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Evaluation of internal control evaluated based on digital audit of monitoring and risk assessment activities by auditors

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Abstract

Abstract— The current growing industrial era 4.0, where companies are required to have a big data system, because the volume of data they have is already very large, so accountants who will audit, must be equipped with sufficient knowledge to audit big data, also connected with technological developments, allowing auditors who audit big data using digital audits. Therefore, this research really needs to be carried out with the aim of knowing whether internal control evaluated based on digital audits has a significant effect on monitoring and risk assessment activities by auditors. The research method was carried out using hypotectico deductive with research conclusions that showed that the evaluation of internal control based on digital audits had a significant effect on the persistence of monitoring and risk assessment by auditors in the KAP with a P-value of 0.00000022323; 0.000001298. The recommendation from the research results is that in the industrial era 4.0 to meet the competencies needed today auditors must understand digital audits.

Keywords: Digital audit, Auditor, Internal Control, Evaluation of Internal Control

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INTRODUCTION

At this time the industrial revolution 4.0 created a connection between computers that made us connected to each other and could even make decisions automatically without human intervention. A fourth industrial revolution is taking place that allows businesses to operate in very different ways; Enabling technologies include artificial intelligence, cyber-physical systems, nanotechnology, and biotechnology (Hoffman, 2017). The strength in such an industry lies in the interconnected network of smart machines that can generate, analyze, and share information (Lohapan, 2021). This revolution is pushing companies as well as businesses to move towards the use of smart technologies with the aim of processing data and information in a much more efficient way.

The work that is also affected is the area of accounting and auditing, the decision to develop in the digital revolution has been widely considered by many parties. Thus, with these changing conditions, making work more complex and dynamic. Accountants and auditors no longer use traditional accounting, in producing financial reporting. This is a consideration to be made because it is said that companies invest in digital technology because they want to improve their operational performance and financial reporting quality (Aries Wicaksono, 2016).

Thus, it is also mentioned that digital technology is a very useful tool for auditors who can use it in carrying out their audit tasks more efficiently, especially in a big data environment. Using digital technology makes the auditor's work more effective and efficient, for example, in ensuring internal audit control, in accessing documents and records, and in generating information, when compared to an audit approach that is carried out manually (James Bierstaker, 2013). Its connection with the development of digital technology, especially in the field of accounting and auditing, encourages stakeholders to be able to realize this. Stakeholders want this digitalization need to be met, to realize an increase in audit knowledge and techniques in achieving efficiency in carrying out dynamic audit work. That means that audit changes here are needed for the operational efficiency of audits, financial reporting, and lead to the decision-making of company managers.

The legal base is very important in carrying out audit activities, reflected in the regulation of the Minister of National Development Planning No. 7 of 2018, which says that it is important to coordinate related to planning, supervision, evaluation, and also the implementation of activities that have been designed (Manurung, et al., 2022).

With the continued development of digitalization trends in the economic sector, internal control is inseparable from this development. In general, this digitalization benefits internal control by providing convenience in complex calculations, then being able to process large amounts of transaction data and can also improve the accuracy of information. In addition, with digital information technology, internal control can be improved in terms of the effectiveness of operational monitoring of entities and increase the ability to achieve effective segregation of duties by implementing security systems in database applications, and also operating systems (Rick hayes, 2014).

There are two main objectives to be achieved in this study. The first objective is to find out whether internal control evaluated based on digital audits affects monitoring activities by auditors. Then there is also the second goal, which is to find out whether internal control evaluated based on digital audits affects risk assessment activities by auditors.

LITERATURE REVIEW

Audit

According to (KBBI, 2021) audit is a bookkeeping inspection activity related to company finances. This activity is carried out periodically by testing the effectiveness of cashflow and assessing the fairness related to the financial statements it produces. Currently the definition of audit can mean an investigation carried out systematically, or an assessment of procedures or operations to determine compliance with accounting standards including analysis, testing, confirmation, or other substantiation (Martias, 2018). The International Organization for Standardization (ISO) discloses the definition of audit written in the guidelines for auditing management systems (ISO 19011:2011). The proposed audit definition is a systematic, independent, and documented procedure for collecting audit evidence (notes, statements of fact, or other information relevant to the audit criteria) and assessing it objectively to ascertain the extent of the audit criteria (a set of policies, procedures, or requirements used as a reference on which the comparison of audit evidence is based).

