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The Influence of Artificial Intelligence (AI), Information Technology Capabilities, and Employee Training on Accounting Process Efficiency at Public Accounting Firms in Ambon City

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ABSTRACT

This study aims to analyze the influence of Artificial Intelligence (AI), information technology capabilities, and employee training on the efficiency of accounting processes in Public Accounting Firms (KAP) in Ambon City. This study uses a quantitative method with a survey approach on a population consisting of accounting staff in several Public Accounting Firms (KAP) in Ambon City. The results show that Artificial Intelligence (AI) and information technology capabilities significantly improve accounting process efficiency through task automation and better data management. Employee training also contributes significantly to ensuring the optimal utilization of new technologies. This study provides practical recommendations for Public Accounting Firms (KAP) to increase technology adoption and employee training to achieve higher efficiency in accounting processes.

Keywords: Artificial Intelligence (AI), Information Technology Capabilities, Employee Training, Accounting Process Efficiency

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1. INTRODUCTION

The digital transformation in accounting has driven Public Accounting Firms (KAP) to adopt advanced technologies to improve the efficiency of accounting processes. One technology that has gained significant attention in the last decade is Artificial Intelligence (AI), which enables process automation, increased accuracy, and reduced work time. AI is a potential solution to address the demands for accountability and accuracy of real-time financial reporting (Brynjolfsson & McAfee, 2017).

Digital Information presents a systematic review of peer-reviewed articles, empirical articles, and seminal papers on digital leadership and transformation. The findings highlight key aspects such as strategic approaches, challenges, and success factors. The paper emphasizes the lack of critical competencies among digital leaders, the importance of data-driven decision-making, and the ethical issues surrounding digital change. It provides real-life examples and practical recommendations for implementing digital transformation in various organizational settings (Merlano, C.A., 2024).

Digital Transformation in Banking, an Explanation Framework and a Progress Assesment Tools explores the various digital transformation programs within the banking sector. The authors argue that while many banks are pursuing digital transformation, there is a lack of a common framework to explain their different trajectories. The paper proposes a framework with ten dimensions that can be used to assess progress and compare initiatives with competitors. The framework and its subsequent assessment tool may

serve as a basis for an integrated digital maturity model in the banking sector (Stamoulis, D.S., & Kopanaki, E.,).

In Indonesia, particularly among public accounting firms (KAPs) in major cities like Ambon, the adoption of AI technology and information systems is still in its infancy. Limited human resources, lack of training, and the digital divide are key challenges. Therefore, it is important to examine how the three factors of AI, information technology capabilities, and employee training impact accounting process efficiency.

Several previous studies have shown mixed results. For example, Wijaya and Nugroho's (2021) study found that AI and training significantly impact efficiency, but not information technology capabilities. Conversely, a study by Fadhilah (2022) showed that all variables had a significant positive impact. These differing findings highlight the need for further research in local contexts.

Taking this background into account, this study aims to examine the influence of AI, information technology capabilities, and employee training on the efficiency of accounting processes at Public Accounting Firms in Ambon City.

2. LITERATURE REVIEW

Artificial Intelligence (AI)

Artificial Intelligence (AI) in the accounting context refers to the ability of computer systems to perform tasks that typically require human intelligence, such as pattern recognition, data analysis, and algorithm-based decision-making. AI enables the rapid and accurate automation of accounting processes, such as transaction processing, digital audits, and financial statement analysis (Brynjolfsson & McAfee, 2017). The application of AI is believed to improve accountants' work efficiency and reduce human error.

A study by Karim et al. (2021) showed that the use of AI in internal audit processes can shorten reporting times and improve information reliability. However, the success of AI implementation depends heavily on the readiness of the infrastructure and human resources to operate the technology.

Information Technology Capabilities

Information technology capability refers to an organization's ability to manage and utilize information systems to support business operations and decision-making (Chen et al., 2012). This capability encompasses aspects of infrastructure, software, connectivity, and employee technical competence in using available information systems.

