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Effect of Big Data and Analytics on Financial Management in Nigeria's Public Sector

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Abstract

Big Data and Analytics (BDA) in financial management are increasingly pivotal globally, offering substantial benefits for transparency and decision-making, particularly in Nigeria's public sector. The main objective is to examine the effect of big data and analytics on financial management in Nigeria's public sector. This study adopts a field survey design, the population of this study was the entire staff of the audit and finance department of the office of the auditor general of the federation. Through a pilot survey, there were 185, and all were used as sample size census sampling techniques. Primary data sourced from a questionnaire was mainly used in this study the instrument of data collection for this study is mainly a questionnaire that was personally delivered to respondents at their workplace. Using the four Likert Scale method, the responses are scored as Strongly Agree (SD) =4, Agree (A) =3, Disagree (D) =2, Strongly Disagree (SD) =1. The study employs descriptive statistics, such as mean and standard deviation, to summarize and describe the characteristics of the data collected with the aid of SPSS 23 Version software. The findings show that, the p-value for DD is 0.002, which is less than the common significance level of 0.05. The t-value is 8.635, which is significantly higher than the critical t-value for typical significance levels. Since the p-value is less than 0.05, the study rejects the null hypothesis H01. This means Data description significantly affects financial reporting quality in Nigeria's public sector while the p-value for DDi is 0.003, which is less than the common significance level of 0.05. The t-value is 5.363. Data diagnostics significantly affect financial reporting quality in Nigeria's public sector. The study recommended based on the findings that Enhance Data Description Practices. Improve the clarity, transparency, and comprehensiveness of data descriptions in financial reports. Develop standardized templates and guidelines for data descriptions to ensure consistency across different financial reports and Strengthen Data Diagnostic Processes. Enhance the effectiveness and efficiency of data diagnostic practices to improve the accuracy and reliability of financial reporting. Conduct regular and thorough internal audits to review financial reporting practices and identify areas for improvement or potential discrepancies.
Keywords: *Big Data, Analytics, Financial Management, Population, Public Sector*

1 INTRODUCTION

Big Data and Analytics (BDA) in financial management are increasingly pivotal globally, offering substantial benefits for transparency and decision-making, particularly in Nigeria's public sector. BDA enables governments to enhance budgetary processes and detect fraud, as seen in the United States and the United Kingdom (Vorst, 2016). It supports informed decision-making by analyzing extensive data to identify trends, as illustrated by Singapore's efficient resource allocation (Kitchin, 2014). Additionally, predictive analytics, utilized in countries like Australia, aids in financial risk assessment and management (Waller, 2013).

In Nigeria, BDA adoption in the public sector is in early stages, hindered by challenges such as inadequate infrastructure, skills gaps, and data privacy concerns (Abolaji, 2020; Oni, 2021). Despite these obstacles, BDA holds promise for enhancing financial management by improving accuracy, transparency, and efficiency in reporting and decision-making (Olanrewaju, 2022).

Addressing infrastructure limitations, enhancing skills, and addressing data privacy issues are critical for Nigeria to fully harness BDA's potential in public sector financial management.

Descriptive data analytics, which involves summarizing historical data to identify patterns and anomalies, plays a crucial role in improving financial reporting quality in Nigeria's public sector. It helps identify and correct data errors, enhancing the transparency and accuracy of financial reports (Akinbami, 2021; Onuoha & Ogbonna, 2020). Despite its benefits in improving compliance and financial insights, challenges such as infrastructure limitations and data quality issues need mitigation through continued investment in analytics capabilities and training.

Diagnostic data analytics, focusing on investigating causes behind anomalies in financial reporting, is essential for pinpointing errors and fraudulent activities in Nigeria's public sector (Igbokwe & Ifeanyichukwu, 2021; Adeyemo & Olowookere, 2020). This approach aligns with Data-driven Decision Making Theory, which advocates for using data insights to enhance decision-making processes (Provost, & Fawcett, 2013). Diagnostic analytics also supports Contingency Theory by helping organizations adapt to changing financial conditions and regulatory demands (Donaldson, 2001). In conclusion, the integration of BDA, descriptive, and diagnostic analytics in Nigeria's public sector financial management holds immense potential to enhance transparency, improve decision-making, and strengthen internal controls. However, addressing infrastructure challenges, enhancing skills, and ensuring data privacy are essential for maximizing the benefits of these analytical tools in Nigeria's public financial management.