Digital Audit

Digitalization conceptualization can be expressed as the transfer and processing of data to digital media through information technology. To better understand the concept of digitalization, it is important to examine the industrial revolution experienced first. The development up to Industry 4.0 has shown its effect in all spheres of human life.

The first stage of the chronological history of development up to Industry 4.0 was the first industrial revolution that began with the utilization of steam power in engines towards the end of the 18th century. At the beginning of the 20th century, the process of mass production using electrical energy in conjunction with the belt system was accepted as the second industrial revolution. In the 1970s, the third industrial revolution occurred with the use of electronic and information technologies with automation. In the process of Industry 4.0, which was accepted as the fourth of the industrial revolution; By using sensors, transferring data to a digital environment with information technology, developments regarding data analytics are realized (Kablan, 2018).

In addition to these concepts, studies such as artificial intelligence and data analysis are brought into the field of science. One of the areas impacted by the innovation brought about by digitalization in Industry 4.0 is control. In general, it can be found in the literature, such as Audit 4.0, Continuous Audit, Digital Audit and Interactive Audit are actually close to each other and are the result of this process.

In the past, audits were required to conduct inspection in each different department. After a decade has passed, through the extensive centralization carried out of the company's process the audit focuses only on a few departments. Currently the audit can be done in the form of remote auditing from the audit center independently of where the audit actually took place. In the future, we are hoping

that audits can be carried out from anywhere and not fixated on the spot directly. All this is facilitated by advanced digital technology equipment (Kupec, 2017).

Computer Assisted Audit Tools and Techniques (CAATTs)

Technology-based auditing tools are defined in internal audit standards as "automated audit tools, such as Generalized Audit Software (GAS), data testing generators, computerized audit programs, specialized audit utilities, and CAATs ((IIA), 2017). These techniques can be used by both internal and external auditors to achieve their audit goals more efficiently.

Computer Assisted Audit Tools and Techniques (CAATTs) are computer tools and techniques that auditors (external or internal) use as part of their audit procedures to process audit significance data contained in entity information systems. In the computer-based financial reporting audit process, there are three types of approaches in CAAT, including; (1) Audit Around The Computer on this approach the auditor only inspect the inputs and outputs of the accounting information system without conducting a test of the process; (2) Audit Through The Computer on this approach the auditor not only inspect the inputs and outputs but also tests the data process; (3) Audit With The Computer, in this approach auditors use computers as a tool in carrying out audit procedures (Zerry Sufanda, 2019).

Internal Control

According to the Committee of Sponsoring Organizations of the Treadway Commission (COSO), Internal control is a process, carried out by the board of directors of an entity, management and other personnel, designed to provide reasonable guarantees regarding the achievement of goals in the following categories: effectiveness and efficiency of operations, reliability of financial reporting, compliance with applicable laws and regulations, and safeguarding assets against acquisitions, unauthorized use, or disposition. In this study, the authors focused on risk assessment and monitoring activities. Risk assessment forms the basis for determining how risk will be managed. Risk is defined as the possibility that an event will occur and adversely affect the achievement of the goals of the organization. Risk assessment requires management to consider the impact of possible changes in the internal and external environment, and potentially act to manage the impact. Monitoring activities are periodic or continuous evaluations to verify that each of the five components of internal control, including controls affecting the principles within each component, is present and functioning. around their products (COSO, 2019).

HYPOTHESIS DEVELOPMENT

The research method that will be used in this study is the hypothetico-deductive method, which is a type of scientific method popularized by a philosopher from Austria, namely Karl Popper. Scientific method is a research technique in stages, logical, organized and detailed in finding a solution to a problem (Sekaran & Bougie, 2016).

