Vol. 3 No. 1 (2024)
E-ISSN 2963-0606
P-ISSN 2964-9749

Jurnal Pijar
Studi Manajemen dan Bisnis
https://e-journal.naureendigition.com/index.php/pmb
Vol. 3 No. 1, 2024, Hal. 169 - 175
ISSN 2963-0606 (Online)
ISSN 2964-9749 (Print)

ADOPTING BLOCKCHAIN FOR THE FUTURE IN THE TRANSFORMATION OF ACCOUNTING IN THE MODERN ERA

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Abstract This study aims to analyze and compare user perceptions of blockchain technology implementation using samples from two different research journals. The research sample consisted of 400 respondents, with each journal presenting 200 respondents from previous research on blockchain implementation in the accounting sector. The study used a quantitative method with descriptive statistical analysis techniques and mean difference tests to evaluate differences in perception and acceptance levels of blockchain technology from two different research journals. The results of the study indicate that perceptions of the use of blockchain technology in the accounting sector have been fairly evenly applied by accountants in companies in Indonesia. However, companies that adopt blockchain are more focused on companies in large cities. This study concludes that user perceptions of blockchain technology vary based on the adoption landscape of variations across companies in Indonesia and that further study is needed to understand other factors that influence the acceptance of this technology across industries.

Keywords: *Accounting, Blockchain, Implementation, System*

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Vol. 3 No. 1 (2024)
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P-ISSN 2964-9749

Introduction

In the rapidly developing digital era, processes traditionally carried out by accountants, such as recording financial transactions, preparing financial reports, budget analysis, internal audits, financial supervision, and providing tax obligations, can now be carried out using advanced technology. One technology that has great potential to support these activities is blockchain technology, which offers higher transparency, accuracy, and data security in financial management and reporting.

Based on an article published by HMIF ITERA (HMIF ITERA, 2023), Blockchain is a technology used to store transaction data digitally using cryptography. Blockchain consists of blocks connected, forming a chain of transactions that cannot be changed or faked. Each block in a blockchain contains transaction data and a cryptographic hash used to validate and secure that data. According to Spearpoint (Spearpoint, 2017), blockchain is a distributed accounting system that a particular organization does not own, is difficult for corruption and transactions are anonymous. In simple terms, blockchain is a digital transaction data storage technology consisting of blocks that are connected to each other, forming a chain of transactions that cannot be changed or falsified. Blockchain functions as a distributed accounting system that is not owned by a single entity, is difficult to abuse, and allows anonymous transactions.

Digitizing accounting needs to be carried out in the 5.0 era to avoid various errors and falsifications that are usually made by accountants. As in the case of Luckin Coffee (Jakarta Newspaper, 2021) which occurred between April 2019 and January 2020 regarding the threat of bankruptcy following a case of fraudulent sales. Luckin is suspected of falsifying retail transactions totaling more than $300 million, according to the U.S. Securities and Exchange Regulator (SEC). Employees at the company tried to hide the sales by adding $190 million to their expenses, creating fake operating databases, and falsifying accounting records. This also includes activities to deceive investors, so that to avoid being declared bankrupt, Luckin Coffee was subject to a fine of up to 180 million US dollars. China's financial regulator also fined Luckin and 44 other companies a total of around nine million US dollars for falsifying financial records and misleading the public. This case caught the public's attention, especially investors, at that time.

While blockchain technology has spread into the world of Indonesian accounting, it remains very spotty. Although several large companies and technology startups have begun implementing blockchain technology in several cities, many companies in more traditional sectors still need help with conventional practices. This is caused by a need for more understanding of the technology, relatively high implementation costs, and limited digital infrastructure. Similar cases to Luckin Coffee never happen only within foreign companies but also can happen within Indonesia, for example, several cases of non-transparent financial reporting and manipulation of data harming the investor community.

