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Analysis Impact Knowledge Of Blockchain Towards Fraud Detection Skill Throught Readiness Technology As Intervening Variable

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Abstract: This study aims to analyze the impact of knowledge of Blockchain on the ability to detect fraud, with technology readiness serving as an intervening variable. The research employs a quantitative approach, gathering data from auditor. The findings indicate a positive relationship between knowledge of Blockchain and fraud detection capabilities. Moreover, the readiness of technology significantly mediates this relationship, suggesting that higher levels of technology readiness enhance the positive effects of Blockchain on fraud detection. These results highlight the importance of both technical knowledge and readiness to adopt new technologies in improving fraud detection processes.

Keyword: tecknology, knowledge of blockchain, fraud detection skills, readiness technology

INTRODUCTION

Indonesia is preparing for the Golden Indonesia 2045. However, achieving this goal will be challenging if the prevalent fraud in the country is not promptly addressed. In 2020, the Association of Certified Fraud Examiners (ACFE) released the 2019 Indonesian Fraud Survey (SFI Chapter 111). The survey results indicated that corruption was the most significant type of fraud, with 167 cases (70%), followed by asset misappropriation with 50 cases (22%), and financial statement fraud with 22 cases (8%). The survey also revealed the distribution of fraud perpetrators: employees (31.8%), managers (23.4%), owners (29.4%), and others (15.1%). The primary mediums for fraud disclosure included reports (38.9%), internal audits (23.4%), external audits (9.6%), and other media (15.1%). These figures demonstrate that fraud in Indonesia requires special attention to achieve the vision of Golden Indonesia 2045. (ACFE Indonesia Chapter, 2020)

According to Purbaya Yudhi Sadewa, the Chairman of the Board of Commissioners of the Indonesian Deposit Insurance Corporation (LPS), four banks in Indonesia closed in 2023. He stated that this was not due to a downturn in the national economy but rather poor corporate governance, which led to frequent fraud, causing the companies' financial health to deteriorate and resulting in the banks becoming victims. The following People's Credit Banks (BPR)

closed throughout 2023; 1. BPR Persada Guna. 2. BPR Indotama UKM Sulawesi, 3. BPR KRI, 4. BPR BMI (cnbcindonesia.com, 2023)

Blockchain technology has garnered significant attention from both the business and academic worlds, and it is expected to revolutionize many industries that rely on intermediary transactions. In accounting and auditing, blockchain is anticipated to enhance audit quality through improved transparency, integrity, and information sharing between nodes. This can aid auditors in better managing client interactions and risks. Moreover, auditors can utilize clients' blockchain data to obtain audit evidence, detect fraud, and apply professional judgment.(Juma'h & Li, 2023). Advancements in information technology have transformed various aspects of life, including how companies detect and prevent fraud. Technology has become a cornerstone in developing more effective fraud detection systems. Blockchain, with its decentralized and transparent nature, enables secure and immutable data storage and management, thus aiding in accurately tracking transactions and preventing data manipulation (Benedetti et al., 2020).

The fraud triangle is the first theory developed by Cressey in 1953, which explains that the motivation for individuals or groups to commit fraud is based on three aspects: pressure, opportunity, and rationalization (Wijayanti, Senjani, and Farah 2024). Later, the theory evolved into the fraud pentagon by adding the factors of capability and arrogance. (Marks 2012), It was further refined by adding the collusion factor, making the fraud theory encompass 6 elements, known as the fraud hexagon theory. (Vousinas 2019)

The ability to detect fraud is crucial in identifying and preventing fraudulent activities, especially in the contexts of financial accounting and forensic investigations. This skill set includes various competencies such as analytical thinking, investigative techniques, and the use of technology to analyze data for anomalies. Forensic accountants often play a pivotal role in frontline fraud detection. (Alshurafat, Al Shbail, and Mansour 2021). Forensic accountants or auditors must possess a deep understanding of financial systems, proficiency in IT forensic skills, and effective communication abilities to gather and present evidence effectively. These capabilities play a crucial role in litigation support, dispute resolution, and providing expert testimony in legal proceedings (Oyerogba 2021)