1.2 Statement of the Problem

Financial management in Nigeria's public sector encompasses planning, organizing, directing, and controlling financial activities to ensure efficient resource utilization. Key functions include budgeting, financial reporting, internal controls, and accountability, aimed at achieving transparency and sustainability in public finance. Adebayo and Okafor (2013) highlighted challenges in budget implementation impacting public sector performance, emphasizing the importance of effective budget execution. Uwuigbe et al. (2016) examined factors influencing financial reporting quality in Nigerian public institutions, emphasizing adherence to IPSAS and regular audits to enhance reporting accuracy.

Adeyemi and Adeniji (2011) studied internal control effectiveness, identifying weak controls and irregular audits as contributors to financial mismanagement and corruption. Ojo and Olanipekun (2017) explored how transparency and accountability mechanisms improve governance and financial performance in Nigeria's public sector. Akinyele and Fasoranti (2019) assessed technology's impact, such as GIFMIS, on enhancing financial management processes and reporting quality. Effective financial management is crucial for achieving transparency, accountability, and efficient resource allocation in Nigeria's public sector. The literature stresses the importance of financial reporting quality, robust internal controls, accountability mechanisms, transparency, and adherence to international standards. Addressing challenges like corruption, capacity-building gaps, and technological integration is essential to improving overall financial management practices in Nigeria. Addressing these challenges is crucial for leveraging BDA to improve financial management practices and achieve greater efficiency and transparency in Nigeria’s public sector, for the above-mentioned problem, there is a need to critically examine the Effect of Big Data and Analytics on Financial Management in Nigeria's Public Sector. Focusing on the following research questions as to what extent is the effect of data Descriptive on financial reporting quality in Nigeria's public sector? And to what extent data diagnostics affect financial reporting quality in Nigeria's public sector?

1.3 Objectives of the Study

The main objective is to examine the effect of big data and analytics on financial management in Nigeria's public sector, while the specific objectives are to:

i. Examine the effect of data Descriptive on financial reporting quality in Nigeria's public sector and
ii. Evaluate the effect of data diagnostic on financial reporting quality in Nigeria's public sector.

1.4 Statement of Hypotheses

H_{01}: Data description has no significant effect on financial reporting quality in Nigeria's public sector and

H_{02}: Data diagnostic has no significant effect on financial reporting quality in Nigeria's public sector.

2. Literature Review

2.1. Concept of Financial Management.

Financial management in Nigeria's public sector encompasses planning, organizing, directing, and controlling financial activities to ensure efficient resource utilization. Key functions include budgeting, financial reporting, internal controls, and accountability, aimed at achieving transparency and sustainability in public finance. Adebayo and Okafor (2013) highlighted challenges in budget implementation impacting public sector performance, emphasizing the importance of effective budget execution. Uwuigbe et al. (2016) examined factors influencing financial reporting quality in Nigerian public institutions, emphasizing adherence to IPSAS and regular audits to enhance reporting accuracy.

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Concept of Big Data Management

Big Data and Analytics (BDA) involve processing and analyzing large datasets to extract insights that inform decision-making and strategic planning. In Nigeria's public sector, BDA adoption aims to enhance efficiency, transparency, and service delivery by leveraging complex data beyond traditional software capabilities. Okoye and Onyekwelu (2020) demonstrate BDA's role in improving governance transparency and accountability through fraud detection and fund monitoring. Adeyemi and Jegede (2019) illustrate BDA's impact on healthcare by predicting disease outbreaks and optimizing resource allocation. Akinyemi and Awosika (2018) show how BDA informs economic planning through trend analysis and policy support.

Ekeocha and Onuorah (2021) highlight BDA's role in optimizing public administration processes and improving decision-making. Challenges to BDA adoption in Nigeria's public sector include data privacy concerns identified by Ojo and Adebayo (2019), necessitating robust regulatory frameworks. Infrastructure limitations, such as inadequate data storage and processing capabilities,

are noted by Chukwu and Nwankwo (2020). Adegbite and Oladele (2018) emphasize the skills gap in BDA within the public sector, advocating for training and capacity-building initiatives. In conclusion, while BDA offers transformative potential across governance, healthcare, economic planning, and public service delivery in Nigeria, addressing challenges like data privacy, infrastructure limitations, and skill shortages is crucial for successful implementation. Empirical studies underscore the importance of strategic adoption, capacity building, data security, and technological integration to maximize BDA's benefits in the public sector.

Concept of Financial Reporting Quality.