Therefore, accountants in Indonesia must carry out various digital accounting activities in an efficient, effective, and secure manner. Blockchain technology has been identified as a potential solution to address these challenges. In this regard, research was conducted to assess the effectiveness of blockchain technology in supporting accounting practices. To that end, this study will determine how many accountants in Indonesia have implemented blockchain and provide recommendations for enhancing its adoption.

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Method

Research Design

This research uses quantitative methods with a descriptive and comparative approach. A quantitative approach was chosen because it is suitable for measuring user perceptions and levels of acceptance of blockchain technology in the accounting sector based on structured numerical data (Sugiyono, 2017). The descriptive design was used to provide the overall description of the perception of blockchain implementation among respondents, while the comparative design was used to compare two previous research journals. Using a mean difference test to evaluate the level of blockchain acceptance in different companies is what this research aims to achieve in analyzing perception differences.

Data Collection

Data collection in this study was conducted using the documentation method of survey results from two previous research journals. Each journal presents data from 200 respondents who have participated in a survey on the application of blockchain technology in the accounting sector. The documentation method was chosen to ensure that the data used is valid and reliable (Arikunto, 2016). Respondents in the research come from various companies in Indonesia, focusing on companies that already use or will use blockchain technology. The data obtained is in the form of perceptions about the transparency, security, and efficiency created by blockchain technology.

Data Analysis Techniques

Data analysis was conducted using descriptive statistical techniques and mean difference tests. Descriptive statistics are used to describe data characteristics, such as the distribution of respondents based on company region, perceptions of blockchain technology, and the level of acceptance of this technology (Ghozali, 2018). Meanwhile, the mean difference test is used to compare the results of two research journals so that it can be analyzed whether there are significant differences in respondents' perceptions of blockchain implementation in the accounting sector.

This analysis was performed using SPSS statistical software, as recommended by earlier studies that applied similar methods in analyzing quantitative data (Hair et al., 2010). The steps taken include the normality tests of the data and the mean difference tests. This analysis will give an overview of how the perceptions of blockchain vary between companies in Indonesia.

Result and Discussion

In this study, Y1 refers to data from the first study conducted by Nugrahanti et al. (2023), which focuses on the implementation of blockchain in large companies located in big cities, while Y2 refers to data from the second study by Judijanto et al. (2024), which focuses on the implementation of blockchain in the banking sector spread across various regions in Indonesia.

Normality Test

Table 1. Tests of Normality

Variable	Kolmogorov-Smirnov	Shapiro-Wilk

Y1	0.000	0.000
Y2	0.000	0.000

Source: Data processing results lliefors significance correction SPSS, 2024

Based on the results of the normality test using Kolmogorov-Smirnov and Shapiro-Wilk, the data for both variables (Y1 and Y2) were not normally distributed with a significance value of 0.000 in both tests. This indicates that the data does not meet the assumption of normality, so the analysis of the average difference was carried out using a non-parametric test, namely the Wilcoxon Signed Ranks Test (Ghozali, 2018).

Description Test

Table 2. Descriptives

Variable	95% Confidence Interval	Statistic
Y1	Lower Bound	33.7326
	Upper Bound	36.9674
Y2	Lower Bound	29.8298
	Upper Bound	33.1702

Source: Data processing results SPSS, 2024

The descriptive analysis results revealed that the average respondent's perception of blockchain implementation in Study 1 was 35.35 with a standard deviation of 11.60, whereas in Study 2, the average respondent's perception was 31.50 with a standard deviation of 11.98. The 95% confidence interval shows the range for the average value of Y1 is higher than that of Y2, falling within 33.73-36.97 and 29.83-33.17, respectively. This indicates that the perception of blockchain is more positive among respondents who are in large companies in big cities, as the focus of the first study by Nugrahanti et al. (2023).

