

## Implementation of Information Technology, Opportunity, and Tendency of Fraud

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### ABSTRACT

The research investigates the impact of fraud in Indonesian public sector by using information technology phenomenon. The study investigates the impact of information technology on the tendency of fraud through mediation to construct an opportunity. Based on the logical thinking of information technology provides capabilities for companies that could potentially open up an opportunity for fraud perpetrators to commit fraud. Therefore, the first test of the research examines the effect of information technology to construct an opportunity. The second test, the research explores the information technology that influence the tendency of fraud without mediation to construct an opportunity. The research uses a group of 58 person who experienced in finance and procurement departments using the judgment sampling method. Partial Least Squares was used to analyze the data. The findings indicate that the existence of information technology within an agency to provide the benefits of information technology capability that was conceived as a media and, therefore, information technology capability will also be able to provide a loophole for fraud perpetrators to do fraud.

**Keyword:** Information, Technology, Opportunity, Tendency of Fraud

### 1. INTRODUCTION

The development of information technology is now flourish rapidly in the world. A form of the technology use is exploited by human technology to help human work in the accounting field. According to Ghasemi et al. (2011) that the implementation of information technology in the accounting world will be able to provide some benefits, which are; (1) provides a computerized accounting information system, (2) enhances accounting functions, (3) improves accuracy, (4) accelerates transaction processing, and (5) enhances

financial reporting quality. Unfortunately, the implementation of technology also gives another negative impacts that could bring a fraud wide variety potential by utilizing information technology that used by the company (Maharsi, 2000).

Information technology capability has two coin sides. On the one side, these capabilities provide benefits for the company, but it also provide the risk of fraud opportunity by utilizing the information technology capabilities. For fraud perpetrators who understand information technology and find the gaps,

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they will be able to do very simple fraud. In this case, the presence of information technology in the company can provide an opportunity for the perpetrators to do fraud. For example, a former Head of the Sub Division Information Technology of Bank Jatim was allegedly stolen Bank Jatim clients by broken into open database connectivity system of STIMIK Surabaya alumni. The amount of money that he stole is about 14,5 billion rupiah.

Harrison (2014), showed in his study that the capability of information technology can affect the fraud opportunity. Harrison (2014) tested each of the components of the information technological capabilities of the Media Synchronicity Theory (MST) which are, the feedback immediacy, parallelism, symbol variety, rehearsability, and reprocessability, as independent construction that tested against the effect of the construct opportunities which are Fraud components (Albrecht et al., 2010). Fraud Triangle is the development of theory of fraud, which consists of three components: pressure, opportunity, and rationalization.

Ajzen & Fishbein (1975), explains that an individual's behavior is influenced by their interest in behavioral against certain behaviors. Behavioral interest is the reason of the actual individual behavior. This thing is described by Ajzen & Fishbein (1975) in his Theory of Reasoned Action (TRA), which later produce behavioral theory of the Technology Acceptance Model by Davis et al. (1989) and the Theory of Planned Behavior by Ajzen (1991). Behavioral interest is defined as a motivational factor for someone who try hard to perform a behavior (Ajzen, 1991). Behavioral interest shows how individual want to perform certain behaviors so that people will try hard to be able to perform that behavior.

Fraud is an actual behavior which is committed by individual of fraud perpetrators for personal gain. TRA considers that fraud will not occur before the individual's desire to conduct fraud. It refers to the existence of Fraud Behavior

Intention which is the individual tendency to commit fraud. Fraud Behavior Intention can be called as Fraud Tendency, that Individuals who have a desire to commit fraud. Fraud tendency individual is the main reason of fraud behaviors that may do from individuals.

This research is based on the phenomenon of the use information technology to commit fraud in the company. Theory of Reasoned Action (TRA) as the main theory underlying this research will help to explain about the influence of the opportunity and fraud potential risk due to the use of technology in the company. Testing in previous study about the effect of information technology on fraud is still not finish yet. As previously described, the presence of information technology in the company provide benefits of information technology capability that was conceived as a media and, therefore, information technology capability will also be able to provide a loophole for fraud perpetrators to do fraud.

In contrast to Harrison's research (2014), this study looked at information technology as an independent construct that can be measured with component capabilities. All components of the information technology capabilities to be used as an indicator to measure the construct of information technology. Then, the constructs of information technology influence will be tested in two ways. First, this study explores the information technology impact on the fraud trend with through mediation construct an opportunity. This thing is based on the logic that information technology provides capabilities for companies that could potentially open up a window of opportunity for fraud perpetrators to commit fraud. Harrison (2014) and Maharsi (2000) also explained that information technology can potentially provide opportunities to commit fraud. Which is why, in the first test, this study examines the effect of information technology against opportunity construct. Second, this study explores the influence of information technology on the trend

of fraud directly without going through the mediation construct opportunity. It is based on the logic that is similar to the information technology capabilities constructs stars capability in fraud which differs only in that capability refers to the ability of self from fraud perpetrators while information technology capabilities refer to the capabilities of information technology.