Financial reporting quality in Nigeria's public sector encompasses the accuracy, reliability, and timeliness of financial statements, crucial for transparency, governance, and economic development. Studies underscore the significance of IPSAS adoption in enhancing transparency and comparability, as highlighted by Adebayo et al. (2019). Effective internal control systems, emphasized by Ofoegbu and Odo (2018), are pivotal for ensuring financial report reliability. Adeyemi and Fagbemi (2010) demonstrated that high-quality audits enhance financial statement credibility. Agbo and Nwankwo (2020) found that transparency and accountability mechanisms positively influence financial reporting quality. Adeyeye et al. (2017) highlighted corruption's adverse effects on financial reporting. Egbunike and Emudainohwo (2018) underscored technology's role in improving financial reporting, despite infrastructure challenges. Addressing corruption, regulatory gaps, and technological constraints is crucial for enhancing Nigeria's public sector financial reporting quality, pivotal for transparency, accountability, and effective governance.

2.1.1 Data description

Data description refers to the use of statistical techniques and methods to summarize, present, and analyze the main characteristics of a dataset, including measures of central tendency, variability, and graphical representations. (Triola, 2018). Data description is the process of applying descriptive statistical measures to a dataset, providing a summary that captures the essence of the data through means, medians, modes, standard deviations, and other relevant statistics. (Moore, et al, 2018). In the context of data analytics, data description involves the initial stage of the data analysis process where the raw data is transformed into a meaningful format, making it easier to understand and interpret through summarization, visualization, and exploratory data analysis. (Provost, & Fawcett, 2013). Data description in business intelligence encompasses the activities of collecting, processing, and summarizing business data to provide an overview of the current and historical performance, often through dashboards, reports, and key performance indicators (KPIs) (Wixom & Watson, 2010). Within database management, data description refers to the definition and documentation of the data structure, data types, relationships, and constraints in a database, typically managed through a data dictionary or metadata repository. (Silberschatz, et al. 2019). In research methodology, data description involves the systematic process of describing the collected data in a study, including the methods used for data collection, the characteristics of the data, and the context within which the data was obtained. (Creswell, & Creswell, 2017). These definitions and references provide a comprehensive understanding of data description from different perspectives and applications

2.1.2 Data diagnostic

Data diagnostic refers to the process of using statistical techniques to identify patterns, anomalies, and relationships within a dataset, aiming to understand the underlying structure and characteristics of the data. (Tukey, 2022). In data mining and machine learning, data diagnostic involves the examination of data to assess its quality, relevance, and suitability for modeling, including outlier

detection and feature selection. (Witten, et al, 2016). In healthcare informatics, data diagnostic refers to the analysis of medical data to identify trends, correlations, and potential health issues, aiding in diagnosis and treatment decisions. (Murdoch, & Detsky, 2013).

Data diagnostics in business intelligence involves evaluating business data to diagnose operational inefficiencies, market trends, and customer behavior through data analysis and visualization. (Larose, & Larose, 2019). In research methodology, data diagnostic refers to the testing and validation of data assumptions, ensuring data reliability and validity for making informed conclusions. (Bland, & Altman, 2017). In environmental sciences, data diagnostic involves analyzing environmental data to assess pollution levels, ecological changes, and environmental health indicators. These definitions and references illustrate the diverse applications and contexts of data diagnostic across different fields, emphasizing its role in understanding and interpreting data for decision-making and research.

2.2 Theoretical Review

2.2.1 DATA-DRIVEN DECISION-MAKING THEORY

The data-driven decision-making (DDDM) theory, as outlined by various scholars and practitioners across management, statistics, and information technology, underscores the strategic use of data in enhancing decision-making processes. It posits that data when effectively analyzed, serves as a valuable asset that can provide empirical insights crucial for informed decision-making. This approach advocates for continuous improvement by leveraging data to monitor performance, identify trends, and make adjustments to organizational processes.

However, DDDM is not without its weaknesses. Challenges such as poor data quality leading to inaccurate conclusions, potential oversight of qualitative aspects critical in decision contexts, and ethical concerns related to data privacy and security are significant considerations. Furthermore, the complexity of analyzing big data requires specialized skills and tools, posing implementation challenges.

In recent studies, Chukwu and Ogu (2021) explored the adoption of big data analytics in Nigeria's public sector, highlighting its role in enhancing decision-making and operational efficiency. Similarly, Olaniyan and Adeyemo (2020) examined how a Nigerian hospital implemented data-driven decision-making to improve healthcare service delivery.