Additionally, integrating forensic audit skills, such as economic damage calculations and financial statement assessments, significantly enhances the ability to detect fraud within organizations. (Alshurafat, Al Shbail, and Mansour 2021). Continuous education and training in these fields are crucial to keep pace with evolving fraud schemes and increasing complexity in financial transactions. (Oyerogba 2021)

Framework and Hypothesis Development

Blockchain knowledge has become a critical focus in enhancing fraud detection capabilities. Blockchain offers security and transparency in data storage and exchange, aiding in detecting suspicious patterns. Research indicates that blockchain technology can improve effectiveness in detecting and preventing fraud, particularly in financial industries and supply chains. (Benedetti et al. 2020; Gohil and Thakker 2021). Implementing blockchain can reduce the risk of data manipulation through its distributed and tamper-resistant ledger. In this context, technology readiness plays a role as an intervening variable that determines how effectively this technology can be implemented within organizations to enhance fraud detection skills. (R. and Ravi 2021)

In the context of fraud detection, readiness technology, encompassing both individual and organizational readiness to adopt new technologies, plays a crucial role. Technologies like blockchain offer more efficient and effective solutions for detecting and preventing fraud. A study by Halbouni et al. (2016) highlights that information technology is equally important as traditional techniques in fraud prevention and detection. Moreover, the combination of good

corporate governance and technology adoption can significantly enhance fraud detection capabilities. (Halbouni, Obeid, and Garbou 2016) Additionally, the use of large-scale technologies like Big Data Analytics in auditor brainstorming processes can expand the scope of information, strengthen the outcomes of analytical procedures, and facilitate communication among auditors. Ultimately, this enhances the effectiveness of fraud detection. (Tang and Karim 2019).

H1 : Does knowledge of blockchain have a positive influence readiness technology?

Several studies have shown that adopting blockchain has a significant impact on various aspects of technology readiness within supply chains. Blockchain, as a disruptive technology, can enhance supply chain performance by improving transparency, data security, and operational efficiency. Research conducted by Khalil and Ahmed (2024) identifies that supportive conditions and technological readiness are key factors influencing blockchain adoption, which in turn enhances supply chain performance. (Khalil and Ahmed 2024). Additionally, research by Behl et al. (2024) emphasizes that the adoption of blockchain by retail workers can enhance supply chain performance by increasing motivation and confidence in this technology. (Behl et al. 2024).

H2 : Does knowledge of blockchain positively influence fraud detection skills?

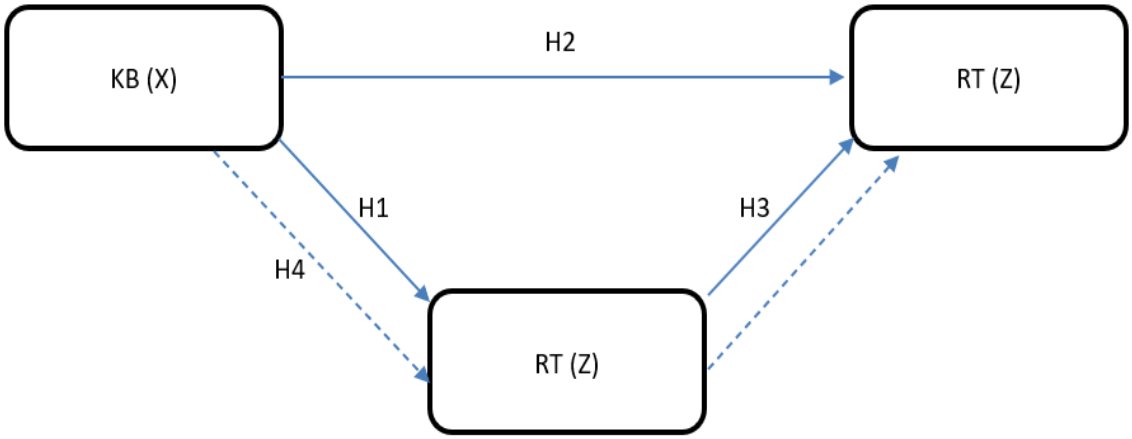
Research indicates that adopting blockchain has significant potential to enhance fraud detection capabilities. Blockchain provides immutable and transparent transaction records, which can aid in monitoring and detecting fraudulent activities more effectively. Research by Benedetti et al. (2020) shows that blockchain can improve transparency and accountability, thereby enhancing professional skills in detecting fraud at the organizational level. (Benedetti et al. 2020)

H3 : Does readiness technology positively influence fraud detection skills?

