

The Effect of Auditor's Competence, Task Complexity and Digital Forensic Support on Auditor's Ability in Detecting Fraud

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Abstract

Technological developments affect fraud detection. Perpetrators hide traces of crime using activities in digital form. Digital forensic skills have become a new necessity. However, the readiness of resources in the field of digital forensics is still very lacking. The number of digital forensic certified auditors is very limited. Digital forensic software and tools require a relatively large allocation of costs. Previous research examined the dimensions of digital forensic support and moral development on fraud detection abilities. This study adds a task complexity dimension to fraud detection ability. This study aims to examine the effect of auditor competence, task complexity and digital forensic support on fraud detection capabilities. Sampling using the purposive sample method with BPK auditor respondents. The data analysis method used Structural Equation Modeling (SEM) and for path causality analysis using Path Analysis. The results of the study reveal that the auditor's competence variable and digital forensic digital support have a positive effect on the auditor's ability to detect fraud. While the complexity of the task does not affect the ability of the auditor to detect fraud.

Keywords

auditor competence; digital forensic support; fraud detection; technology development; task complexity



I. Introduction

Digital technology has developed rapidly. Most human activities have undergone a transition from being done manually to using the help of digital technology. This shift also has an effect on hiding traces of fraud. Previously, traces of cheating were hidden in manual form. With the development of digital technology, traces of fraud are hidden in the form of digital communications, electronic financial transactions, and computerized financial reporting systems.

Development is a change towards improvement (Shah et al, 2020). The development of the trial of the PT Asuransi Jiwasraya corruption case is an example of revealing hidden crimes through digital technology. At the trial, it was revealed that there was an attempt to eliminate traces of communication and electronic mail (cnbcindonesia.com, 2020). PT Asuransi Jiwasraya's financial transactions also involve millions of sales and purchase transactions of financial instruments that require digital forensic analysis (Adriansyah, 2020).

Data compiled by the Directorate of Cybercrime, Bareskrim Polri, shows that the number of crimes related to digital technology is increasing as shown in Figure 1.

Table 1. Cyber Crime Data Handled by the Directorate of Cyber Crime for the period 2018-April 2020

Jenis Kejahatan Siber	2018			2019			2020 (Jan – Apr)		
	CT	CC	%	CT	CC	%	CT	CC	%
Computer-related crime	3842	2000	52,1%	3917	1975	50,4%	1572	369	23,4%
Computer crime	518	273	52,7%	705	307	43,5%	252	68	26,9%

Source: Project Report on Changes in Integrated Cyber Patrol in Countering Cyber Crime

The increasing level of cybercrime is caused, among other things, because it is still prioritizing aspects of law enforcement. Meanwhile, the aspects of education and prevention of cyber crime have not been optimal.

The challenge of hiding traces of crime using digital technology does not coincide with the readiness to use digital forensics. According to Prawira (2020), the huge need for digital forensic experts in Indonesia has not been matched by the readiness of the educational curriculum to produce experts in the digital forensics field. Forensic accounting curriculum should be included in accounting majors education. It is very important for forensic accountants to obtain forensic accounting professional education and training before providing services (Sugianto and Jiantari, 2014; Fanani and Gunawan, 2020; Prabowo, 2015). Data from the National Accreditation Committee shows that there are eight digital forensic laboratories that have been accredited in Indonesia. Most of them belong to the Indonesian National Police (Achmad, 2020).

In government agencies, only the Directorate General of Taxes is ready in terms of organizational structure, tools and human resources. In the Financial and Development Supervisory Agency, there is already a separate sub-directorate in charge of digital forensic examinations but not yet equipped with an accredited digital forensic laboratory. The Supreme Audit Agency, as the government's external audit agency, is equipped with digital forensic tools and software. However, the unit that handles digital forensic examinations at the Supreme Audit Agency is still in the form of a special task force.

According to Akinbowale et al. (2021), the definition of fraud is a deliberate act to take advantage of individuals or companies illegally. Bolton and Hand (2002); Elisabeth and Simanjuntak (2020) indicates that fraud detection is expected to minimize the intention to act fraudulently but it is necessary to mitigate fraud as a form of prevention system.