Based on the background of study which described above, this research aims to predict and explain the opportunity, and information technology effect against tendency of fraud. In addition, research is also intended to explain and predict the indirect influence of information technology on the tendency of fraud through the opportunity factor.

## 2. LITERATURE REVIEW AND HYPOTHESIS

According to Alisyahbana (1980), humanity has known about technology for millions of years, ever since they desired to live in greater comfort and prosperity. Technology has existed since the dawn of civilisation, even if the term "technology" was not coined at the time. "Technology" comes from the Greek words "techne" (way) and "logos" (word) (knowledge). As a result, technology might be seen as "means." Understanding technology, according to Alisyahbana (1980), is a method of doing tasks using reason and instruments to meet human needs, with the purpose of enlarging, strengthening, or developing more powerful members of the human body, senses, and brain.

Technology in this study is a construct that describes the capabilities of technology as a medium to synchronize information in an organization. Based on Dennis et al. (2006), Technology Capability as a medium can be interpreted as a potential structure owned by the technology that affects the transmission and processing of information. The construct of Technology was formed as a reflective construct which is consisting of five indicators, they are: feedback immediacy, parallelism,

symbol variety, rehearsability, and reprocessability. This indicator is adapted from Media Sync Theory (Dennis and Valacich, 1999). Dennis and Valacich (1999) and Harrison (2014) explains that the Media Capability relates to the ability of the media to assist in the synchronization of information in the community who will use the information. These capabilities consist of:

- a. Feedback Immediacy: Media Capabilities to enable all users to provide feedback information / respond / comment to an information given by a member
- b. Parallelism: Media Capabilities to enable all users to engage in a process of communication and discussion. In this case, the discussion can occur in greater numbers than one that is said to be a medium that is able to provide parallelism is the medium that allows the user to have a lot of discussions with more than one other user in the same time allowing for parallel communication can be realized
- c. Sembol Set: Media capability to use multiple symbols to describe a combination of information and even a few Symbol
- d. Rehearsability: Media capability to allow users to change the content of a message before the message is sent to other users
- e. Reprocessability: Media Capabilities to enable users to inspect or observe / look back a message that has been sent in advance so that an understanding can be obtained back

### Opportunity

The opportunity for fraud is the most straightforward component of the fraud triangle. According to Jeffery and Mediaty (2014), an opportunity which the presence or availability of opportunities to commit fraud or situation that opened the opportunity for management or employees to commit fraud. Their opportunity of causing freely actors can carry out the action caused by weak internal controls,

indiscipline, low accessing information, there is no audit mechanism, and apathy.

Opportunities can be formed from the ineffective control or government system that allows an individual to commit fraud organization. The concept of understanding this occasion shows that people will take advantage of a situation that allows for them to commit fraud. Albrecht et al. (2010), there are six factors that can enhance the chance of fraud, which are, (1) the lack of controls in preventing or detecting cheating behavior, (2) inability to assess the quality of performance, (3) failure to enforce or prosecution of fraud, (4) lack of access to information, (5) neglect, apathy and do not have the capacity to prevent fraud, (6) the lack of audit trail information.

### **Tendency of Fraud**

Hall (2007) states that fraud is an intentional act that harms others against concealed material facts. In the circumstances of this intent can be said as a crime if there is wantonly misinformation and untrustworthy credibility will give misinterpretations by others. Meanwhile, according to Albrecht (2012) defines fraud as a crime, which fraud is generic that some embracing elements which contained with a careful design by individuals or groups to take benefit from a fake testimony. The lack definite rules in an organization and or no change in the regulations is a proportion of the public in defining fraud include deceit, cunning and unfair ways by those who become victims of fraud. Intention to commit fraud is the motivation or desire that indicate readiness of a person in doing fraud process. The greater the interest of someone doing fraud, the greater the chances of fraud. According to Fishbein & Ajzen (1975) interest in having four aspects, which are:

- a. Behavior, is specific action that will be realized. In the context of doing fraud in the public sector, specific action that will be realized in corruption forms, where it was due to non-compliance of the individual against the statutory

provisions either intentionally or unintentionally.