Research indicates that high technology readiness enables auditors and accounting professionals to leverage advanced tools and techniques in fraud detection. A study by Al Natour et al. (2023) emphasizes the importance of forensic accounting skills and Computer-Assisted Audit Techniques (CAATs) in enhancing auditors' efficacy in fraud detection. (Al Natour et al. 2023). Additionally, research by Halbouni et al. (2016) demonstrates that information technology plays a crucial role in fraud prevention and detection by enabling the identification of unusual activities using effective software. These findings are supported by evidence showing that the adoption of advanced technologies in audit practices helps auditors gather adequate and timely audit evidence. (Halbouni, Obeid, and Garbou 2016).

H4 : Does knowledge of blockchain positively influence fraud detection skills through readiness technology as an intervening variable?

Research indicates that knowledge of blockchain and technology readiness significantly impacts fraud detection skills. Blockchain, with its transparency and security features, can enhance effectiveness in detecting and preventing fraud. (Benedetti et al. 2020). When individuals or organizations are technologically ready, they are more likely to successfully integrate blockchain into their systems, thereby strengthening their ability to detect and prevent fraud. (philsoophian, Akhavan, and Namvar 2022). Therefore, blockchain knowledge supported by high technology readiness will be more effective in enhancing fraud detection skills.



Conceptual Framework

Although research on the use of blockchain technology in fraud detection has shown positive results, several research gaps still need to be explored further to strengthen the understanding and implementation of this technology in a broader context, such as readiness technology (Roszkowska, 2021) Additionally, the readiness of human resources to adopt new technologies like blockchain is an area that has received insufficient attention (Mer et al., 2024). Therefore, this study complements previous research by addressing gaps through the lens of technology readiness, examining the supporting factors for blockchain technology adoption from organizational aspects to human resource development.

METHOD

This research employs a quantitative approach to test the influence of blockchain knowledge on fraud detection skills, with readiness technology as an intervening variable. This approach was chosen because it allows for precise measurement and analysis of relationships between the variables using appropriate statistical tools, given the research sample selected through purposive sampling. The criteria for the sample include internal and external auditors with experience in using technology as a tool for fraud detection. Data were collected by distributing a questionnaire link via email to 97 respondents. Upon data collection, validity and reliability tests were conducted, followed by processing using descriptive statistical methods, including R-Square analysis, path coefficient testing, specific indirect effects testing, and F-Square table analysis.

RESULTS AND DISCUSSION

Respondent profile

From the total number of questionnaires distributed to internal and external auditors, 97 respondents completed the questionnaires. Respondents profiles include information on gender, highest level of education, and work experience.

Table 1. Respondent Profile

Profile	Count	Percentage
A. Gender		
Male	56	58%
Female	41	42%
B. Last Education		
D-3	4	4%
S-1	71	73%
S-2	19	20%
S-3	3	3%
Professional Education	0	0%
Others	0	0%
C. Work Experience		
< 1 Year	8	8%
1-5 Years	67	69%
6-10 Years	21	22%
≥ 10 Years	1	1%

Source: Primary Data, Processed in 2024

Descriptive Test Results

Table 2. Descriptive Test Results

Variable	N	Indicator	Median	Min	Max	Mean	Standard Deviation
Knowledge of Blockchain	97	7	5	3	6	5.021	0.953
Readiness Technology	97	10	5	3	6	4.937	0.929
Fraud Detection Skills	97	7	5	3	6	4.982	0.926

Source : Primery Data, Processed in 2024

Based on Table 2, it is observed that the variable "knowledge of blockchain" has an average value of 5.021 and a standard deviation of 0.953, indicating that on average, the 97 respondents tended towards agreement. The variable "readiness technology" has an average value of 4.937 with a standard deviation of 0.929, showing that on average, the 97 respondents leaned towards agreement. The variable "fraud detection skills" has an average value of 4.982 with a standard deviation of 0.926, indicating that on average, the 97 respondents leaned towards agreement. The "time pressure budget" variable has an average of 3.668 with a standard deviation of 0.930, showing that on average, 62 respondents leaned towards agreement.