Regarding its relevance to financial reporting quality in Nigeria's public sector, DDDM offers several benefits. By leveraging data analytics, public sector entities can enhance the accuracy and transparency of financial reporting processes, thereby reducing errors and enhancing accountability. Moreover, data-driven approaches facilitate fraud detection and prevention by identifying irregularities indicative of financial mismanagement. Streamlining financial processes through data-driven decision making also improves reporting efficiency, ensuring compliance with international standards like IPSAS. Furthermore, insights derived from data analytics inform policy decisions related to financial reporting standards, fostering better governance and management of public finances. In summary, while DDDM presents significant opportunities for improving decision-making processes in Nigeria's public sector, careful consideration of its challenges and ethical implications is essential for effective implementation and sustainable benefits.

2.3 Empirical Review

2.3.1 Data Description and financial reporting quality

Adebayo, (2023). Effect of IPSAS Adoption on Financial Reporting Quality in Nigerian Public Qualitative Case Study Approach involving interviews with financial managers and analysis of

financial reports from Nigerian public sector organizations with a population of 200 and a sample size purposively determined was used, descriptive statistics was employed. Findings show that adequate data description was found to correlate positively with the clarity and reliability of financial reporting. Organizations with clear data description practices exhibited fewer errors and discrepancies in their financial statements. The study recommends enhancing data description standards through training programs and regulatory frameworks tailored to the Nigerian public sector context. Literature Gap: Further research is needed to explore the impact of specific data description techniques on different aspects of financial reporting quality.

Ibrahim (2023). The Impact of Internal Control Systems on Financial Reporting Quality in the Nigerian Public Sector. Survey research design, descriptive statistics, and correlation matrix were employed alongside the pooled Ordinary Least Square (OLS) regression in analyzing the data and testing of hypotheses. Quantitative analysis of financial data from a sample of Nigerian public sector entities, focusing on correlations between data description metrics and financial reporting accuracy. Findings show that Effective data description practices were associated with improved financial reporting quality, including reduced instances of material misstatements and enhanced transparency. The study recommended that the authors adopt standardized data description frameworks aligned with international best practices to enhance the comparability and reliability of financial reports across Nigerian public sector entities. Literature Gap: There is a gap in understanding how varying levels of data granularity in financial reporting affect stakeholders' decision-making processes and perceptions of financial transparency.

Grace Okoro (2023). The Impact of Internal Control Systems on Financial Reporting Quality in the Nigerian Public Sector. The research utilized data from 198 public sector employees who were users of a learning management system for knowledge acquisition the study considered various empirical factors such as system quality, information quality, user satisfaction, service quality, and net benefit in the analysis. Structural Equation Modeling (SEM) was employed as the data analysis technique in this research to examine the relationships between the variables and their effects on knowledge acquisition. Findings. Clear and comprehensive data descriptions were identified as critical factors influencing the trustworthiness and usability of financial information in the public sector. However, challenges such as inconsistent data definitions and a lack of standardized reporting formats were noted. Recommendations: The study recommends developing national guidelines for data description in financial reporting, coupled with continuous training and capacity-building initiatives for financial professionals. Literature Gap: Further research could explore the role of technological advancements, such as artificial intelligence and machine learning, in automating data description processes and improving financial reporting efficiency.

Ifeoma, (2023). Financial Reporting Quality in the Nigerian Public Sector Methodology: Comparative analysis of data description practices and financial reporting quality in Nigerian public sector organizations versus private sector counterparts. Findings. Public sector entities generally lag behind their private sector counterparts in adopting detailed data description practices, which correlates with lower levels of financial reporting transparency and reliability. Recommendations: The study suggests benchmarking public sector data description practices against successful private sector models, accompanied by targeted capacity-building initiatives for public sector financial personnel. Literature Gap. Further exploration is needed into cultural and organizational barriers that inhibit the adoption of effective data description practices specifically within Nigerian public sector organizations.

3. METHODOLOGY

This study adopts a field survey design, which is a common approach in social science research. Surveys are indeed valuable for ensuring standardized data collection, which enhances consistency

and comparability across responses. By using tools like questionnaires, researchers can gather data directly from respondents, minimizing biases that may arise from other forms of data collection. This methodological approach is particularly useful when seeking to understand perceptions, behaviors, or attitudes within a defined population. The population of this study was the entire staff of the audit and finance department of the office of the auditor general of the federation. Through a pilot survey, there were 185, and all were used as sample size census sampling techniques. Primary data sourced from a questionnaire was mainly used in this study. However, secondary data sourced from textbooks, journals, and internet articles were used for literature.

The data collection instrument for this study is mainly a questionnaire personally delivered to respondents at their workplace. Using the four Likert Scale method, the responses are scored as Strongly Agree (SD) =4, Agree (A) =3, Disagree (D) =2, Strongly Disagree (SD) =1.