- b. Target, is object that becomes the target behavior. The object that become the target of a specific behavior can be classified into three, which are particular object, a class of objects, and the person or object in general (any object). In the context of doing fraud, objects that were targeted behaviors may include abuse of authority.
- c. The situation, which is conducive situation to doing a behavior (how and where that behavior will be realized). In the context of doing fraud, the behavior could arise if the offender saw an opportunity with the pressure that makes fraud perpetrators perform actions such as weakness in the rule or not there is a clear of Standart Operating Procedure (SOP) or when there is an examination of the CPC.
- d. Time, is the time of occurrence of behaviors that includes the particular time, in a period or unlimited periods.

### **Hypothesis Development**

#### **The influence of information technology on the tendency of Fraud**

The use of technology in an actual organization is expected to have a major role in preventing fraud. As explained by Kusnierz (2006) which states that the fraud could be prevented if a company applying advanced technology. This is in line with Kuhn's research (2013) which states that companies with information technology weaknesses have a worse financial performance than companies that do not have a weakness in information technology. Kuhn's research (2013) propose and test the idea of the company with information technology control weaknesses reports will show a worse financial. The company also predicted to have less income potential in the future of similar companies that do not have any reports of information technology control weaknesses.

However, different results found in Williams's research (2013) which makes

reference that related to inequalities law enforcement and the lack of regulations where use certain technologies that could create the appearance of fraud or failure to identify potential issues on cheating others that are beyond the reach of those laws and regulations. This research is in line with the opinion of Coderre (2000) which shows that the business operations with the use of computerized information, there are a lot of fraud committed by using a computer. The results above indicate that technologies such as double-edged knife in the company, which on one side of the technology can be used transform and prevent fraud, but on the other hand can also improve fraud, then the hypothesis developed in this study is:

H1: Information technology has influenced on the tendency of fraud

### **The Influence of Information Technology on Opportunity**

Noviari (2007), states that advances in information technology to provide convenience in data processing so it can prevent someone to do cheating, however the different statements expressed by Maharsi (2000) that, implementation of technologies also provide other negative effects that can potentially bring a wide variety of fraud by utilizing information technology used by the company. Then, Harrison's research (2014), which proved that the technological capabilities of information can affect the opportunity of fraud. Based on previous studies that has been described before, researchers predict information technology can affect the opportunity, so the hypothesis of the research is as follows:

H2: Information technology has influenced on the Opportunity

### **The Influence of Opportunity on The Tendency of Fraud**

Based on the advanced theory by Cressey, one of the underlying condition to commit fraud is opportunity. Opportunities can be created for their internal control weaknesses, ineffective management oversight, or abuse of position or authority.

Opportunity can happen anytime so requires oversight of the organizational structure starting from the top.

The research results of the Skousen et. al. (2008) suggested that the opportunities of having a relationship with fraudulent financial statements. Their opportunity plays an important role in doing fraud (Cohen et al., 2008). Opinions are reinforced by the opinions of Albrecht et al. (2010) which states that the fraudsters must feel have an opportunities to do fraud or they would not do fraud at all. Factors that are considered offenders as an opportunity to commit fraud, among others, the weak supervision by the directors board, internal controls are inadequate, or the ability to obscure fraud on complex transactions or structures related parties. Other factors that create an opportunity to commit fraud is the lack of prevention control or fraud behavior detection, inability to analyse performance quality, failure to penalise fraud perpetrators, lack of access to information, ignorance or apathy, incompetence, and lack of audit. Based on previous studies that exposure has been described previously, researchers predict it could affect the opportunities of fraud, so the hypothesis of the research is as follows:

H3: Opportunities has influenced on the tendency of Fraud

## **3. METHODS**

This study used explanatory research, which is defined as research that explains the presence or lack of a causal relationship between the variables under investigation using a test hypothesis (Singarimbun & Effendi, 1995). In this study, the population which used is an employee finance and procurement work in the regional work units in East Java.

This research was conducted based on a sample. The main problem related to the sample is related to sampling methods and number of sample. The sampling method that used in this research included in this type of sampling nonprobability. The sample method used is a nonprobability sampling method known as judgement

sampling. Researchers took samples only at government units in financial administration which is already using information technology as a whole. Further related to the number of samples used, researchers used a sample size determination based on the opinions Roescoe which is the number of samples for a correlational study was 30 or <500 (Sekaran and Bougie 2010).

The data that used in this study are primary data, so the data collection methods that used in this study is a survey method and distributed directly to the respondent. Questionnaire made by the researchers by adopting instruments in the research questionnaire Albrecht, et al (2010) and Harrison (2014). Below is the research model on figure 1. The hypothesis developed in this study was tested using Partial Least Squares with the assistance of PLS Smart software. Partial Least Squares (PLS) is a multivariate statistical approach used to compare multiple dependent variables and many independent variables (Hartono and Abdillah, 2009; 23). PLS is a statistical approach of SEM (Structural Equation Modeling) based variations that are meant to complete multiple regression when there is a specific problem in the data, such as a limited sample size, missing data, or multicollinearity.