Results of Validity and Reliability Tests

Table 3. Results of Validity and Reliability Tests.

Variabel	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Fraud Detection Skills	0.916	0.916	0.933	0.664
Knowledge of Blockchain	0.894	0.895	0.917	0.613
Readiness Technology	0.932	0.933	0.942	0.621

Source: Primery Data, Processed in 2024

The results of validity and reliability tests presented in Table 3, it is indicated that all constructs demonstrate good reliability and convergent validity. All variables show AVE values > 0.50 and Cronbach's alpha values > 0.7, making this instrument reliable and valid for measuring knowledge of blockchain, readiness technology, and fraud detection skills.

Result of R-Square Test

Table 4. Result of R-Square Test

Variabel	R Square	R Square Adjusted
Fraud Detection Skills	0.815	0.811

Source : Primery Data, Processed in 2024

Based on Table 4, the R-Square test results indicate that fraud detection skills demonstrate that the independent variables used in this study have a strong ability to explain the variability in fraud detection skills, accounting for 81.1%, with the remainder influenced by other variables. With high values of R-Square and Adjusted R-Square, we can conclude that both variables have a good fit and provide reliable predictions.

Result of Path Coefficients Test

Table 5. Result of Path Coefficients Test

Variabel	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Knowledge of Blockchain -> Fraud Detection Skills	0.17	0.185	0.092	1.849	0.068
Knowledge of Blockchain -> Readiness Technology	0.837	0.84	0.032	26.316	0.000
Readiness Technology -> Fraud Detection Skills	0.755	0.746	0.086	8.833	0.000

Source: Primery Data, Processed in 2024

Based on Table 5, the Path Coefficients test results show that the direct influence of knowledge of blockchain on fraud detection skills has a positive direction with an original sample figure of 0.17, but it is not significant with a P-Value > 0.005, indicating that these two variables are not directly related. Knowledge of blockchain shows a positive and significant relationship with a figure of 0.837 and a P-Value < 0.005 towards readiness technology. Readiness technology demonstrates a positive and significant relationship with a figure of 0.755 and a P-Value < 0.005 towards fraud detection skills.

Overall, knowledge of blockchain plays a crucial role in enhancing readiness technology, which in turn improves fraud detection skills. The direct relationship between knowledge of blockchain and fraud detection skills is not very strong, but with readiness technology as a mediator, this connection is strengthened.

Result of Spesific Indirect Test

Table 6. Result of Spesific Indirect Test

Variabel	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P Values
KB -> RT -> FDS	0.632	0.626	0.070	9.077	0.000

Source : Primery Data, Processed in 2024

Based on Table 6, the Specific Indirect Effects test results show an original sample figure of 0.632 with a P-Value of 0.000. This indicates that knowledge of blockchain has a strong indirect influence on fraud detection skills through readiness technology.

Figure 1. ***Inner Model***

Table 7. Result of F Square Test

Variabel	Fraud Detection Skills	Knowledge of Blockchain	Readiness Technology
Knowledge of Blockchain	0.047		2.347
Readiness Technology	0.922		

Source : Primery Data, Processed in 2024

Based on Table 7, the F-Square test results indicate that: 1. Knowledge of blockchain has a very small effect on fraud detection skills with a figure of 0.047. 2. Knowledge of blockchain has a very large effect on readiness technology with a figure of 2.347. 3. Readiness technology has a large effect on fraud detection skills with a figure of 0.922.

CONCLUSION

Knowledge of blockchain has a very strong influence in a positive direction towards readiness technology, indicating that an increase in knowledge of blockchain directly enhances readiness technology, and in reverse. Readiness technology has a significant positive influence on fraud detection skills, showing that readiness technology is crucial for enhancing fraud detection skills, and in reverse. Knowledge of blockchain indirectly affects fraud detection skills through readiness technology. This indirect influence is highly significant and strong, emphasizing the importance of technological readiness as a mediator in this relationship. This study supports the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), where the acceptance and use of technology are influenced by perceived ease of use and perceived benefits. The study demonstrates that knowledge of blockchain enhances technological readiness, which in turn enhances fraud

detection skills. This underscores how understanding and acceptance of new technology can improve technological readiness, ultimately translating into specific skill enhancements.

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