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- I. Title page
- II. Abstract (150-250 words)
- III. Keywords (3-5)
- IV. Introduction
- V. Literature Review
- VI. Methodology
- VII. Results and Discussion
- VIII. Conclusion and Recommendations
- IX. References (APA 7th Edition)
- X. Appendices (if necessary)
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EFFECT OF DIGITAL LEDGER ON FINANCIAL REPORTING TRANSPARENCY OF LISTED TELECOMMUNICATIONS COMPANIES IN NIGERIA

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ABSTRACT

The need for real-time tracking and auditing became increasingly critical as the telecommunication industry expanded and customer bases grew. By adopting digital ledgers, telecom companies in Nigeria strive to enhance data integrity and streamline financial reporting processes, and comply with stringent regulatory requirements. This called for research on digital ledger has affected financial reporting transparency of listed telecommunications companies in Nigeria. To this end, the current study adopted an ex post facto research design to examine majorly the effect of digital ledger on financial reporting transparency of listed telecommunications companies in Nigeria. The sample of the study consist of 4 listed telecom companies which were purposively sampled from a population of 8 listed ICT companies on the Nigerian Exchange Group as at June, 2024. Data was collected from the financial statement of the sampled companies over a 7 years period (2017 to 2023). The study used descriptive statistics and the multiple regression in analyzing the data. For the first hypothesis tested, the study found that digital ledger adoption has a positive and significant effect on financial reporting transparency of listed telecommunication companies in Nigeria. The second and third hypotheses tested found that digital ledger investment and regulatory compliance have insignificant effects on financial reporting transparency of listed telecommunication companies in Nigeria. The study recommends that policymakers should incentivize the adoption of digital ledger technology (DLT) across the telecommunication industry. This can be achieved by offering tax breaks, grants, or subsidies for investments in DLT infrastructure. Additionally, establishing clear regulatory frameworks and industry standards for DLT usage can ensure consistency and reliability. Training programs and workshops should be developed to enhance the technical expertise of accounting professionals in DLT. By fostering a supportive environment, the government can enhance transparency, reduce fraud, and improve investor confidence in the telecom sector.

Keywords: *Digital ledger, diffusion of innovation theory, and financial reporting transparency*

1.1 Introduction

The adoption of digital ledgers for accounting purposes by firms is primarily driven by several critical issues related to traditional accounting methods. Traditional accounting systems, which rely heavily on manual processes and paper records, often suffer from inefficiencies, inaccuracies, and vulnerability to fraud (Hashimy & Sandner, 2020). These systems can be time-consuming, prone to human error, and challenging to audit, leading to potential discrepancies in financial records. Moreover, the increasing complexity of business operations and the global nature of trade have necessitated more robust and transparent accounting solutions. Traditional methods struggle to keep pace with the real-time demands of modern business environments,

where timely and accurate financial information is crucial for decision-making and regulatory compliance (Kanaparathi, 2024). Furthermore, traditional ledgers are susceptible to tampering and unauthorized access, posing significant risks to sensitive financial information. In contrast, digital ledgers, particularly those leveraging blockchain technology, offer enhanced security features, such as immutability and encryption, which help mitigate these risks (Johnson & Okoye, 2023). Additionally, regulatory requirements and standards have become more stringent, compelling firms to adopt more sophisticated accounting tools that ensure compliance and facilitate transparent reporting. Accordingly, Yildirim and Kelten (2021) stated that, digital ledgers provide a reliable and

efficient means to meet these demands, offering automated, real-time recording and verification of transactions, thus streamlining audit processes and reducing operational costs.

Telecom companies in Nigeria have faced a myriad of challenges that have driven the adoption of digital ledger technologies for financial reporting. Traditionally, the industry grappled with inefficiencies stemming from manual processes, lack of transparency, and susceptibility to fraud. These issues were compounded by regulatory pressures from the Nigerian Communications Commission (NCC) and the Central Bank of Nigeria (CBN), which demanded greater accuracy and timeliness in financial disclosures to protect consumers and ensure fair competition. Additionally, telecom companies encountered difficulties in reconciling vast amounts of transactional data across various platforms and services, such as mobile money, data services, and voice calls. This often led to discrepancies and delayed reporting, hampering decision-making and operational efficiency. The need for real-time tracking and auditing became increasingly critical as the industry expanded and customer bases grew. The rise of digital ledger technologies, particularly blockchain, offered a viable solution. These technologies provide immutable, transparent, and secure records of transactions, addressing the industry's pain points (Abdennadher, Grassa, Abdulla & Alfalasi, 2022). By adopting digital ledgers, telecom companies in Nigeria may strive to enhance data integrity, streamline financial reporting processes, and comply with stringent regulatory requirements. Furthermore, digital ledgers may facilitate better collaboration among stakeholders, reduce operational costs, and improve customer trust by ensuring accurate and timely financial information (Ahmed et al. 2024). This technological shift marks a significant step towards modernizing financial practices in Nigeria's telecom sector.