Competent internal auditors and public sector accountants have an important role in the detection and prevention of fraudulent acts (Othman et al., 2015). According to Siriwardane et al. (2014) Auditor competence can be seen from the perspective of professional integrity, how to assess evidence and a skeptical mindset on the phenomena that occur. Soft skills development including understanding the business environment, resource limitations and management style are part of auditor competency development, especially at the beginning of a career (Plant et al., 2019). Faced with the detection of fraud in digital form, the competence of auditors and digital forensic support turned out to have a positive influence on the auditor's ability to detect fraud. (Susanto et al., 2019).

The complexity of the task also affects the fraud detection ability. Study Yanti and Nurmala (2021) show the complexity of the task auditors have no significant effect on the effectiveness of the auditor's ability to prove fraud. Meanwhile, according to Amrih et al. (2018) task complexity has a positive effect on the auditor's ability to detect fraud. The more complex the auditor's task will result in an increased risk of inaccuracy and doubt. However, the auditor will immediately respond to these risks by raising the level of

prudence. The level of task complexity varies following the assignment hierarchy within a team (Sanusi et al., 2017).

Fraud in digital form has its own characteristics. Digital forensics is a characteristic of evidence in digital form with certain standards to be accepted as fact and increase confidence in other evidence. (Casey, 2011). Digital forensics is basically a series of utilization of the human dimension, equipment and rules used to achieve goals with all feasibility and quality (Nugroho and Al-Azhar, 2017). The feasibility and quality of digital forensic results is demonstrated by the receipt of evidence in court. Therefore, it is necessary to preserve digital evidence to ensure wider acceptance of evidence (Granja and Rafael, 2017).

Based on the description above, researchers are motivated to design research to test the level of auditors' readiness to face challenges in the form of digital fraud. To be able to detect fraud hidden in digital form, an auditor must have sufficient competence, must have clarity of assignment information and must obtain digital forensic support. This research replicates research Susanto et al. (2019) by adding the task complexity variable seen from the clarity of the instructions for the fraud cases encountered. The selection of the digital forensic support variable is very appropriate because it is still rare to find previous studies that examine the forensic digital support variable associated with the auditor's ability to detect fraud. The task complexity variable deserves to be tested because there has been no research linking the task complexity variable in the information dimension of case construction faced with assignment time constraints to the level of fraud detection ability.

Based on the description on the background and the added value of the research, the researcher is interested in conducting a study with the title: "The Effect of Auditor Competence, Task Complexity and Digital Forensic Support on Auditors' Ability to Detect Fraud".

II. Review of Literature

2.1 Attribution Theory

Attribution theory was developed by Fritz Heider in a book entitled "The Psychology of Interpersonal Relations". According to Heider (1958), humans often act like an amateur scientist trying to explain behavior. Attribution theory is basically a cause-and-effect analysis of behavior itself. In addition, attribution theory shows that information received can affect perceptions and conclusions of causality but the interaction model between information, beliefs, and motivation cannot be concluded. (Kelley and Michela, 1980).

In evaluating the behavior of others, there is often a bias caused by the tendency to underestimate the influence of external factors and overestimate internal factors. Attribution theory significantly improves understanding of other people's perceptions and can help in identifying the causes of other people's behavior. After understanding people's perceptions, the next step is to generate shortcuts that will be used to simplify the processing of other people's behavior.

Researchers use attribution theory as a grand theory because researchers will examine internal and external factors that influence the behavior of an auditor in detecting fraud. Auditor competence in the form of expertise, experience and attitude is influenced by internal factors from the personal auditor. While the external factor that influences is the auditor's work environment. The complexity of the task makes an auditor inconsistent and unaccountable. Internal factors in the form of clarity of information and external factors in the form of a hierarchical structure of assignments are the causes of auditors to be inconsistent. Digital forensic support is an external factor in the level of auditors' ability

to detect fraud. Assessment of digital forensic support can be seen through the level of specificity, consensus and consistency of the auditors in detecting fraud. Attribution theory is also related to how people judge the auditor's ability to detect fraud.

