# The Role of Information Technology in the Practice of Forensic Investigation Analysis for Fraud Disclosure in Indonesia

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**Abstract.** The industrial revolution 4.0 where everything has shifted to a digital system. The development of technology is getting faster and more sophisticated. By using information even fraud occurs by using technology. (fraud) is something that is planned and carried out by an individual or a group that will benefit from other parties who may be harmed. Forensic accounting and investigative auditing have a very important role in assisting the disclosure of fraud cases that occur. The purpose of this study is to understand how the role of information systems in the practice of forensic investigations can be applied to detect fraud. The research method used is descriptive qualitative method by taking data from literacy studies on research on fraud in various entities in Indonesia. The results of the study show the application of information systems in the practice of forensic investigations on prevention, detection and effective handling in disclosing fraud in various entities in Indonesia.

## 1 Introduction

The search for effective methods to detect fraud is of course still the main focus of many parties, especially the government. This is done with the hope that in the future the number of fraudulent acts can be minimized, given the direct impact caused by this action. Indonesia is one of the countries with a fairly high number of fraud cases, especially corruption cases. Schematically, the Association of Certified Fraud Examiners (AFCE) describes occupational fraud in the form of a fraud tree, namely corruption, asset misappropriation, and fraudulent statements. [1] based on the results of a survey conducted by ACFE Indonesia, the most common fraud in Indonesia is corruption. A total of 154 respondents to the Indonesian fraud survey or 67% chose corruption [2]. This is different from the results of the Report to The Nations (2016) issued by ACFE which states that the most types of fraud are found in the form of asset misappropriation. In Indonesia's own fraud survey, asset misappropriation was chosen by 71 respondents or 31% of the total respondents. Fraud is in the form of reports finance is the most common type of fraud [3]. ACCH statistical data also states that based on the profession/position of corruption in 2004 - 2016 it shows that members of the DPR and DPRD in 2010 took the first position in terms of corruption [4]. Again, statistical data from ACCH [5] which has been recapitulated from 2004 to 2018 regarding corruption crimes in which the KPK has handled, among others, the investigation of 1135 cases, the investigation of 887 cases, the prosecution of 719 cases, the inkracht 578 cases, and the execution of 610 cases. Then from

statistical data by region consisting of 27 samples, the majority of which are in Indonesia, it shows that during 2004–2018, there were 283 cases in the central government [6]. Corruption Perceptions Index (CPI) 2020, Indonesia's GPA is recorded to have increased by 1 point to 38 from a scale of 0-100 in 2021, which means that the score will increase and help boost Indonesia's position in the global GPA ranking. Indonesia is now ranked 96th out of 180 countries from the previous 102nd rank. Transparency International involved 180 countries in its GPA survey [1]. A score of 0 means the country is highly corrupt, otherwise a score of 100 indicates the country is free of corruption. Therefore, it is necessary to take action in eradicating fraud in Indonesia. Research that has been done by [7] have proven that there is a very effective method to detect fraud, namely forensic audit. The process of detecting fraud using a forensic audit, of course, is also influenced by other factors [8]. [9] and [10] there is one factor that can improve the fraud detection process, namely the use of big data. Big data can be used directly to detect fraud or can be used as a tool to increase the effectiveness of using other fraud detection methods such as forensic audits. This is because, auditors can maximize the benefits of very comprehensive data contained in big data by using data analytics tools, which then makes it easier and faster for auditors to analyze fraud risks that may occur in an organization, making it easier for auditors to analyze the causes of fraud cases, and so on. Thus, the use of big data will be a great opportunity for every auditor to expedite and accelerate his work in detecting fraud, including using forensic audits as a method for fraud detection [8]. There are many studies

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on fraud all over the world. Among other things, research conducted by [11] who conducted forensic audit testing could significantly detect, prevent, and reduce fraud in companies. Yeni Priatna Saria, Hetikab and Aryanto 2019, reviewed the role of forensic audits, also known as investigative audits, in efforts to combat corruption in Indonesia. Therefore, the researchers looked at the overall study that the discussion of information technology in the practice of forensic auditing is still small. Therefore, this study takes the title "The Role of Information Technology in the Practice of Forensic Investigation Analysis for Fraud Disclosure in Indonesia".