According to Ravichandran (2005), organizations with strong IT capabilities tend to be more adaptable to technological changes and able to respond more quickly to market needs. In the accounting context, this will impact the smooth operation of digital-based accounting systems, including supporting the implementation of AI and the efficiency of accounting processes.

Employee Training

Training is part of human resource development, aimed at improving employee knowledge, skills, and work attitudes. In the digital age, training related to the use of information technology is becoming increasingly important to enable employees to keep up with developments in technology-based work systems (Goldstein et al., 2021).

Research by Susanti & Wardhana (2020) shows that employee training significantly contributes to the effectiveness of accounting information systems and the efficiency of a company's operations. Employees who receive regular training are better prepared for technological changes and adapt more quickly to implementing digital accounting systems.

Accounting Process Efficiency

Accounting process efficiency refers to an organization's ability to effectively record, report, and process financial information, saving time, and minimizing errors. This efficiency is achieved through the application of appropriate technology, structured workflows, and improved human resource competency (Sutrisno, 2016).

In Sari et al.'s (2022) research, accounting process efficiency is a critical indicator of the success of a technology-based financial information system, as it relates to the speed and accuracy of reporting that supports managerial decision-making.

Based on the theoretical description and results of previous research that have been presented, the research questions in this study are formulated as follows:

a. Does Artificial Intelligence (AI) affect the efficiency of accounting processes at Public Accounting Firms in Ambon City?
b. Does information technology capability influence the efficiency of accounting processes at Public Accounting Firms in Ambon City?
c. Does employee training affect the efficiency of accounting processes at Public Accounting Firms in Ambon City?
d. Do AI, information technology capabilities, and employee training simultaneously impact accounting process efficiency?

3. METHODOLOGY

This study uses a quantitative approach with an explanatory approach. This approach aims to explain the causal relationship between the independent variables. Artificial Intelligence (AI), information technology capabilities, and employee training and the dependent variable, accounting process efficiency. This method allows researchers to test hypotheses based on empirical data obtained from respondents.

The research was conducted at a Public Accounting Firm (KAP) operating in Ambon City. This location was selected based on the consideration that Ambon is one of the major cities in Indonesia with a rapidly growing number of KAPs and is beginning to adopt digital-based technology in its accounting processes. Data collection took place from January to February 2025.

This study has both independent and dependent variables.
Independent Variables (IV): These are the factors that are being manipulated or measured to see if they cause a change in the dependent variable, Artificial Intelligence, Information Technology Capability, Employee Training

Dependent Variable (DV): This is the outcome or effect that is being measured, Efficiency of Accounting Processes.

Relationships Between Variables :
The relationships are established by how the independent variables are expected to influence the dependent variable.
Relationship 1: Artificial Intelligence (AI) → Efficiency of Accounting Processes
Relationship 2: Information Technology Capability → Efficiency of Accounting Processes
Relationship 3: Employee Training → Efficiency of Accounting Processes
Relationship 4: AI, Information Technology Capability, and Employee Training (collectively) → Efficiency of Accounting Processes.

Research Hypotheses :
Hypotheses are testable statements that predict a relationship between variables. These are formulated to directly address the research questions.
Hypothesis 1 (H1): Artificial Intelligence (AI) has a positive and significant effect on the efficiency of accounting processes at Public Accounting Firms in Ambon City.
Hypothesis 2 (H2): Information Technology Capability has a positive and significant effect on the efficiency of accounting processes at Public Accounting Firms in Ambon City.
Hypothesis 3 (H3): Employee Training has a positive and significant effect on the efficiency of accounting processes at Public Accounting Firms in Ambon City.
Hypothesis 4 (H4): AI, Information Technology Capability, and Employee Training simultaneously have a positive and significant effect on the efficiency of accounting processes at Public Accounting Firms in Ambon City.