The study of financial reporting transparency and digital ledger technology adoption by listed Nigerian telecom companies is crucial. Such study may help assess the impact of technology on financial reporting accuracy, regulatory compliance, and fraud prevention in a rapidly evolving industry. Understanding how digital ledgers enhance transparency can boost investor confidence, improve regulatory oversight, and inform future policy decisions. Additionally, such study may provide insights into the challenges and opportunities of adopting such technologies, paving the way for best practices and innovation. These are the reasons that necessitated the current study.

1.2 Objective of the Study

The study aims to investigate the effect of digital ledger on financial reporting transparency of listed telecommunications companies in Nigeria. As a result, the following hypotheses are made to be tested:

- Ho₁:** Digital ledger adoption has no significant effect on financial reporting transparency of listed telecommunication companies in Nigeria.
- Ho₂:** Digital ledger investment has no significant effect on financial reporting transparency of listed telecommunication companies in Nigeria.
- Ho₃:** Regulatory compliance has no significant effect on financial reporting transparency of listed telecommunication companies in Nigeria.

2.0 Literature Review

The study discusses the concepts of digital ledger and financial reporting transparency in this section. The section further contains the review of a baseline theory that explains the relationship between digital ledger and financial reporting transparency; and the empirical review is lastly done in this section.

2.1 Digital ledger

A digital ledger is a computerized system that securely records and tracks transactions and data across a distributed network. It ensures transparency, immutability, and accuracy, facilitating efficient financial reporting and auditing by providing a reliable, tamper-proof record of all entries (Al Shanti & Elessa, 2023). Blockchain is a platform that enables digital ledger to operate effectively. The use of digital ledger for accounting purpose entails five aspects. These are; digital ledger adoption, training/expertise on digital ledger, digital ledger integration, investment in digital ledger, and regulatory compliance around digital ledger. Digital ledger adoption refers to the implementation and integration of digital ledger technology, such as blockchain, into organizational processes to enhance transparency, security, and efficiency in recording and tracking transactions. On the other hand, training of staff on digital ledger technology involves educating employees on how to effectively utilize and manage the system, ensuring accurate data entry, understanding security protocols, and maintaining compliance standards. Again, the integration of digital ledger technology involves incorporating secure, transparent, and immutable transaction recording systems into existing processes, enhancing data accuracy, efficiency, and trust across various business operations. While, investment in digital ledger technology involves allocating financial resources to develop, implement, and integrate secure, transparent, and efficient systems for recording and tracking transactions across distributed networks. While regulatory compliance of digital ledger technology involves adhering to legal standards and guidelines to ensure transparency of financial reporting

2.2 Financial reporting transparency

Financial reporting transparency refers to the clear, accurate, and accessible disclosure of a company's financial activities and performance. It ensures that stakeholders, including investors, regulators, and the public, have a true and comprehensive understanding of the company's financial health, fostering trust and informed decision-making (Bakarich, Castonguay & O'Brien, 2020). Financial reporting transparency is measured through the level of financial restatement (Birch & Parulava, 2018). A financial restatement is the process of revising previously issued financial statements to correct errors or inaccuracies. It enhances financial reporting transparency by ensuring the accuracy and reliability of financial information, thereby maintaining investor confidence and compliance with regulatory standards. Financial restatement is crucial for transparency, ensuring accuracy in financial reporting. With digital ledger technology, restatements are expected to become more reliable and transparent due to immutable records, reducing errors and fraud risk. The above if achieved should enhance trust among stakeholders and regulatory compliance, and maintain credibility in the financial ecosystem.

2.3 The Diffusion of Innovation Theory

The process of digital ledger adoption for financial reporting transparency is what Roger (2003) termed the diffusion of innovation theory. Diffusion of innovation theory is propounded by Roger (2003) and it proposes the use of innovation in technology to cause changes in the social, structural, or ethical practices of an organization or group of professionals. To Rogers (2003), the tenants of technological innovation involve the use of hardware and software applications to foster a change in the norms of an entity. These hardware and software are particularly digital ledgers and programs that are designed to usher in the future phase of financial reporting which is based on blockchain technology (Digital ledger).