## 2 Literature review

### 2.1 Forensic audit

The need for internal control in implementing good corporate governance cannot be underestimated, because one aspect of such control is financial supervision. Unfortunately, the repeated fraudulent practices of Nigerian companies have raised serious questions about whether traditional financial controls are effective, or whether traditional audit systems are still effective in monitoring the financial activities of companies. Forensic audits focus on detecting, analyzing, and communicating evidence of financial events and the underlying reports. In contrast to traditional rules-based audits and single-event-based audits, forensic audits are not conducted to provide an audit opinion. As such, forensic auditing operates in a principles-based environment ([12-13]). Forensic audit is derived from the integration of accounting, investigative auditing, criminology and litigation [14], Thus, forensic auditing is the application of accounting, investigative, criminological, and litigation service skills to identify, analyze and communicate evidence from incidents potentially reported. Financial disputes and/or irregularities, including fraud and providing preventive advice.

### 2.2 Investigative audit

According to [15] audit techniques are the methods used in auditing the fairness of the presentation of financial statements. There is the term investigative audit confirms that what is carried out is an audit. General audit or financial audit (general audit or independent audit) aims to provide an independent audit opinion about the fairness of presentation of financial statements. Therefore, this audit is also called an audit opinion. An investigative audit is deeper and often extends to an audit of matters not touched by the audit opinion. Investigative audits are directed at proving the presence or absence of fraud and other unlawful acts. Many auditors have experience in auditing the financial statements of companies or other institutions, but they are hesitant to carry out fraud audits and investigative audits. Even though the audit techniques they master are adequate to be applied. Audit techniques are the methods used in auditing the fairness of the presentation

of financial statements. There are seven audit techniques in investigative auditing, namely physical examination, requesting confirmation, checking documents, analytical review, requesting information, and recalculation. And observe. If the above techniques are applied in a general audit, the audit evidence that has been collected will support an independent audit opinion. In technical investigative auditing audit techniques are exploratory, looking for "areas of work", or analytical reviews, as well as deepening investigations (e.g., in Engineering asking for confirmation and checking documents). Where an investigative audit is carried out as a repressive measure to deal with fraud that occurs [4].

### 2.3 Fraud

According to [16], fraud is a misrepresentation of material facts made by one party to another with the intention to deceive and cause other parties who rely on these facts to suffer losses. [17], there are three things behind a person committing fraud known as the fraud triangle, namely pressure, opportunity and rationalization. Traditional research on fraud was first conducted by Donald Cressey in 1950 which raises the question of why fraud can occur. The results of this study raise the factors that trigger fraud which is currently known as the "fraud triangle". Pressure, namely the existence of an incentive/pressure/need to commit fraud. Pressure can cover almost anything including lifestyle, economic demands, and others including financial and non-financial matters. There are four types of conditions that commonly occur in pressure that can lead to fraud, namely financial stability, external pressure, personal financial need, and financial targets. Opportunity (opportunity), which is a situation that opens an opportunity to allow a fraud to occur. Usually occurs due to weak internal company controls, lack of supervision and abuse of authority. Opportunity is the element that is most likely to be minimized through the implementation of processes, procedures, and early detection of fraud. Rationalization (rationalization), namely the existence of attitudes, characters, or a series of ethical values that allow certain parties to commit fraudulent acts, or people who are in a sufficiently stressful environment that makes them rationalize fraud. The most widely used rationalization or attitude is only borrowing stolen assets and the reason that their actions are to make their loved ones happy.

### 2.4 Fraud in the digital environment

Fraud in the digital environment is computer or information technology (IT) related fraud. The US Department of Justice defines computer fraud as any illegal act that requires knowledge of computer technology to take action. Fraud, Investigation, or Law Enforcement. Computers have had a huge impact on modern society and have brought about many changes in a short period of time. Every company also does not hesitate to take advantage of information technology. The advantages of computers in the speed and accuracy

of completing work allow them to reduce the number of workers, costs and minimize the possibility of errors, which leads to increased dependence on computers.

## 3 Methods

This research is a conceptual research that contains information about the role of information technology in disclosing fraud cases in Indonesia. Meanwhile, the research method uses a systematic literature review or commonly abbreviated as SLR. In this SLR method, the author tries to examine, summarize, and interpret all problem findings in certain research topics, as well as answer research questions that have been previously determined [18]. For the analysis and discussion in this conceptual paper, the author tries to look at the latest phenomena and relates these phenomena to the thoughts and research of previous researchers. So, later the author will get a more comprehensive idea development in solving problems in a research. The type of data that will be used in this research is secondary data. Secondary data was obtained from conducting a literature study of various studies on fraud conducted from 2000 to 2022 from all journals, both national and international journals. Data retrieval paper using the keywords Audit forensics, Fraud, Audit Investigation, Audit Information Technology [19].