2.2 Policeman Theory

Policeman Theory basically states that the auditor has a responsibility to search for, find and prevent fraudulent activity, in addition to staying focused on mathematical accuracy and providing reasonable assurance and an independent, true and fair view of the financial statements. (Hayes et al., 2005).

Policeman Theory developed as a result of the expectations of the wider community as users of financial statements that have shifted from a level of adequate confidence in the presentation of financial statements to a form of responsibility to ensure that financial statements are free from material fraud. Policeman Theory is used as a middle theory to examine the auditor's assessment of the increasing public expectations, it is not enough just to have adequate confidence in the presentation of financial statements but also to guarantee that financial statements are free from material fraud.

2.3 Auditor Competence on Auditor Ability in Detecting Fraud

The competency dimension of an auditor consists of a hard skill dimension, which is related to auditing capabilities, both basic and advanced level audits, and a soft skill dimension, which is related to managerial ability, information seeking and understanding of the entity's business. (Siriwardane et al., 2014).

Study Alrawashdeh et al., (2021), Susanto et al., (2019), and Suryanto et al., (2017) concluded that the competence of auditors affects the ability to detect fraud. Increasing the expertise, knowledge and experience of an auditor will directly increase the auditor's ability to detect fraud. Based on the theoretical argumentation and the results of previous research, the formulation of the first hypothesis was developed as follows:

H1: Auditor competence has a positive effect on the auditor's ability to detect fraud

2.4 Task Complexity on Auditor's Ability to Detect Fraud

The complexity of the task consists of aspects of task difficulty, which are related to the number of information cues and aspects of task structure related to information clarity about the task itself. (Bonner, 1994). The complexity of the task has a significant effect on performance and determines the decision-making procedure. According to Cecilia Engko in Azizah and Pratono (2020) Task complexity is defined as an unstructured task, which is often confusing and full of ambiguity so that the alternatives cannot be identified.

Study Yanti and Nurmala (2021) show Auditor complexity has no significant effect on the effectiveness of the auditor's ability to prove fraud. Meanwhile, according to Amrih et al., (2018) task complexity has a positive effect on fraud detection. The existence of a research gap encourages this research to refer to the theoretical basis of task complexity. Therefore, the formulation of the second hypothesis was developed as follows:

H2: Task complexity has a negative effect on the auditor's ability to detect fraud

2.5 Digital Forensics Support for Auditors' Ability to Detect Fraud

The basic nature of digital evidence is the vulnerability to data originality. Complete digital forensics tools include aspects of human competence, completeness of hardware and software as well as detailed and clear procedures needed to ensure that the basic principles of handling digital evidence have been complied with. (Nugroho and Al-Azhar, 2017).

Research from Susanto et al. (2019) and Misrina et al., (2021) concluded that digital forensics has a significant influence on the level of fraud detection in digital form. Auditors will be facilitated when detecting fraud by using digital forensic support. Therefore, the formulation of the fourth hypothesis was developed as follows:
H3: Digital forensic support has a positive effect on the auditor's ability to detect fraud

III. Research Method

3.1 Method of Collecting Data

This research is a quantitative research with survey research method. The purpose of quantitative research using survey methods is to obtain past or current data about beliefs, opinions, preferences, behaviors that are used to test hypotheses about sociological and psychological variables from a sample of a particular population. (Sugiyono, 2020). This study is intended to examine the framework of the research model as shown in Figure 2.