The relationship between financial reporting transparency and digital ledger technology can be explained through the diffusion of innovation theory. According to the theory, users' acceptance of technology depends on perceived usefulness and ease of use. Digital ledger technology, like blockchain, enhances financial reporting transparency by providing immutable records accessible to all stakeholders (Ko, Lee & Ryu, 2018). Its transparency increases trust in reported financial data, making it perceived as highly useful for decision-making and regulatory compliance. The diffusion of innovation theory emphasizes how digital ledger when adopted by companies contribute to their competitive advantage in terms of how transparent their financial reports are prepared.

To Johnson and Okoye (2023), digital ledgers represent a valuable resource for companies, offering capabilities for secure, transparent, and efficient record-keeping. Firms adopting digital ledgers gain a competitive edge through enhanced transparency, reduced fraud risk, and improved stakeholder trust (Abdennadher et al. 2022). Similarly, Ko et al. (2018) stated that, the adoption of digital ledger technology for financial reporting improves transparency by offering a user-friendly solution that provides a valuable resource for companies to strengthen their competitive position. This enhances stakeholders' trust, reduces information asymmetry, and enables more accurate and timely reporting, ultimately contributing to improved financial performance and regulatory compliance in telecom companies in Nigeria (Johnson & Okoye, 2023).

2.4 Empirical Review

Asikpo (2024) studied the various ways that digital transformation has affected financial reporting. The study looked at how innovations in big data analytics, cloud computing, blockchain, and artificial intelligence have changed the game. Through interview of firm managers, the study found that, financial reporting procedures have become more efficient, accurate, and transparent as a result of digitization. Financial reporting's digital revolution is not without its difficulties. Potential dangers are identified and analysed in the report, along with data privacy issues, cybersecurity threats, and the requirement for trained individuals who can use and navigate these cutting-edge technology. In adjusting to the digital age, the study takes into account the regulatory ramifications and the changing role of standard-setting organisations. This research adds to a thorough understanding of how digital transformation is changing financial reporting by using case studies and real-world examples.

Okpo and Eshiet (2023) looked into whether using digital

accounting techniques affected the level of financial reporting in any way. They used a survey research design, collecting data from primary sources by means of questionnaires given to randomly chosen professional accountants in Nigeria's Akwa Ibom State. Of the eighty questionnaires, seventy were recovered. Correlation and regression models were employed in the analysis. The analysis's findings demonstrated a positive and substantial relationship between each independent variable component and the level of financial reports. The digital software, on the other hand, demonstrated a strong positive association, highlighting the significance of technology in digital accounting practice. The study found that digital accounting procedures have an impact on the level of companies' financial reports.

Bentavia et al. (2022) investigated company financial reporting and digital ledgers. The study's foundation was a structural evaluation of earlier writers' writing. They discovered that just as the current digital era has altered lives, so too has the accounting industry; the days of manual accounting have given way to computerised accounting, and the accounting process has now gone digital. One of the financial organisations that adapts to technology changes the best is the bank; the majority of them have digitised accounting across their operations. The automated procedure of entering data into ledgers in order to generate financial reports. The current state of this scenario is that Bank SUMUT has incorporated an online banking system into its accounting technology, enabling real-time access to the ledger.

Singh, Haque, Kaphle, and Ban (2021) examined the implications of distributed ledger technology and its implications for the accounting and auditing profession. They proposed a framework for a blockchain model of a simplified triple-entry bookkeeping system using smart contracts to automate self-verification and replication of transactions in a public distributed ledger. They found that blockchain technology will significantly reduce barriers and challenges facing organizations' accounting systems.

Rahmawati, Sukoharsono, Rahman, and Prihatiningtias (2021), analyzed accountants' perspectives of blockchain impact on the accounting profession in Indonesia. They employed a qualitative exploratory study method. The data collection for their study was derived from in-depth interviews with four Indonesian top-layer accountants. They found that the initial perception that accountants will lose their job due to the adoption of blockchain technology is not true and the responsibilities of accountants will not change dramatically. The reason is that, despite blockchain technology, businesses will depend on qualified accountants to interpret and categorize the information resulting from blockchain-based accounting systems.

Sujata and Shalini (2021) inductively explored and developed an adoption model for blockchain as an accounting application with theoretical groundings in the Technology-Organization-Environment (TOE) framework. They adopted a triangulation method by using both literature review and encoding methodology. Their study findings suggest that there will be eight significant factors that will influence the adoption of blockchain technology for accounting purposes, which are: relative advantage, uncertainty, top management support, technology readiness, industry, regulatory environment, competitive pressure, and trust.