The population in this study was all auditors and accounting staff working at public accounting firms in Ambon City. Due to time and access limitations, the researcher used purposive sampling, a sampling method based on certain predetermined criteria, namely:

a. Respondents have worked for at least 1 year at KAP
b. Respondents are directly involved in the accounting process
c. Respondents have used information technology-based systems.

The number of samples in this study was 55 respondents, which was considered representative to describe the condition of the population. The sample used is a saturated sample, also known as a total sample. This is a sampling method where all members of the population are included in the research sample. This method is used when the population being studied is relatively small.

The type of data used is primary data, obtained directly from respondents through questionnaire distribution. The data sources were obtained from individuals who met the criteria for research respondents. Additionally, secondary data such as literature, scientific

journals, and documentation were also used to support the theoretical foundation and the formulation of research instruments. The data collection technique used was to distribute a closed questionnaire to respondents. The questionnaire used a 5-point Likert scale, ranging from "Strongly Disagree" (1) to "Strongly Agree" (5). The research instrument was tested for validity and reliability before being used in the main data collection.

Operational Definition of Variables

Artificial Intelligence (AI) (X_1) **:**The capabilities of AI-based systems in assisting accounting processes include data processing speed, reporting accuracy, and work automation. These indicators are measured using the following indicators: AI system integration, speed of information access, and accuracy of results.

Information Technology Capabilities (X_2) :The organization's ability to provide IT infrastructure and systems that support accounting. Measured through the following indicators: hardware/software availability, network connectivity, and technical support.

Employee Training (X_3): A systematic effort to improve employee knowledge and skills in the use of accounting information technology. Measured through the following indicators: training frequency, material relevance, and training effectiveness.

Accounting Process Efficiency (Y): The ability of accounting processes to produce financial information accurately, quickly, and cost-effectively. Measured by the following indicators: speed of report preparation, minimum errors, and optimization of work time.

Data Analysis Techniques

The data was analyzed with the help of SPSS software version 25 using the following steps:

a. Validity and Reliability Test**:** To test whether the research instrument measures correctly and consistently.
b. Classical Assumption Test**:** Including normality, multicollinearity, and heteroscedasticity tests, to ensure the feasibility of the multiple linear regression model.
c. Multiple Linear Regression Test: To test the partial and simultaneous influence of independent variables on the dependent variable.
d. T-test and F-test**:** Used to determine the significance of the influence of each variable.
e. Coefficient of Determination (R^2)**:** Used to determine how much the independent variable contributes to explaining the variation in the dependent variable.

4. RESULTS

Validity and Reliability Test

Validity testing was conducted by calculating the Pearson correlation between the question item scores and the total variable scores. The results showed that all items in the variables Artificial Intelligence, information technology capability, employee training, and accounting process efficiency had correlations above 0.30 and were significant at the 5% level, thus being declared valid.

Reliability testing was conducted using Cronbach's Alpha. The results showed values >0.70 for all variables, indicating that the instrument has a high level of reliability and is worthy of further research.

Classical Assumption Test

a. Normality Test**:** The data distribution is declared normal because the Asymp. Sig value of the Kolmogorov-Smirnov test is 0.200 > 0.05.
b. Multicollinearity Test**:** No symptoms of multicollinearity were found because the VIF values for all independent variables were <10 and the tolerance value was >0.10.
c. Heteroscedasticity Test**:** Based on the Glejser test, there are no symptoms of heteroscedasticity because the significance value is > 0.05 for all variables.

Multiple Linear Regression Test

The multiple linear regression model produces the following equation:
$Y = 3.004 + 0.376X_1 + 0.113X_2 + 0.280X_3$

Information:
Y = Accounting Process Efficiency
X_1 = Artificial Intelligence
X_2 = Information Technology Capability
X_3 = Employee Training

Y: This is the dependent variable. The value of Y is influenced by the independent variables. In the context of the research, Y is the variable that is being explained or predicted, for example, the efficiency of accounting processes.
X_1: This is the first independent variable. Its value influences Y. An example could be Artificial Intelligence (AI).
X_2: This is the second independent variable, which also influences Y. An example could be information technology capability.
X_3: This is the third independent variable. An example could be employee training.

