



## AN INVESTIGATION OF BUSINESS INTELLIGENCE TOOLS AND THEIR EFFECTIVENESS IN FRAUD RISK MANAGEMENT

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## ABSTRACT

Despite the efforts and awareness raised by various government agencies, the number of fraud cases among telecommunications users continue to rise in Malaysia. Due to this, initiatives need to be taken to manage fraud risk and one of the popular means for doing so is by using business intelligence tools to be included here). Hence, it is deemed necessary to investigate whether business intelligence tools (BIT) are effective in managing fraud risk, that is, from the perceptions of telecommunications users. In the present study, about 500 respondents were used as the sample; however, only about 55 respondents participated in the study. The findings of reliability analysis show that all of the items for the independent and dependent variables were reliable and used for further analysis in the study. The findings show that most of the telecommunications users perceived that there was a relationship between business intelligence tools and effective fraud risk management (EFRM). In other words, business intelligence tools play an important and effective role in fraud risk management. This has implications to the management of organizations to adopt business intelligence tools to manage fraud risks that occur in their organizations.

**Keywords:** *Business; Intelligence; Tools; Fraud; Risk; Management*

## RESEARCH HIGHLIGHTS

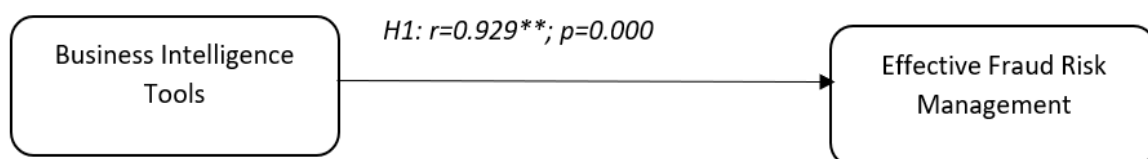
Reliability analysis was run with all the items for the two variables to check for item reliability. The reliability of items for each variable is high with Cronbach Alpha values of more than 0.900, whereby for the eleven (11) items on Business Intelligence Tools (BIT),  $\alpha=0.956$ , while for the five (5) items on Fraud Risk Management (FRM),  $\alpha=0.930$ . This implies that all the items on Business Intelligence Tools and Fraud Risk Management are reliable to be used in the questionnaire for the present study.

Hypothesis 1 is as follows:

H1: There is a significant and direct relationship between BI Tools and Effective Fraud Risk Management.

The findings show that there is a significant and direct relationship between Business Intelligence Tools and Effective Fraud Risk Management, indicating that H1 is supported ( $r=0.929^{**}$ ;  $p=0.000$ ). Hence, Business Intelligence Tools have an influence on the Effectiveness of Fraud Risk Management of telecommunication companies as perceived by users.

## GRAPHICAL ABSTRACT



**Fig. 1.** Relationship between Business Intelligence Tools and Effective Fraud Risk Management

## Research Objectives

The objective of this research is to explore the association between business intelligence tools and effective fraud risk management of telecommunication companies from the users' perspective.

The term Business Intelligence Tools is defined as an integration of data gathering, database of information, and knowledge management via systematic and analytical tools in giving information for decision makers, and stakeholders of an organization (Božič, & Dimovski, 2019; Fatimazahra & Rani, 2020).

Fraud can be defined as any action by which one person aims to gain undue advantage over another (ACFE, 2010).

The significance of the study is that the findings will suggest whether business intelligence tools can be used effectively in fraud risk management of telecommunication companies in Malaysia.

## Methodology

The instrument is a set of questionnaires, which consists of two (2) parts: Part A on respondents' profile, and Part B, on the variables. The eleven (11) items on BIT and five (5) items on EFRM were measured using a 5-point Likert scale ranging from 5-Strongly Agree to 1(Strongly Disagree). To gain feedback on BIT and EFRM from the respondents, a survey link was sent out to five hundred (500) respondents using email and WhatsApp. After about thirty (30) days, only fifty-five (55) respondents responded to the survey (11%).

As for the sample of the study, most of the respondents were females (71%) followed by 29% males. In terms of ethnicity, about 62% are Malays and *Bumiputras*, followed by 29% of 'others', Indians (7%), and Chinese (2%). About 45.4% of the respondents were in their twenties, 32.7% in their thirties, 14.5% of them in their forties, and 7.4% of them in their fifties and above. Most of the respondents had a bachelor's degree (36.4%), followed by PhD (20%), master's degree (29.1%), high school education (9.1%), and Diploma (5.5%).

In terms of job positions held, about 24% of the respondents were executives, followed by clerks (20%), Senior Managers (8%), and CEO/Directors (6%). The remaining 42% fall under the category of 'Others. In terms of working experience, about 44% of the respondents had less than 5 years of working experience, and 56% had more than 5 years of work experience. The income earned per year shows that most of them earned less than RM50,000 per year (67%), followed by RM50,000 to RM150,000 per year (24%), and more than RM150,000 (9%) per year.

In short, the respondents' profiles were well distributed across age, gender, level of education, job/position held, working experience, and income earned per year.

## Results

Reliability analysis was run with all the items in the questionnaire on the two variables under investigation, BIT, and EFRM. The findings show that all 11 items for Business

Intelligence Tools have high reliability with Cronbach Alpha values of more than 0.900 ( $\alpha=0.956$ ). Moreover, the five (5) items under Effective Fraud Risk Management also have high reliability ( $\alpha=0.930$ ) as shown in Table 1 below.

**Table 1. Reliability Analysis Findings for BIT and EFRM**

Variable	No. of Items	Items Deleted	Total Items	Cronbach's Alpha
BIT – Business Intelligence Tools	11	0	11	0.956
EFRM – Effective Fraud Risk Management	5	0	5	0.930

## Findings

The findings are discussed below for the hypothesis, H1: There is a significant and direct relationship between BI Tools and Effective Fraud Risk Management. The findings show that H1 is Supported ( $r=0.929^{**}$ ;  $p=0.000$ ).

Hence, most of the respondents agreed that the dependent variable, Business Intelligence Tools are essential for Effective Fraud Risk Management, the independent variable and vice versa. Most business intelligence tools have been used to manage fraud risk management and have benefited from business intelligence tools (Wei et al., 2006; Wu et al., 2014; Darwiesh et al., 2022). The limitation of this study is the small sample used in the study; hence generalization could not be made for the whole Malaysian population. Thus, the study is an exploratory study.

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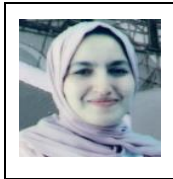
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