Wilcoxon Test

Table 3. Test Statistics

Value	Y2 – Y1
Z	-8.775b
Sig 2 tail-asymptotic	0.000

Source: Data processing results wilcoxon signed ranks test SPSS, 2024

The outputs from the use of a Wilcoxon signed ranks test results in a Z value - 8.775, with a sig 2 tail-asymptotic significance result 0.000. Through this, it is understood that the difference between the two studies in the perception is significant. Out of all those 200 respondents, for 77 respondents, y2 corresponds to a lower perception regarding Blockchain in the second study than against zero high for perceived blockchain.

Discussion

The findings of this study suggest that perceptions of blockchain implementation in accounting practices vary depending on the context of technology adoption in Indonesia. Descriptive data and Wilcoxon test results show that respondents in the study by Nugrahanti et al. (2023), which focused on companies in big cities, had a more positive perception of blockchain

technology compared to respondents in the study by Judijanto et al. (2024), which focused on the banking sector in general.

This is supported by the fact that the results from Nugrahanti et al. (2023) indicated that large companies in big cities tend to have more advanced technological infrastructure and also have a workforce that is better trained to adopt blockchain technology. Contrary to the previous study, the research conducted by Judijanto et al. (2024) demonstrated that companies in the banking sector spread across different regions of Indonesia are still affected by various problems, including the absence of investment in new technologies and resistance to the implementation of new financial reporting systems.

These findings support the conclusion in the abstract that blockchain adoption in Indonesia is not evenly distributed. The implementation of this technology is more common in large companies in big cities, while small companies or those in other regions are still lagging. This is in line with previous studies stating that digital infrastructure and technological understanding are the main factors in the blockchain adoption gap (Spearpoint, 2017; Ghozali, 2018).

Therefore, further research is necessary to identify other factors that could influence the expansion of this technology to more industries and regions within Indonesia, such as the support of government policies in terms of access to technology training or incentives for blockchain adoption.

Conclusion

Research Limitations

As a part of this study, completely drawn from two previous journals, its scope is limited to only that of respondents and areas under study. This could, potentially be insufficient if one wants to generalize them against more contexts. This studies also only show how users perceive blockchain, yet never measures the real effectiveness within it to improve the efficiency and effectiveness of financial reporting. Next, the outcome shows a stronger focus on large-city companies, and hence not representative of the rural area situation or small and medium-sized companies.

Recommendations

Expansion research focus is recommended to include companies in other sectors, such as MSMEs, manufacturing, or education, to understand the perception and application of blockchain more comprehensively in various industrial sectors. In turn, the government and associated entities are supposed to provide training and education programs to enhance companies' and workers' understanding of blockchain. It’s important to increase accessibility and blockchain education. This move will be supportive of the wider diffusion of the technology, especially in areas which so far have not been reached by this technology. Apart from the quantitative approach, research using qualitative methods, interviews, or case studies can also be conducted to study the adoption of blockchain, which is inspired by psychological and social factors. So it need more in-depth qualitative study to improve this research.

Summary of Results

This research successfully identified the differences in perceptions of blockchain technology application in the Indonesian accounting sector, based on two analyzed journals. The result shows that Y1, from research conducted by Nugrahanti et al. in 2023, had a more positive perception since it focused on large companies in big cities with better digital infrastructure. In

contrast, Y2, which is the result of research by Judijanto et al. (2024), shows a lower level of acceptance in the banking sector spread across various regions. This means that the adoption of blockchain is still imbalanced and concentrated in places where technology is more accessible.

This study suggests the need for further development may well be required, broadened to include small and medium-sized companies, along with other sectors such as education and manufacturing. Qualitative approach-in-depth studies will be needed to explore social and cultural factors that may favorably or adversely influence the diffusion of blockchain. Moreover, future studies can emphasize government policies and incentive programs' influence on accelerating blockchain technology, especially in areas that lack digital infrastructure.

Further research that includes different sectors and regions can hopefully build a more comprehensive view of the challenges and opportunities presented by the adoption of blockchain in Indonesia. This would support not only companies in their optimal implementation of blockchain technology but also inclusive digital transformation throughout the country.

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