Partial Test (t-test)

a. Artificial Intelligence (X_1) has a significant positive effect on the efficiency of the accounting process (t value = 3.922; sig = 0.000).
b. Information Technology Capability (X_2) no significant effect (t value = 1.072; sig = 0.289).
c. Employee Training (X_3) has a significant positive effect (t value = 3.416; sig = 0.001).

Based on the provided information, here is a table summarizing the results of the partial test (T-test) for each independent variable.

Table 1. Partial Test (t Test)

Variable	t-value	Sig. (p-value)	Result
Artificial Intelligence (X_1)	3.922	0.000	Significant positive effect
Information Technology Capability (X_2)	1.072	0.289	No significant effect
Employee Training (X_3)	3.416	0.001	Significant positive effect

Interpretation

Artificial Intelligence (X_1): With a t-value of 3.922 and a p-value (sig.) of 0.000, which is less than the common significance level of 0.05, the null hypothesis is rejected. This indicates that Artificial Intelligence has a statistically significant positive effect on the efficiency of the accounting process.

Information Technology Capability (X_2): The t-value of 1.072 and a p-value of 0.289 (greater than 0.05) mean that the null hypothesis cannot be rejected. Therefore, Information Technology Capability has no statistically significant effect on the efficiency of the accounting process.

Employee Training (X_3): With a t-value of 3.416 and a p-value of 0.001 (less than 0.05), the null hypothesis is rejected. This shows that Employee Training has a statistically significant positive effect on the efficiency of the accounting process.

Simultaneous Test (F-test)

The results of the F test show that variables X_1, X_2, and X_3 simultaneously have a significant effect on the efficiency of the accounting process, with an F value of 11.453 and a significance of 0.000 (<0.05).

Table 2. Simultaneous Test (F Test)

Test	F-Value	Sig. (p-value)	Result
F-Test (Simultaneous)	11.453	0.000	Significant simultaneous effect

Interpretation

The F-test is used to determine whether all independent variables (X_1, X_2, and X_3) together have a significant effect on the dependent variable (the efficiency of the accounting process).

F-Value: The calculated F-value is 11.453. This value is used to determine the statistical significance of the model as a whole.

Significance (p-value): The significance value is 0.000.

Result: Since the p-value of 0.000 is less than the common significance level of 0.05, the null hypothesis is rejected. This means that the variables Artificial Intelligence (X_1), Information Technology Capability (X_2), and Employee Training (X_3) simultaneously have a statistically significant effect on the efficiency of the accounting process.

Coefficient of Determination (R^2)

The Adjusted R^2 value is 0.372, meaning the three independent variables explain 37.2% of the variation in accounting process efficiency. The remaining 62.8% is explained by factors outside the research model.

Table 3. Coefficient of Determination (R2)

Metric	Value	Interpretation
Adjusted R2	0.372	The independent variables (X_1, X_2, X_3) explain 37.2% of the variation in the dependent variable (accounting process efficiency).
Remaining Variation	0.628 (62.8%)	The remaining 62.8% of the variation in accounting process efficiency is explained by other factors not included in this research model.

Interpretation

The Adjusted R2 value is a measure of how well the independent variables explain the variance in the dependent variable. An Adjusted R2 of 0.372 means that the model's independent variables—Artificial Intelligence (X_1), Information Technology Capability (X_2), and Employee Training (X_3)—can collectively account for 37.2% of the changes or fluctuations observed in the efficiency of the accounting process. The remaining 62.8% of the variation is attributed to other variables not examined in this study, such as organizational culture, management support, employee motivation, or the specific size of the public accounting firm.