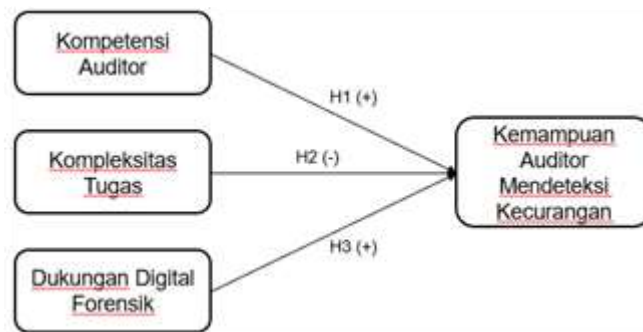


Figure 1. Research Model

The data used in the study is primary data obtained directly from the respondents. Data collection techniques using a survey of respondents in the form of a questionnaire. Dissemination of the questionnaire using a google form link that has been prepared by the researcher. The population in this study were auditors at the State Audit Board who had carried out audit tasks. Purposive sampling technique was used in this study to determine the sample. Characteristics in determining the sample is that he has worked for more than 5 years at the Supreme Audit Agency and has been carrying out audit assignments for more than 3 years.

3.2 Operational Definition and Measurement of Variables

This study uses one dependent variable and three independent variables tested using a Likert scale of 1 to 5. The independent variables are represented by Auditor Competence, Task Complexity and Digital Forensic Support. While the dependent variable used is the Auditor's Ability to Detect Fraud. Table 2 presents operational definitions and measurements of the dependent and independent variables used in this study.

Table 2. Operational Definition and Measurement of Variables

Variable	Operational definition	Measurement	Reference
Auditor Competence	Combination of skills (both soft skills and hard skills), knowledge and attitude used to improve performance.	5 dimensions	(Robbins et al., 2013) (Siriwardane et al., 2014) (Plant et al., 2019)

Task Complexity	Individual perception of the difficulty of a task that is influenced by the amount and clarity of information.	3-dimensions	(Bonner, 1994) (Jamilah et al., 2007) (Yanti and Nurmala, 2021)
Digital Forensics Support Auditor	Digital forensics tools and methods are used to find fraud hidden in the form of digital evidence	3-dimensions	(Casey, 2011) (Nugroho and Al-Azhar, 2017)
Ability to Detect Fraud	Ability to get early indications to minimize fraudulent intentions.	7 dimensions	(Albrecht et al., 2009) (Susanto et al., 2019) (Prahadi, 2022)

3.3 Data Analysis Technique

The researcher used component or variant-based Structural Equation Modeling (SEM) with the Partial Least Square (PLS) approach. According to Ghazali and Latan (2015) SEM-PLS analysis has two measurement methods, namely the outer model and the inner model. The measurement model used is the outer model which shows how the manifest or observed variables represent the latent variables to be measured.

The SEM model in general can be divided into two test models, namely the measurement model and the structural model. Measurement model is used to describe the relationship between latent variables and their dimensions/indicators, while the structural model describes the relationship between latent variables or between exogenous variables and their latent variables. (Ginting, 2009). Measurement model testing is shown by convergent validity test with Average Variance Extracted (AVE), discriminant validity test and reliability test with Cronbach's Alpha and Composite Reliability. While the structural model testing is carried out using a hypothesis test with path coefficient and a determination coefficient test with R Square-Adjusted.

IV. Results and Discussion

4.1 Results

a. Demographics

Data collection carried out in June 2022 received 114 questionnaires. After data cleansing, 108 questionnaires were obtained that met the criteria so that they were worthy of analysis. The data collected will be processed based on demographics including gender, age, office domicile, educational background, and work experience. The demographics of the respondents in this study are described in table 3.

Table 3. Respondent Demographic Data

Description	Category	Frequency	Percentage
Gender	Man	78	72%
	Woman	30	28%
Age	< 30 years old	5	5%
	31-35 years old	29	27%
	36-40 years old	38	35%
	> 40 years	36	33%
Office domicile	Headquarters	80	74%
	Representative	28	26%

	office		
Educational background	Postgraduate	55	51%
	Bachelor/equivalent	53	49%
Work experience	< 10 years	19	18%
	11-15 years old	58	54%
	16-20 years old	20	19%
	> 20 years	11	10%

Source: Results of data processing

Table 3 shows that the majority of the respondents in this study were male (72%). The number of men is more than women because the work of auditors is often faced with deadlines for completing reports which require overtime. The category of age and work experience shows that the majority of respondents are experienced auditors as indicated by 68% of respondents aged over 36 years and 82% of respondents having experience as auditors over 10 years.

b. Test Measurement Model

The results of the measurement model testing using SmartPLS are shown in table 3 below.