The hypothetico-deductive method uses a useful and systematic approach in solving problems of a fundamental and managerial nature. There are seven steps in the hypothetico-deductive method (Sekaran & Bougie, 2016), including (1) identification of common problem areas, (2) determining problem statements, (3) developing hypotheses, (4) determining measurements, (5) data collection, (6) Data analysis, and (7) data interpretation.

1. Identification of common problem areas
   The author chose the topic of internal control evaluation which was evaluated based on a digital audit of monitoring and risk assessment activities. In the industrial era 4.0 companies are required to have a big data system, thus accountants who will audit, must be equipped with sufficient knowledge to be able to audit big data, also associated with technological developments, which allow auditors to use digital audits when auditing big data.
2. Determining problem statements

The author tries to narrow the discussion of the problem area by formulating several problem formulations, namely:

a) Whether internal control evaluated based on digital audit affects monitoring activities by auditors.
b) Whether internal control evaluated based on digital audit affects risk assessment activities by auditors.

3. Developing hypotheses

A variable is anything that can have different or varied values. Values can be diverse at different times for the same object or person, or at the same time for different objects or people (Sekaran & Bougie, 2016).

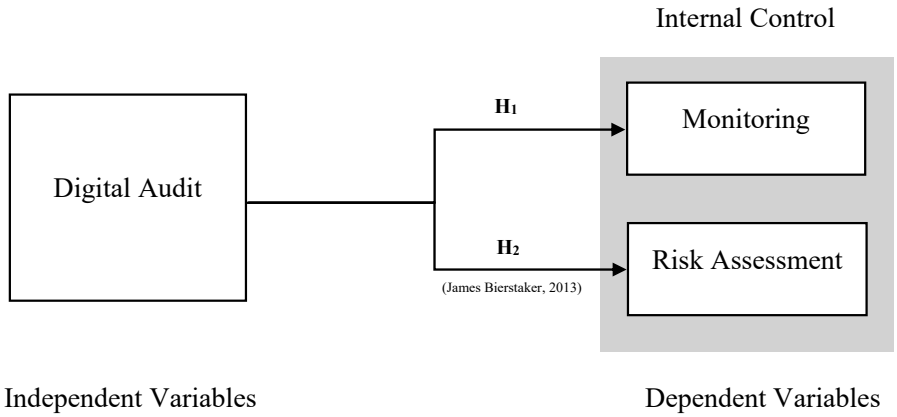
a) Dependent Variables

Dependent variables are variables that are the main interest of researchers (Sekaran & Bougie, 2016). Using the analysis of dependent variables, researchers can find answers or solutions to the problems encountered. The dependent variable of this study is the evaluation of internal control, which is then further divided into risk assessment and monitoring.

b) Independent Variables

Independent variables are variables that affect dependent variables both positively and negatively (Sekaran & Bougie, 2016). The independent variable in this study is digital auditing.

Figure 1. Research Variable



Source: Researcher

H_1: Internal control evaluated based on digital audit affects monitoring activities by auditors

Supervision or monitoring, is one of the important components of internal control. Supervision functions to ensure that all activities in internal control run according to applicable rules and guidelines. In addition, supervision also allows company management to identify something that can determine effective actions to achieve goals.

Furthermore, if the tools of digital auditing are implemented into supervisory activities, the supervised data can be more relevant, because it is monitored in real-time, so that all findings can be immediately caught and processed immediately.

H_2: Internal control evaluated based on digital audit affects risk assessment activities by auditors

Every activity always have risks in it. This risk may be related to the business directly or indirectly. In this case the company assesses risks with the management of the company carried out by analysis, actions and evaluation.

By implementing digital audits in the risk assessment process, companies can carry out company data analysis more effectively and also more efficiently, because all data has been distributed by the

digital audit system properly, and artificial intelligence from digital audit tools is equipped with good analytical data capabilities, which can support audits ranging from risk assessment to execution, and also handles the entire business operation cycle (EY, n.d.).