#### 4. RESULTS AND DISCUSSION

The respondents used in this study were employees of the finance and procurement section of goods who worked in the East Java Regional Device Work Unit and had been selected according to the specified criteria. East Java government is actively developing and implementing advanced technology in their Regional Device Work Unit to make work easier. President Joko Widodo also gives instructions to any Regional Device Work Unit for using advanced information technology facilitation to maxime public services in a short time so it will become more efficient and effective. Here is a table of respondents' characteristics based on the specified criteria.

Based on the above characteristics of respondents with female gender as many as 30 and male as many as 28. Characteristics of education level for high school as many as eight respondents, for Diploma / Bachelor education level as many as 43 respondents, and for Master education level as many as seven respondents. Characteristics of respondents with work experience criteria of less than three years as many as 20 respondents and more than three years as many as 38 respondents.

Figure 1. **Research Model**

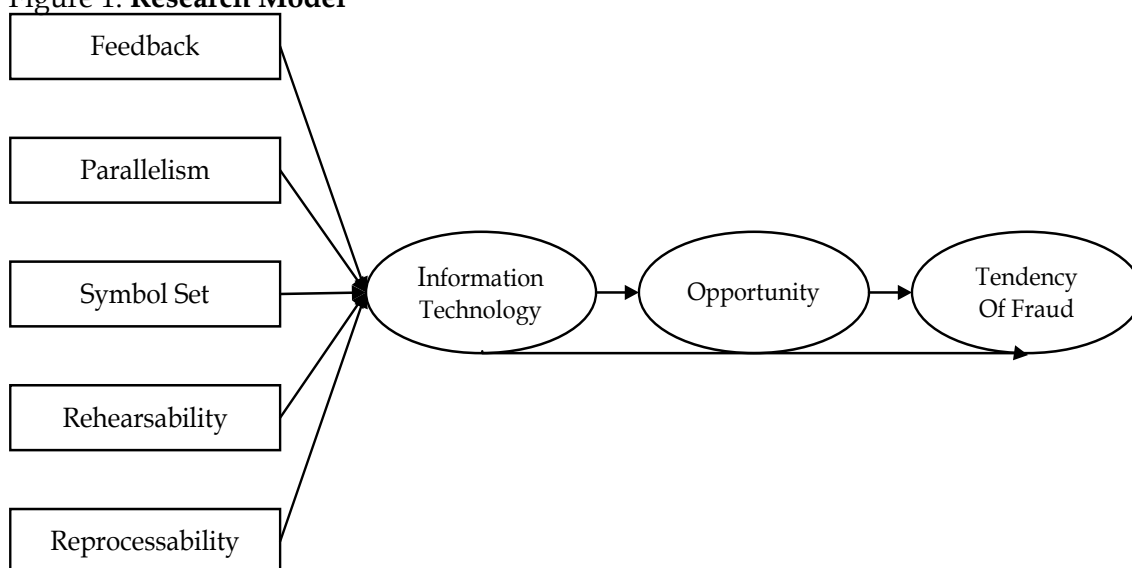


Table 1. Characteristics of Respondents

Criterion			Percentage
Gender	Female	= 30	51,7%
	Male	= 28	48,3%
		58 respondents	100%
Level of Education	High School	= 8	13,8%
	Diploma/Bachelor	= 43	74,1%
	Master	= 7	12,1%
		58 respondents	100%
Work Experience	< 3 years	= 20	34,5%
	>3 years	= 38	65,5%
		58 respondents	100%

Source: Primary Data

Figure 2. Questionnaires Distribution

Number of questionnaires distributed	125
Number of questionnaires have not been returned	60
Questionnaires that were returned	65
Questionnaires that were aborted	7
The questionnaire used	58
Rate of Return (response rate)	52 %
Returns are used (usable response rate)	47 %

Source: Primary Data

Respondents that were used in this study are employees of the finance and procurement who work in regional units in East Java, and have been in accordance with the specified criteria. This study uses a mail survey method is by distributing questionnaires to all employees working in 68 sectors in East Java. The collection of data by researchers took about one month. In addition, the researchers also determined the deadline a questionnaire, which is one month after the questionnaires were distributed, and acquired 58 employees from 42 sectors in East Java. Here is a questionnaires distribution table frequency.