5. DISCUSSION

The results of this study indicate that of the three variables tested, two—Artificial Intelligence (AI) and employee training—have a significant influence on accounting process efficiency. Meanwhile, information technology capabilities do not significantly influence accounting processes in the context of Public Accounting Firms (KAP) in Ambon City.

The Impact of Artificial Intelligence on Accounting Process Efficiency

The findings indicate that AI has a significant positive impact on accounting process efficiency. This aligns with Brynjolfsson & McAfee (2017), who stated that AI plays a role in accelerating data processing, reducing errors, and improving the quality of financial information. With the implementation of AI, processes such as transaction recording, automated reporting, and financial anomaly detection can be performed more quickly and accurately.

Karim et al. (2021) also stated that integrating AI into the internal audit process can improve auditor efficiency and productivity. In the context of this research, the positive results from AI indicate that public accounting firms in Ambon are beginning to utilize intelligent technology to accelerate processes and reduce operational costs.

The Influence of Information Technology Capabilities on Accounting Process Efficiency

Contrary to initial expectations, information technology capabilities did not significantly impact accounting process efficiency. These results suggest that even if a company has an IT infrastructure, it is not enough to drive efficiency improvements without an effective utilization strategy.

Ravichandran (2005) explains that IT capabilities will only be effective if they are utilized optimally and integrated with work processes. Failure to utilize IT systems optimally can be caused by a lack of training, unintegrated systems, or barriers within the organizational culture. This may reflect the condition of public accounting firms in Ambon, which are still in the early stages of IT adoption.

The Effect of Employee Training on Accounting Process Efficiency

Employee training has been shown to have a significant positive impact**.**on accounting process efficiency. This is consistent with Goldstein et al.'s (2021) finding that training can improve employees' technical competence and readiness to use technology-based systems. Employees who participate in training tend to have better knowledge and skills in performing digital-based tasks, thereby increasing work efficiency.

Susanti & Wardhana (2020) also emphasized that regular training can accelerate adaptation to technological changes, reduce technical errors, and encourage innovation in accounting tasks. In the context of public accounting firms, training is a crucial investment in optimizing technology use.

The Simultaneous Effect of Three Variables on Efficiency

Simultaneously, these three research variables significantly influenced accounting process efficiency. This indicates that the combination of technology (AI and IT) and human resources (training) significantly contributes to operational efficiency. This reinforces the socio-technological systems theory, which states that the balance between technological and human components is key to the success of information systems in organizations (Bostrom & Heinen, 1977).

6. CONCLUSION

This study aims to examine the influence of Artificial Intelligence (AI), information technology capabilities, and employee training on accounting process efficiency at a Public Accounting Firm in Ambon City. Based on the analysis of data obtained from 55 respondents, the following conclusions were drawn:

a. Artificial Intelligence (AI) has a significant positive impact on accounting process efficiency. The implementation of AI helps accelerate accounting processes, improve data accuracy, and reduce human error.

b. Information technology capabilities did not significantly impact accounting process efficiency. This finding indicates that the mere existence of IT infrastructure is insufficient to improve efficiency without an adequate system utilization and integration strategy.
c. Employee training has a significant positive effect on accounting process efficiency. Relevant and ongoing training encourages increased competency, technological readiness, and work productivity.
d. All three variables simultaneously significantly influenced accounting process efficiency, contributing 37.2%, indicating that the combination of technology and human resource development is a key factor in driving the efficiency of modern accounting systems.

Based on the research results and conclusions, the following recommendations are presented: For Public Accounting Firms, It is recommended to continue to improve the integration of AI in work processes and prioritize employee training as a strategy to improve the efficiency of accounting processes. Information technology capabilities. It is necessary not only to improve the infrastructure, but also to be accompanied by strategic use of the system, including integration between departments and monitoring the effectiveness of its use. For further researchers, it is hoped that other variables such as organizational culture, digital leadership, or resistance to change can be added to broaden the understanding of efficiency in technology-based accounting systems.

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