1. Determining measurements
   Measurement is the determination of numbers or other symbols for the characteristics of an object according to a set of rules (Sekaran & Bougie, 2016). The authors use the operationalization of variables as a measurement method. Operationalization is a technique to reduce the concept of abstract ideas so that behavior and characteristics can be observed (Sekaran & Bougie, 2016).
2. Data collection
   Data collection is one of the most important stages in research. The right data collection techniques will result in high-quality data. The data collection technique used by researchers is questionnaire technique. The questionnaire will be distributed to auditors working at the Certified Public Accountant (CPA). The target sample that will be collected is as many as 30 respondents, and the collection of questionnaires will be through Google Form media which will be distributed through the WhatsApp, LINE, and Instagram direct messages platforms.
3. Data analysis
   At this stage, the data that has been collected is analyzed to see if the hypothesis can be proven and answer the formulation of the problem that has been previously determined (Sekaran & Bougie, 2016). Researchers carry out the data analysis process as follows the stages:
   1) Researchers conduct questionnaires for auditors working in public accounting firms, to obtain an overview and information related to the evaluation of internal controls.
   2) Researchers process data using successive interval method, which makes the data obtained using the Likert scale more valid.
4. Data interpretation
   Researchers decide whether or not the hypothesis is proven based on the results of data analysis. By interpreting the results of data analysis, researchers can come up with solutions to problems and make recommendations for changes to the system under study.

RESULT AND DISCUSSION

Data Collection Result

Primary data collection carried out in this study was through the dissemination of questionnaires in the form of google forms that were distributed to auditors working in Certified Public Accountant (CPA). The questionnaire used for this study began to be distributed from October 10, 2022 to October 21, 2022. The data obtained from the collection of this questionnaire obtained the number of respondents as many as 34 respondents, with a total of 16 people working in Ernst & Young, 14 people working at PwC, and 4 people working at KPMG.

Data Processing Result

Normality Test

Normality test was carried out by the one-sample kolmogorov-smirnov test method. The normality of a data can be seen from the numbers generated in Asymp. Sig. (2-tailed) where the normally distributed data will be more than 0.05.

Figure 2

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		34
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	.40858747
Most Extreme Differences	Absolute	.086
	Positive	.068
	Negative	-.086
Test Statistic		.086
Asymp. Sig. (2-tailed)		.200[c,d]

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

Source: Researcher

It can be seen in the calculation results above that the results of normality testing in *Asymp. Sig.* (*2-tailed*) indicates a number 0.2 which qualifies as the normal distribution of data. It can be concluded that the data to be processed is distributed normally so that the normality requirements have been met to perform a linear regression model.

Descriptive Statistical Test

Figure 3

X		*Y1*		*Y2*	
Mean	2,785533898	Mean	3,022312008	Mean	2,965380579
Standard Error	0,093297901	Standard Error	0,103107103	Standard Error	0,10177174
Median	2,815732145	Median	2,883165835	Median	2,774113241
Mode	3,322740498	Mode	3,953947854	Mode	3,951649324
Standard Deviation	0,544015571	Standard Deviation	0,601212557	Standard Deviation	0,593426121
Sample Variance	0,295952941	Sample Variance	0,361456539	Sample Variance	0,352154561
Kurtosis	-1,282729776	Kurtosis	-1,062373643	Kurtosis	-1,046320057
Skewness	-0,205628311	Skewness	0,07390643	Skewness	0,604787025
Range	1,668485476	Range	2,089179672	Range	1,742827877
Minimum	1,883448919	Minimum	1,864768181	Minimum	2,208821446
Maximum	3,551934395	Maximum	3,953947854	Maximum	3,951649324
Sum	94,70815254	Sum	102,7586083	Sum	100,8229397
Count	34	Count	34	Count	34
Confidence Level(95,0%	0,189816006	Confidence Level(95,0%	0,209772978	Confidence Level(95,0%	0,207056162

Source: Researcher

The CAATTs Implementation Variable (X) has a total of 34 respondents, with a mean value, or an average of 2.7855. For standard deviation has a value of 0.5440. The range from the results of the questionnaire data produces a number of 1.6684, this range is the difference between the maximum value and the minimum value. The maximum value of variable X obtained from the results of this study is 3.5519, while the minimum value of variable X is 1.8834.