## 4 Data collection

Data collection techniques used to obtain data are as follows:
1) Documentation
   [20] documents are records of events that have passed. Documents can be in the form of writing, pictures, or monumental works of someone. Documentation in this study will be in the form of notes on financial reporting.
2) Literature Study
   [21] literature study is the main ingredient in secondary data research. Researchers obtain data related to the problem being studied through books, journals/literature, the internet and other tools related to financial statement analysis. Researchers have searched for papers from various websites such as SINTA with S1 and S2 accreditation, Google Cendikia, JAAI, Scopus and others research period to search for papers from various international and national journals. The results obtained verified papers from valid journals can be seen in table below.

**Table 1.** Previous research.

| Authors | Year | Title | Research Subject | Results |
|---|---|---|---|---|
| Didi Atmaja [22] | 2016 | The Effect of Competence, Professionalism, and Audit Experience on the Ability of the Auditors of the State Audit Board in Detecting Fraud Using Computer Assisted Audit Techniques as Moderating Variables | The population used in this study are auditors who work at the Supreme Audit Agency in all regions of Indonesia. The sample used in this study were 157 respondents. | that Computer Assisted Audit Techniques affect the Auditor's Ability to Detect Fraud. |
| Yulita Zanaria [23] | 2017 | Effect of technology application, accounting reporting on fraud prevention and its implications for investor reactions | The population that will be the object of research are LQ 45 companies listed on the Jakarta Stock Exchange for the 2010-2014 period. The sample selection of LQ 45 companies in this study is because LQ 45 companies in Indonesia are vulnerable to changes that occur in other fields such as social, political, security fields, both those that occur in the country. The Jakarta Stock Exchange is the largest and most representative stock market in Indonesia. Based on the population, it can be determined the sample which is the object of this research. | Information technology is proven to have an effect on fraud prevention, accounting reporting is proven to have an effect on investor reactions. Accounting reporting is proven to have an effect on investor reactions |
| AO Enofe, P. Omagbon and FI Ehigiator [11] | 2015 | Forensic Audit and Corporate Fraud | distributing questionnaires to 125 respondents | It has been empirically established that forensic auditing is an efficient and effective tool against corporate fraud. Based on our analysis and findings, frequent use of forensic audit services will be very helpful in detecting and preventing fraud cases in business. Thus, with forensic audit services, the incidence of fraudulent practices inside and outside the business will be drastically reduced. |
| Laila Tiffani [24] | 2015 | Detecting Fraud Financial Statements With Fraud Triangle Analysis in Manufacturing Companies Listed on the Indonesia Stock Exchange | The population in this study are companies listed on the Indonesia Stock Exchange (IDX) in 2011-2013. Sampling method using purposive sampling method | Financial stability (ACHANGE) and external pressure (LEVE-RAGE) have a significant positive effect on fraudulent financial statements. Effective monitoring variable (IND) has a significant negative effect on financial statement fraud. Effective monitoring variable (IND) has a significant negative effect on financial statement fraud. |
| Luh Utami, Lilik Handaiani, Hermanto | 2019 | Effectiveness of the Audit Committee and Internal Audit against Fraud Cases with the Whistleblowing System as Moderating Variable | Quantitative research is carried out by collecting data in the form of numbers which are then processed and analyzed to obtain scientific information whose results can be generalized (Martono, 2012: 23). Based on the type of this research is explanatory research. Explanatory research is explanatory research that highlights the causal relationship between research variables and tests the hypotheses that have been formulated previously (Zulganef, 2008:11). This research was conducted on companies listed on the Indonesia Stock Exchange (IDX) that reported the whistleblowing system from 2016 to 2017. | internal audit does not directly affect the disclosure of fraud cases. This shows that the reports that come in through the whistleblowing system require a follow-up from the internal audit before it is determined whether the reports are included in cases of fraud or cases of other violations. |
| Immanuel Armando Panjaitan [25] | 2018 | Whistleblowing: Improving Forensic Audit Results in Disclosure of Corruption by Government Auditors | The population in this study were 35 experts in the field of accounting and auditing | Whistleblowing variable has a significant effect on forensic audits in disclosing acts of corruption by government auditors |
| Isnan Murdiansyah, Yona Octiani Lestari, Nanik Wahyuni [26] | 2020 | Initiated the establishment of an information technology (IT) based regional forensic audit board: an effort to detect and prevent corruption in the public sector | This research uses literature studies or empirical studies in analyzing a problem and providing a solution in the form of a system development model. The object of observation and research on public/government sector financial information systems, especially regional finance. | The presentation in this paper shows a strong relationship between the existence of an Information Technology (IT) Based Regional Forensic Audit Board in developing information technology and internal control systems (SPI) within the local government environment in order to realize good governance through the creation of a reliable regional financial system. |