Table 4. *Cronbach's Alpha (CA), Average Variance Extracted (AVE), Composite Reliability (CR) values, and Discriminant Validity*

Variable	CA	AVE	CR	Discriminant Validity			
				KA	KT	DFD	DFbyA
Auditor Competency (KA)	0.905	0.726	0.929	0.852			
Task Complexity (KT)	0.701	0.622	0.828	0.754	0.789		
Digital Forensic Support (DFD)	0.804	0.719	0.885	0.732	0.674	0.848	
Fraud Detection Capability (DFbyA)	0.913	0.661	0.931	0.754	0.617	0.730	0.813

Source: Results of data processing

Table 4 shows that the variables used in this study have an AVE above 0.5. Therefore, it can be concluded that all variables have good convergent validity. In addition, according to the results of the calculation of discriminant validity, all variables have the highest correlation in themselves when compared to correlations with other variables so that this research variable meets the requirements of discriminant validity. The results of the reliability test show the value of *Cronbach's Alpha* (CA) and Composite Reliability (CR) have values above 0.6. Therefore, it can be concluded that the measurement model of all variables has good reliability.

Thus, it can be concluded that all variables used in this study are valid and reliable. All variables are feasible to be used and continued in hypothesis testing through a structural model.

c. Test Structural Model

Structural model testing using hypothesis testing with path coefficient and coefficient of determination using R Square-adjusted. The results of the structural model testing are shown in table 5 below.

Table 5. Test Structural Model

	<i>Path</i>	Original Sample	P Values
H ₁	KA → DFbyA	0,477	0,000
H ₂	KT → DFbyA	0,064	0,000
H ₃	DFD → DFbyA	0,359	0,209
<i>R Squared Adjusted</i> = 0,6284			

Source: Results of data processing

Table 5 shows that the first hypothesis (H1) and the third hypothesis (H3) have a positive path coefficient value. P-values on H1 and H3 are also below 0.05. Therefore, H1 and H3 are both acceptable. It can be concluded that the auditor's competence and digital forensic support have a positive effect on the auditor's ability to detect fraud. Meanwhile, the second hypothesis (H2) has a positive path coefficient value and P-values above 0.05. Thus H2 is rejected. Task complexity does not negatively affect the auditor's ability to detect fraud.

The result of testing the coefficient of determination produces a Square-adjusted R value of 0.6284 (62.84%). This means that the ability of the independent variables (auditor competence, task complexity and digital forensic support) to explain the dependent variable of the auditor's ability to detect fraud is 62.84% and the rest is explained by other independent variables that are not used in the framework of this research model.

4.2 Discussion

The results of hypothesis testing indicate that the auditor's competence variable has a positive effect on the auditor's ability to detect fraud. If the auditor's competence increases, the auditor's ability to detect fraud also increases. The results of this study are in line with the results of previous research by Suryanto et al. (2017) and Salsabil (2019) which concludes that audit experience has a positive effect on the auditor's ability to detect fraud. Audit experience is closely related to the auditor's knowledge of fraud. The more audit experience, the auditor's knowledge of fraud patterns also increases. Fadilah et al. (2019) shows that several factors related to auditor competence affect the ability to detect fraud, including auditing skills, communication skills and knowledge and skills of information communication technology. Meanwhile, other factors, namely knowledge and skills of investigation and knowledge of law and regulations, will have an effect after fraud has been detected.

Rapid technological developments must be balanced with an increase in auditor competence. The purpose of fraud detection is to detect and disclose evidence related to fraudulent activity until it can finally support evidence in the litigation process. Referring to the results of this study which proves that auditor competence has a positive effect on the auditor's ability to detect fraud, the Supreme Audit Agency must always prepare its auditor competence in dealing with developments in knowledge and technology. In addition, the Supreme Audit Agency also needs to develop a continuing professional education plan so that the competence of auditors is maintained following the development of knowledge in accordance with the results of previous research conducted by the Audit Committee. (Barnes, 2020; Heliantono et al., 2020; Salsabil, 2019).