The Monitoring variable (Y_1) has a total of 34 respondents, with a *mean*, or average value of 3.0223. For standard deviation has a value of 0.6012. *The* range from the results of the questionnaire data produces a number of 2.0891, this range is the difference between the maximum value and the minimum value. The maximum value of variable X obtained from the results of this study is 3.9539, while the minimum value of variable X is 1.8647.

The Risk Assessment variable (X) has a total of 34 respondents, with *a mean*, or average value of 2.9653. For standard deviation has a value of 0.5934. *The* range from the results of the questionnaire data produces a number of 1.7428, this range is the difference between the maximum value and the minimum value. The maximum value of variable X obtained from the results of this study is 3.9516, while the minimum value of variable X is 2.2088.

Multiple Linier Regression Analysis

Figure 4

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.822	1	6.822	42.847	.000[b]
	Residual	5.095	32	.159		
	Total	11.918	33			

a. Dependent Variable: Monitoring

b. Predictors: (Constant), CAATTs Implementation

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t
1	(Constant)	.690	.363		1.901
	CAATTs Implementation	.837	.128	.757	6.546

a. Dependent Variable: Monitoring

Source: Researcher

According to the figure above, then the multiple linear regression equation in this study can be expressed by the following formula:

$$Y_1 = \alpha + \beta_1 x + \varepsilon$$

$$\text{Monitoring} = 0.690 + 0.837 + \varepsilon$$

The magnitude of the regression coefficient β_1 is 0.837, this shows that with the increase of the variable X it will increase the variable Y1 by 0.837. Furthermore, the regression coefficient X is 0.837, which means that if the CAATTs implementation variable increases by 1% then the monitoring variable will increase by 0.837.

Figure 5

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.095	1	6.095	35.401	.000[b]
	Residual	5.509	32	.172		
	Total	11.604	33			

a. Dependent Variable: Risk Assessment

b. Predictors: (Constant), CAATTs Implementation

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t
1	(Constant)	.761	.377		2.018
	CAATTs Implementation	.792	.133	.725	5.950

a. Dependent Variable: Risk Assessment

Source: Researcher

According to the figure above, then the multiple linear regression equation in this study can be expressed by the following formula:

$$Y1 = \alpha + \beta 1 x + \varepsilon$$

$$\text{Risk Assessment} = 0.761 + 0.792 + \varepsilon$$

The magnitude of the regression coefficient β1 is 0.792, this shows that with the increase of the variable X it will increase the variable Y2 by 0.792. Furthermore, the regression coefficient X is 0.792, which means that if the CAATTs implementation variable increases by 1%, the risk assessment variable will increase by 0.792.

Hypothesis Test

1) Partial Test (Statistical Test t)

In this study the t_{table} value is 2.03451529744934 which is obtained from calculations using Microsoft excel with the following formula:

=TINV (probability, deg freedom)

=TINV (0.05,33)
=2.03451529744934

Figure 6

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t
1	(Constant)	.690	.363		1.901
	CAATTs Implementation	.837	.128	.757	6.546

a. Dependent Variable: Monitoring

Source: Researcher

H_1: Internal control evaluated based on digital audit affects monitoring activities by auditors

Based on the table above, it shows that X has a value of tcalculated of 6.546, which means that the result is greater than t_{table}. Based on these results, it can be said that H_1 partially internal control evaluated based on digital audits is related to monitoring activities by auditors, so that H_1 is accepted.

Figure 7

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t
1	(Constant)	.761	.377		2.018
	CAATTs Implementation	.792	.133	.725	5.950

a. Dependent Variable: Risk Assessment

Source: Researcher

H_2: Internal control evaluated based on digital audit affects risk assessment activities by auditors

Based on the table above, it shows that X has a value $t_{calculated}$ of 5,950, which means that the result is greater than t_{table}. Based on these results, it can be said that H_2 partially evaluated internal control based on digital audits affects risk assessment activities by auditors, so that H_2 is accepted.