# 5 Results and discussion

## 5.1 The role of forensic accounting in fraud prevention

Forensic Accounting is a skill used in the field of accounting and auditing accompanied by the ability in investigations aimed at solving problems in the form of alleged acts of fraud or financial disputes with court decisions as the final stage. So that everything regarding fraud can be detected from the start and can detect incorrect financial data. This form of accounting discipline is especially needed for both private and public related to fraudulent acts in the financial sector which are carried out in a modern and closed manner. Fraud cases in the digital era need to be analyzed further, such as: dispute resolution, the formulation of crimes and fraud that will be identified more specifically through audits. Various financial institutions carry out forensic accounting, namely the Center for Financial Transaction Reports and Analysis (PPATK), the World Bank and Public Accounting Firms (KAP) in Indonesia, the Corruption Eradication Commission (KPK), the Supreme Audit Agency (BPK), the Financial and Development Supervisory Agency (BPKP). The prevention of forensic accounting fraud, it is possible to detect the causative factors by using the theory which is an extension of the Triangel Fraud Theory, namely the Pentagon Fraud Theory. no-financial, opportunity (opportunity) so that it is necessary to improve the system, rationalization (rationalization) so that moral and ethical improvement of each individual is carried out to have more integrity, competence (competence) so that it is necessary to internalize the concept of moral religion and culture, arrogance caused by arrogance; arrogance; superiority [9]. Forensic accounting in Indonesia was successful in uncovering the Bank Bali case by Price Waterhause Coopers (PWC) using audit methods, namely Follow The Money and In Dept Interview, as well as uncovering the B NI and Jiwasraya cases with the same audit method and several other cases. There is another thing that Deloitte did in disclosing the SNP Finance case which was detected for falsifying data. Two well-known cases, namely PT Tiga Pilar Prosperous Food TBK and Indosat Oredoo, managed to steal Indonesia's attention in the disclosures made by Ernst & Young in the case of falsifying data using the forensic audit method. So that forensic accounting is growing rapidly entering the era of digitalization, it is necessary to develop from a technology perspective to help reveal the growing fraud. For the latest developments in the digitalization era, forensic accounting must be integrated more thoroughly in accountants, auditors and in education. The application of forensic accounting technology innovations and digital transaction processing can maximize the effectiveness of audits and fraud risk evaluations. The state-of-the-art facility technology is useful for uncovering and analyzing fraud in a modern state-of-the-art technology environment. In the new validation principle, there is a digital forensic model (DFM) that is used to assess or minimize risk before an investigation by using forensic software to generate forensic reports [27].

## 5.2 The role of investigative audits in preventing fraud

The Ministry of Research, Technology and Higher Education's Press Release Number: 210/SP/HM/BKKP/X/2019 stated that the results of studies from 125 countries identified more than 2,600 cases of fraud that resulted in losses of more than 7 billion US$ covering many industries. Focusing on various existing cases, namely outside and within the country, shows that fraud cannot happen anywhere. An investigative audit is an appropriate step that needs to be taken to minimize losses due to fraud and improve control systems. An investigative audit is a form of examination that aims to uncover and identify fraud through procedures, approaches and techniques that are generally used to carry out an investigation or investigation of a crime. In carrying out an investigative audit, an auditor will start an audit with indications or presumptions of the possibility of crimes and fraud that will be revealed and identified in depth through the audit carried out, as well as conducting surveillance and searches. The implementation of investigative audits in the public sector is bound by the provisions of the State Financial Auditing Standards (SPKN), while in the private sector it refers to the audit standards issued by a special institution, namely the Indonesian Institute of Certified Public Accountants or other auditing standards based on the relationship between the auditor and the audit mandate provider. In carrying out an investigative audit, an auditor must have an adequate basis of understanding regarding legal provisions on what matters will be audited as well as legal regulations relating to non-fraud disclosures and crimes. The investigative audit is in direct contact with the forensic accountant to set the right targets and targets in order to uncover cases of fraud. The target or target of an investigative audit is a subject that includes experts, actors and sanctions; object that is the target of the investigative audit in the form of facilities used to commit acts of fraud and the results of fraud; The way to commit fraud or the mode of operation is to reveal the process of a series of fraudulent acts, the elements of a violation of the law and where and when it occurred. Entering the digital era, fraudulent acts are increasingly varied, supported by digital technology, therefore it is necessary to adjust investigative audit techniques. The Digital Forensic Model (DFM) forms the basis of digital investigations by integrating investigators through the steps and procedures necessary to conduct an investigation [27].

