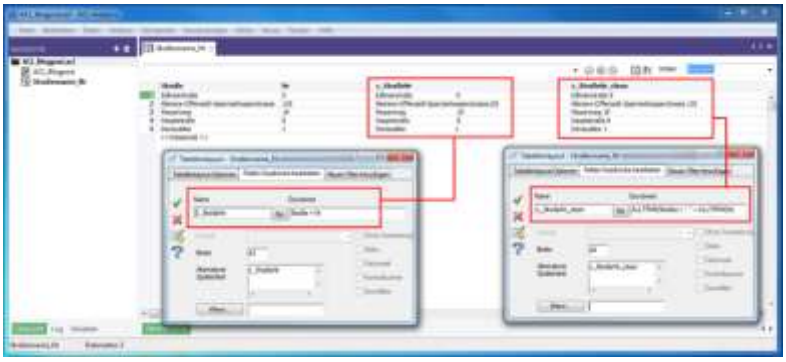

Figure 2. ACL Analytics display

Inconsistency Detection

The research results show that the ACL Analytic application is effective in identifying inconsistencies in financial report entries. By applying machine learning algorithms, these applications can compare financial entries across periods and detect discrepancies that cannot be explained by normal business trends or events. For example, sudden changes in the value of assets or liabilities without adequate explanation in the accounting records are detected as potential indicators of data manipulation or entry errors. This capability is

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crucial in uncovering attempts to obscure true financial performance or to hide unauthorized transactions.

Identify Suspicious Fluctuations

ACL Analytics demonstrates significant proficiency in identifying unusual and suspicious financial fluctuations. The AI algorithms in these applications analyze historical patterns in financial statements and flag major changes in revenue, costs, or other financial metrics that are inconsistent with historical trends or known economic events. For example, a sharp increase in revenue without a commensurate increase in real business activity may indicate fictitious revenue recording or premature revenue recognition.

Disclosure of Anomalous Transactions

The results of this research also show that ACL Analytics is effective in identifying potentially fraudulent transactions. By using advanced machine learning techniques, this application is able to recognize unusual transaction patterns, such as unusual transaction sizes, sudden increases in transaction frequency, or transactions made with certain parties. This helps in uncovering schemes such as embezzlement of assets or conflicts of interest that may not be detected through manual audit processes.

Time efficiency

This research also reveals that the application of AI through ACL Analytics increases time efficiency in the audit process. By automating data analysis and anomaly detection, the time required to audit financial reports is significantly reduced. This allows auditors to focus on more complex issues that require professional judgment, rather than spending time on routine data analysis tasks.

Through the ACL Analytic application, you can significantly increase fraud detection in financial reports. AI helps in analyzing large volumes of data with greater speed and accuracy than traditional methods. The results of this research confirm that the application of artificial intelligence in the form of ACL Analytics provides significant progress in preventing and detecting fraud in financial reports, by increasing the accuracy and efficiency of the audit process.

CONCLUSION

The research found that ACL Analytic's AI prevents financial statement fraud. A case study at the maju madani cooperative was done for this project. A case study was utilised to examine the usage of artificial intelligence in financial statement fraud prevention using ACL Analytic. Results demonstrate that ACL Analytic can identify possibly fraudulent transactions, speed up the audit process, and analyse vast amounts of data faster and more accurately than traditional methods. Fraudsters adopt new approaches, therefore conventional fraud protection measures are less successful. A more complex and flexible strategy is needed. With the fast growth of data volumes, firms struggle to analyse all financial information, but AI can process and analyse data on a wider scale, which may be a solution. This study shows how well ACL Analytic uses artificial intelligence to prevent financial statement fraud and offers valuable insights for other companies and financial institutions considering similar technology. ACL Analytic can improve financial statement

analysis to minimise fraud and errors that affect companies. In addition, this software can assist organisations comply with industry norms and standards.

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