Simultaneous Test (Statistical Test F)

Figure 8

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.095	1	6.095	35.401	.000[b]
	Residual	5.509	32	.172		
	Total	11.604	33			

a. Dependent Variable: Risk Assessment

b. Predictors: (Constant), CAATTs Implementation

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.822	1	6.822	42.847	.000[b]
	Residual	5.095	32	.159		
	Total	11.918	33			

a. Dependent Variable: Monitoring

b. Predictors: (Constant), CAATTs Implementation

Source: Researcher

Based on the calculation of the significance value for H_1 produces a number of 0.00000022323, which means it has a value smaller than the error rate of 5% (0.05). So, it can be concluded that at a confidence level of 95% Internal control evaluated based on digital audits affects monitoring activities by auditors. So, the first hypothesis on this study was accepted.

Based on the calculation of the significance value for H_2 produces a number of 0.000001298, which means it has a value smaller than the error rate of 5% (0.05). So, it can be concluded that at a confidence level of 95% Internal control evaluated based on digital audits affects risk assessment activities by auditors. So, the second hypothesis in this study was accepted.

Corelation Coefficient and Coefficient of Determination

Figure 9

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.757[a]	.572	.559	.39903

a. Predictors: (Constant), CAATTs Implementation

b. Dependent Variable: Monitoring

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.725[a]	.525	.510	.41492

a. Predictors: (Constant), CAATTs Implementation

b. Dependent Variable: Risk Assessment

Source: Researcher

Based on the table above, it can be seen that the value of R is 0.757 which is included in the strong relationship between the variables X and Y_1. Next is the Adjusted R Square value of 0.559, indicating that the CAATTs implementation variable (X) can explain the monitoring variable (Y_1) by 55.9% while 44.1% is explained by other factors that exist outside the research conducted. For the standard error number in the table showing 0.39903, this shows that the probability of error in predicting the bound variable, namely monitoring, is 0.39903.

Based on the table above, it can be seen that the value of R is 0.725 which is included in the strong relationship between the variables X and Y_2. Next is the Adjusted R Square value of 0.510, indicating that the CAATTs implementation variable (X) can explain the risk assessment variable (Y_2) of 51.0% while 49.0% is explained by other factors that exist outside the research conducted. For the standard error number in the table showing 0.41492, this shows that the probability of error in predicting the bound variable, namely monitoring, is 0.41492.

CONCLUSION

Based on the results of collecting research data that have been processed in this study, several conclusions can be obtained that can be explained as follows:

Internal control evaluated based on digital audit affects monitoring activities by auditors. This can be proven in the results of the t statistical test which states that the monitoring variable has a significance value of 0.00000022323 smaller than the error rate (0.05) and a ttable > tcalculated value of 6,546 > 2.03451529744934. The results of the study showed that internal audit evaluated based on digital audits affected monitoring activities by auditors. This is because with the use of digital audits or with the application of CAATTs, the auditor's work when monitoring can run efficiently, this includes, with the use of CAATTs auditors can get strong evidence in the effect of control, supervised data can also be more if using the help of CAATTs, as well as the data that has been collected can be processed more efficiently than traditionally. So that the use of CAATTs can make the auditor's work on monitoring activities effective and also efficient.

Internal control evaluated based on digital audit affects risk assessment activities by auditors. This can be proven in the results of the t statistical test which states that the digital audit implementation variable has a significance value of 0.000001298 smaller than the error rate (0.05) and the ttable > tcalculated value of 5.950 > 2.03451529744934. The results of the research show that internal control evaluated based on digital audits affects risk assessment activities by auditors. This is because with the use of digital audits or with the application of CAATTs, the auditor's work when monitoring can run efficiently, this includes, with the use of CAATTs auditors can get strong evidence in the effect of control, supervised data can also be more if using the help of CAATTs, as well as the data that has been collected can be processed more efficiently than traditionally. So that the use of CAATTs can make the auditor's work on monitoring activities effective and also efficient.

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