3.1 Methodology

The study method is based on ex post facto research design. This is a quantitative method that involves the use of past



existing data to infer current trends and causal effect about phenomenon.

The study population consist of 8 telecom companies listed under the ICT sector on the Nigerian Exchange Group. The study sample size consist of 4 listed companies, sampled through a purposive approach. The sampled companies are those who engage basically in telecommunication businesses. The data for the study is collected from a secondary source through the annual reports of the sampled companies spanning the most recent years of 2017-2023 years (7 years), to ensure the relevance and timeliness of the findings. This time frame allowed for the examination of trends, patterns, and potential shifts in digital ledger adoption and financial reporting transparency within the Nigerian telecommunications industry.

Quantitative analysis is conducted using appropriate statistical software and techniques, such as: Regression analysis (e.g., multiple linear regression) to examine the relationships between the independent variables (digital ledger adoption, digital ledger investment, and digital ledger technology regulatory compliance) and the dependent variable (number of financial restatement). Panel regression will be to analyze complex causal relationship between the variables. The study model is stated in an econometric form as follows:

$$FRT_{it} = \alpha + \beta_1 DLA_{it} + \beta_2 DLI_{it} + \beta_3 DLR_{it} + U_{it} \dots \dots \dots \text{Model 1}$$

Table 1: Descriptive Statistics.

Var	Obs.	Min	Max	Mean	Std. dev.	Skew. Prb
FRT	28	4	21	7.035714	4.272931	0.0127
DLA	28	0.20	0.82	0.3967857	0.1470715	0.0207
DLI	28	2.09e+07	5.72e+08	2.45e+08	2.06e+08	0.0023
DLR	28	1	7	4.142857	1.736627	0.1237

Source: Extracted from appendix ii

From the Table above, the result shows that the total number of observation for the study is 28 for each variable. This means, data was collected for each variable in each company for over 7 years period (2017 to 2023).

For the dependent variable measured as Financial Reporting Transparency (FRT), the Table revealed a minimum value of 4 financial restatements and a maximum value of 21 restatements. The mean value of FRT is 7.03514 with a deviation of 4.272931. This shows that the average number of financial restatement for the listed telecom companies is approximately 7 while the average change in financial restatement that may exist due to industry specific regulations is 4. This means that the companies experience more stable trend in their financial restatement practice.

The independent variable is measured as DLA, DLI, and DLR. For DLA, the Table reveal a minimum value of 0.20 with a maximum value of 0.82. DLA further records a mean value of 0.396857 and a standard deviation of 0.1470715.

Table 2: Regression result

	DLA	DLI	DLR	CONST
Coef.	.6621062	-.0475927	.0424912	.7449261
P>0.05	0.028	0.532	0.067	0.218
	R²	R² Adj.	F. Stat.	Prob. F.
	0.2213	0.1240	2.27	0.0057

Source: Extracted from appendix ii

Where;

α = Constant

FRT = Financial reporting transparency (measured as the number of financial restatement of the firm at that time)

DLA = Digital ledger adoption (If the firm adopts digital ledger at that time, it will be dichotomized as 1 and 0 if otherwise)

DLI = Digital ledger investment (The amount of money invested into digital ledger technology at that time by the firm).

DLR = Digital ledger regulatory compliance (The number of regulatory compliance adhered to by the firm at that time)

it = Cross-section(i) time (i)

U = Error term used in the model.

$\beta_1, \beta_2, \beta_3$ = Beta coefficient of the independent variables.

Decision Rule: Accept the null hypothesis if the calculated value is greater than the significant level of 0.05.

4.0 Results and Discussion

This section presents the result of the descriptive statistics and the multiple regression result of the sampled telecom companies' data analyzed.

4.1 Presentation

The descriptive statistics is presented in Table 1 while the multiple regression result is presented in Table 2. The discussion of findings is done in line with each hypothesis that is tested.

For DLI, the Table reveal a minimum value of 209 million Naira with a maximum value of 5.7 billion Naira. DLI further records a mean value of 2.45 billion Naira and a standard deviation of 2.06 billion Naira. Lastly, the DLR reveal a minimum value of 1 audited compliance issue with a maximum value of 7. DLR further records a mean value of 4.142857 and a standard deviation of 1.736627.

To measure the level of normality of data, the Skewedness test is conducted. The result from the Table above shows that, only the DLR variable met the Skewedness test with a probability value of 0.1237>0.05. This means the FRT, DLA, and DLI values does not have a unit root and are disperse. This is a common case with accounting data as there are no regulations for firms to perform at same scale thereby undermining the possibility of a common case of normality. Regardless, the study ensured that other post estimation test for multicollinearity is taken into account so as to avoid spuriousity of the study result.