The results of the study conclude that digital forensic support has a positive effect on the auditor's ability to detect fraud. These results are in line with research Susanto et al. (2019) who concluded that the higher the digital forensic support, the higher the fraud detection rate. Digital forensic support will improve the auditor's ability to determine the significance of fraud data and sharpen the ability to analyze evidence of fraud in digital

form. Referring to the results of this study, the Supreme Audit Agency must provide digital forensic hardware and software that is equipped with an active license. It is also necessary to consider the organizational aspects of the digital forensic task force by taking into account the need for impartiality. However, research Alrawashdeh et al. (2021) need to be considered when building a digital forensics unit. Alrawashdeh et al. (2021) concluded that the limitations of the use of information technology in forensic accounting are very high. These limitations are related to infrastructure, auditor experience in digital forensics, and large financing needs.

The test related to the relationship between the task complexity variable and the auditor's ability to detect fraud resulted in the rejection of the second hypothesis (H2). The complexity of the task does not affect the auditor's ability to detect fraud. These results are in line with research Yanti and Nurmala (2021) which concludes that auditor complexity has no effect on the effectiveness of the auditor's ability to prove fraud. The complexity of the task is directly proportional to the inaccuracy in doing the task which will trigger an error by the auditor. These results are not in accordance with the research Amrih et al. (2018) which concludes there is a positive and significant relationship between task complexity and the auditor's ability to detect fraud.

The respondents of this study were the Supreme Audit Agency's auditors with high experience. The results showed that the small amount of information, the clarity of the instructions and the unstructured information did not affect the auditor's ability to detect fraud. Auditors of the Supreme Audit Agency are used to working under the pressure of high yield demands. High audit experience also affects the mastery of fraud patterns owned by the Supreme Audit Agency auditors. Therefore, although the amount of information is small and unclear and unstructured, the ability of the Supreme Audit Agency's auditors to detect fraud is not affected.

V. Conclusion

The demands of users of financial statements are increasing. Users of financial statements expect the auditor to be able to search for, find and prevent fraudulent activities that can ultimately affect the fairness of the financial statements. The development of digital technology has resulted in the shift of activities from manual to digital. This change also results in hiding traces of fraud in digital transactions and activities.

This study aims to examine the relationship between auditor competence, task complexity, digital forensic support and the auditor's ability to detect fraud. The research was conducted on 108 experienced auditors of the Supreme Audit Agency. The results of the study concluded that the competence of auditors and digital forensic digital support had a positive effect on the auditor's ability to detect fraud. While one other variable, namely the complexity of the task does not affect the auditor's ability to detect fraud.

Limitation

This research was not conducted to all auditors of the State Audit Board. The majority of respondents in this study are auditors in the investigative unit who are accustomed to receiving assignments with high complexity so that the task complexity variable becomes irrelevant to be used in this study.

Suggestion

The researcher suggests that further research can be carried out comprehensively, namely with a balanced mix between respondents who are accustomed to high complexity and respondents with low complexity. Research respondents need to be expanded to include employees of the head office and representative offices. In addition, further research can also add continuing professional education variables related to the need to maintain and improve auditor competence. Digital forensics support requires substantial funding requirements. Therefore, it is necessary to add the top management support variable associated with the auditor's ability to detect fraud.

Referring to the results of this study, the researcher suggests to the Supreme Audit Agency to equip auditors with digital evidence search audit competencies. The Auditor of the Supreme Audit Agency must have basic knowledge related to the handling of digital evidence. The impartiality of the digital forensic unit also needs to be considered in assigning assignments so that the independence of digital evidence analysis is maintained. For regulators, researchers suggest that the stages and standard procedures for the acquisition and analysis of digital evidence should be immediately compiled and equipped with work competency standards for digital forensic analysts.

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