Based on the data above it is known that the rate of return the questionnaire was 52%, it because some government units was busy to handle the end of the year financial. After inspection it turns out there are 7 pieces of questionnaires that can not be used because there is some datas that have not been completed or are biased. Bias is because there are questionnaires that was not filled seriously

by the respondent, which can be seen from the negative questions items that were answered the same as the actual question items (positive), so that questionnaires can be processed are as many as 58 pieces as samples in this study. A total of 58 pieces of the questionnaire consists of 42 government units sectors in East Java.

### Measurement Model

According to Hartono and Abdillah (2009: 58), If a research of concepts and models has not gone through purification phases in the measurement model, it cannot be appraised in a predictive relational and causal relationship model. The steps that the researcher discusses are the test validity that were performed to verify the ability of research equipment to measure what should be studied, and reliability tests to determine the measuring instrument's consistency in measuring a notion

From the tests result it can be seen, practically, there are five questions instrument of variables occasion, six instruments questions of variable technology, as well

as three instruments of questions from the variable tendency of cheating that meet the test requirements of convergent validity. Otherwise the result meet the requirements for convergent validity test, communality, and the average variance extracted is greater than 0.5 ( $> 0.5$ ). The reliability of the test can be stated that the measuring devices of this research model considered inconsistent because the value of Cronbach's alpha and composite reliability of the five research variables greater than 0.7 ( $> 0.7$ ).

### Hypothesis Testing

Hypothesis testing in this study using Partial Least Square (PLS) technique which in this case alleged that the independent variables (opportunity, information technology) effect on the dependent variable tendency of fraud. Results of the tests performed can be seen in the Table 2.

According to the Table 3 (the total effect) can be seen that the hypothesis which is supported are:

### Hypothesis 1

The first hypothesis asserts that information technology has had an impact on the likelihood of fraud. It may be seen in table 4 that information technology (X1) has p-value 0,042, and t statistics -2,436. It is lower than significant value 0,05, and upper than t-table 1,96. So that, information technology has negative influence on the tendency of fraud. In this research, we

found that Information technology can improve a person to commit fraud. It can happen, if the information technology used is still not established, so it provide a loophole for someone to commit fraud.

### Hypothesis 2

Hypothesis 2 states that the implementation of technology has an effect on the opportunity. Based on table 4, it is known that the value p-value  $< 0.05$  so that hypothesis 2 is accepted. These results suggest that the implementation of technology can increase the opportunity factor in fraud. This supports the results of Maharsi's research (2000), which states that the implementation of technology also has another negative impact that can potentially cause various kinds of fraud by utilizing information technology used by companies. In addition, this research is also in line with Harrison's research (2014) which proves that information technology capabilities can affect the chance of fraud. One could cheat after "studying" the results of the implementation of the technology in the previous year.

### Hypothesis 3

Hypothesis 3 show that opportunities has influenced on the tendency of fraud. It is clear to observe that in table 4, opportunity (X2) has p-value 0,028 ( $< 0,05$ ), and t statistics 2,885 ( $> 1,96$ ). Based on the result, so that opportunities has positive influence on the tendency of fraud. This

Table 2. **Overview Algoritma**

Variable	AVE	Composite Reliability	Cronbachs Alpha
Opportunity	0,714	0,882	0,802
Technology	0,520	0,846	0,859
Tendency of Fraud	0,939	0,979	0,968

Source: Primary Data

Table 3. **Total Effect**

	Original Sample (O)	T Statistics	P-Value	Result
X1 -> X2 (Y1)	-0.350	-1.517	0.130	Rejected
X1 -> Y2	-0.149	-2.436	0.042	Accepted
X2 (Y2) -> Y2	0.168	2.885	0.028	Accepted

Source: Primary Data

Notes : X1 : Information technology, X2 (Y1) : opportunity, Y2 : tendency of fraud



means that opportunities can increase the potential for someone to commit fraud. In this study, the opportunity may occur because respondents are not familiar with the job description, maybe job descriptions that exist only as a formality. This result in line with the finding that information technology has influence on tendency of fraud. This shows that if good technology is not matched by a good implementation, it may been have create a loophole for someone to commit fraud

## 5. CONCLUSION

The results of this study indicate that technology factors also affect the cheating tendency, the more sophisticated the technology, it more can suppress fraud. Technology can provide benefits to the institutions, especially government. The implications of this study indicate that information technology which is designed in a government agency can indeed be used as a controller in preventing fraud. However, another factors that associated with the pressure in oneself, the pressure coming from the surrounding environment, and the ability to self (title, confidence) remains one strong predictor that can affect a person does not get out of this fraud. This research is still have limitation. Further research should be aimed at using samples with different characteristics so that it can produce different results.

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