Table 2 reveals the result for the multiple regression and the following information is distilled:

The table shows a R^2 value of 0.2213 with an adjusted- R^2 of 0.1240. The R^2 value shows that 22.13% of change in FRT of the companies is influenced by DLA, DLI, and DLR while the remaining 77.87% is influenced by unobserved factors. The adjusted- R^2 of 0.1240 shows that, the study result will vary by 0.0973 (0.2213-0.1240); that is 9.73% deviation.

The constant value of 0.7449261 shows that, given intercept only model, the FRT of the companies will increase by approximately 74.4% but when DLA, DLI, and DLR is considered; a unit increase in DLA will cause FRT to increase by approximately 66.2%; a unit increase in DLI will cause FRT to decrease by approximately 4.75%; and a unit increase in DLR will cause FRT to increase by approximately 4.24%. Finally, the F. Stat. value of 2.27 with an accompanying probability value of 0.0057 shows that model as a whole is statistically significant.

4.2 Test of Hypotheses

From the result presented above, the following hypotheses are tested:

H₀₁: Digital ledger adoption has no significant effect on financial reporting transparency of listed telecommunication companies in Nigeria.

Table 2 show a probability value of $0.028 < 0.05$ for DLA against FRT. As a result, the study rejects the null hypothesis and accepts the alternative hypothesis. Thus, digital ledger adoption has a significant effect on financial reporting transparency of listed telecommunication companies in Nigeria.

H₀₂: Digital ledger investment has no significant effect on financial reporting transparency of listed telecommunication companies in Nigeria.

Table 2 show a probability value of $0.532 > 0.05$ for DLI against FRT. As a result, the study accepts the null hypothesis and rejects the alternative hypothesis. Thus, digital ledger investment has no significant effect on financial reporting transparency of listed telecommunication companies in Nigeria.

H₀₃: Regulatory compliance has no significant effect on financial reporting transparency of listed telecommunication companies in Nigeria.

Table 2 show a probability value of $0.067 > 0.05$ for DLR against FRT. As a result, the study accepts the null hypothesis and rejects the alternative hypothesis. Thus, digital ledger regulatory compliance has no significant effect on financial reporting transparency of listed telecommunication companies in Nigeria.

4.3 Discussion of Findings

In line with the tested hypotheses above, the following discussions are availed in line past scholarly works and theoretical ontologies.

For the first hypothesis tested, the study found that digital ledger adoption has a positive and significant effect on financial reporting transparency of listed telecommunication companies in Nigeria. This means that, listed telecom companies in Nigeria have greatly adopted the use of digital ledger for their accounting transactions which has given rise to a less financial restatements in events of errors. This is in line with the study by Okpo and Eshiet (2023) who studied whether using digital accounting techniques affected the level of financial reporting in any way. Their study findings demonstrated a positive and substantial relationship between digital technology and the level of financial reports. Similar evidence was reported by Bentavia et al. (2022).

On the other hand, the second and third hypotheses tested found that digital ledger investment and regulatory compliance have insignificant effects on financial reporting transparency of listed telecommunication companies in Nigeria. This study evidence portends that, in the context of the diffusion of innovation theory, the insignificant relationship between investment in digital ledger technology (DLT) and financial reporting transparency of companies may stem from several factors. This means, despite DLT's potential, its adoption is still in the early stages, primarily among innovators and early adopters, who may not yet represent the broader industry. Additionally, the complexity and integration challenges of DLT could delay its effectiveness in enhancing transparency. Furthermore, regulatory frameworks and standard practices for DLT in financial reporting are not fully established, leading to inconsistent implementation. Thus, the current impact on transparency remains minimal until wider adoption and standardization occur.

5. Conclusion and Recommendations

The study concludes that, the adoption of digital ledger has greatly improved the level of financial reporting transparency of listed telecommunication companies in Nigeria but due to its' early stage adoption, the amount of investment in digital ledger and the level of regulatory compliance is not enough to harness its full potential to significantly influence the level of financial reporting transparency of the companies.

The study recommends that policymakers should incentivize the adoption of digital ledger technology (DLT) across the telecommunication industry. This can be achieved by offering tax breaks, grants, or subsidies for investments in DLT infrastructure. Additionally, establishing clear regulatory frameworks and industry standards for DLT usage can ensure consistency and reliability. Training programs and workshops should be developed to enhance the technical expertise of accounting professionals in DLT. By fostering a supportive environment, the government can enhance transparency, reduce fraud, and improve investor confidence in the telecom sector.

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