## 5.3 The role of technology and information in audit

IT developments also affect the development of the audit process. According to Arens, there are three auditing approaches to EDP auditing, namely auditing around the computer (auditing around the computer),

auditing through the computer (auditing through the computer), and auditing with computer assistance (auditing with computer). Auditing around the computer is an audit of the operation of a computer information system without using the capabilities of the equipment itself, processing in the computer is considered correct, what is in the computer is considered a "black box" so that the audit is only carried out around the box. This approach focuses on inputs and outputs. If the output check states the correct result from a set of inputs on the processing system, then the transaction processing operation is considered correct. The role of information technology in human activities today is indeed very large. Murwanto (2010) explains that the accounting model in the information technology era is expected to be able to measure the level of change in resources, the rate of process change, intangible fixed assets, measure processes in real time and enable networks. Information technology has become the main facilitator for business activities, contributing greatly to fundamental changes to the structure, operations and management of organizations. Therefore, information technology becomes a very important thing in determining the competitiveness and ability of companies to improve business performance in the future. Information technology resources become a consideration for both managers and consultants, in determining the company's success in the future [28]. Information technology is proven to have an effect on fraud prevention. The implementation of information technology that assists company activities in producing accurate information has an impact on helping prevent fraud in the company's organization. The results of this study are in accordance with the statement put forward by Wilkinson and Cerullo (1997) which says that the implementation of information technology can meet the information needs of the business world very quickly, timely, relevantly and accurately so as to minimize errors, whether intentional or not [3].

## 6 Conclusion

There are so many frauds that occur in Indonesia today, fraud that occurs in Indonesia is carried out in several ways such as fraud in financial statements, and also corruption. In the process of preventing and detecting fraud, forensic accounting and investigative audits are steps that can be taken to overcome this. Forensic accounting is expertise in the field of accounting and auditing which is carried out with investigative abilities to detect fraud and is also carried out based on the rule of law. While the investigative audit itself is a form of examination used to find evidence and reveal the existence of a fraud by using appropriate procedures, techniques and regulations. The investigative audit is in direct contact with the forensic accountant to set the right targets and targets in order to uncover cases of fraud. The entry of the industrial revolution 4.0 is known as a technology disruption phenomenon because it emphasizes the concept of digital economy, artificial intelligence (AI), robotics, big data and so on. Facing this situation, the auditor is required to be able to adjust

the existing changes. Creative and innovative are the keys to be able to face the changes of today's era. The existence of this information technology has changed all activities that were originally carried out conventionally with the help of computers or software. Entering this digital era, of course, both of them must also adapt to a technology, now there is DFM, a digital forensic model that is able to assess and minimize a risk before it occurs. investigations using forensic software to generate forensic reports and also form the basis of digital investigations by integrating investigators through the steps and procedures necessary to carry out an investigation. protect digital evidence and information. Further analysis can also be done using imaging, processing, analysis and also through search and seizure methods. Currently, there is also general audit software that can be used for browsing, analyzing, summarizing audit results, dividing samples, calculating samples, and other audit activities related to accounting data. There are many techniques that can be used to detect fraud. One of them is the whistleblowing system which is one method that is quite effective in uncovering fraud. With the whistleblowing system, this can increase the effectiveness of internal audit in uncovering cases of fraud that occur. Internal audit must receive, review and follow up on complaints that come in through the whistleblowing system so as to reduce the possibility that cases will expand and involve more people [2].

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