The study employs descriptive statistics, such as mean and standard deviation, to summarize and describe the characteristics of the data collected. These statistics provide insights into the central tendency and variability of the variables under study. Additionally, regression analysis is used to examine relationships between independent variables and the response variable. This analysis tests hypotheses by quantifying the impact of independent variables on the outcome. In this study, the focus is on coefficient estimates from regression models, which indicate the strength and direction of these relationships, along with their statistical significance, aiding in concluding the research hypotheses.

A mathematical model used for this study was adopted from the study done by (Olobo, 2020) and modified. This was expressed below as:

Financial Reporting Quality = FRQ (Data Descriptive and Data Diagnostic)……..(1)

It is stated econometrically as; FRQ =bo+b1DD+ b2DDi+Ut …….(2)

Where bo= Constant term b1 and b2 = Coefficients of the independent variables

Variable Measurement and Justification

Table 1 below explains the variables understudy

Variables	Type	Measurement and Justification
Financial Reporting Quality(FRQ)	Dependent	The Mean of responses for the five (5) items questionnaire testing the Financial Reporting Quality. (Akpan, 2015; Bebeji *et'al*., 2015)
Data Descriptive (DD)	Independent	The Mean of responses for the five (5) items questionnaire testing the Data Descriptive (Badara, 2016; Bebeji *et al*., 2015
Data Diagnostic (DDi)	Independent	The Mean of responses for the five (5) items questionnaire testing the Data Diagnostic, Ilaboya & Lodikero, (2017)

Source: author's compilation 2024

4. Results and Discussion

The main objective is to examine the effect of big data and analytics on financial management in Nigeria's public sector

4.1 Data Presentation

Table 2 Descriptive Statistics of Data Description

Table 2 Descriptive Statistics of Data Description

	N	Minimum	Maximum	Mean	Std. Deviation
How critical is timely data description in improving the quality of financial reporting?	1851	5		4.51	.532
How useful are data descriptions in financial reports for making informed decisions?	1851	5		4.15	.847

How often do you find data descriptions to be transparent and easily understandable in your organization's financial reports?	1851	5	4.35		.810
How would you rate the role of transparent data descriptions in making financial reports understandable to stakeholders?	1851	5	4.50		.746
How often do stakeholders provide feedback on the quality of data descriptions in financial	1851	5	4.46		.867
Overall Mean			4.392	0.636	0.7604

Source: SPSS 23 Version Outputs

Table 1 presents the descriptive statistics for various questions regarding the quality of data descriptions in financial reporting, based on responses from 185 participants. Overall Mean. Mean: 4.392. Overall Standard Deviation: 0.7604. On average, data descriptions are rated highly across all assessed aspects, indicating their significant perceived importance and quality in financial reporting.

Table 3 Descriptive Statistics of Data Diagnostic

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	N	Minimum	Maximum	Mean	Std. Deviation
How would you rate the impact of adherence to accounting standards on the quality of financial?	185	1	5	4.20	1.156
How effective are the internal controls in your organization in ensuring the accuracy of financial reports?	185	1	5	3.45	1.232
How frequently are internal audits conducted to review financial reporting practices?	185	1	5	4.30	1.612
How often does your organization provide training for staff on financial reporting and accounting standards?	185	1	5	3.61	1.243
How committed is the management in your organization to ensuring high-quality financial reporting?	185	1	5	3.72	1.322
Overall Mean				3.856	1.313

Source: SPSS 23 Version Outputs

Table 2 presents the descriptive statistics for various questions regarding the adherence to standards, internal controls, audits, training, and management commitment in financial reporting, based on responses from 185 participants. Overall Mean: 3.856 and Overall Standard Deviation: 1.313. On average, respondents rate the various aspects of data diagnostics (adherence to standards, internal controls, audits, training, and management commitment) as moderately high, indicating a generally positive view of these practices in financial reporting.

Table 4 Descriptive Statistics of Financial Reporting Quality

Table 4 Descriptive Statistics of Financial Reporting Quality

	N	Minimum	Maximum	Mean	Std. Deviation
How often does your organization adhere to national and international accounting standards in financial reporting?	1852	5		4.70	0.544
How would you rate the impact of adherence to accounting standards on the quality of financial reports?	1852	5		4.45	0.736
How effective are the internal controls in your organization in ensuring the accuracy of financial reports?	1851	5		4.29	0.851
How frequently are internal audits conducted to review financial reporting practices?	1852	5		4.26	0.740
How often does your organization train staff on financial reporting and accounting standards?	1852	5		4.23	0.843
How would you rate the competence of your staff in handling financial reporting tasks?	1852	5		4.28	0.943
How committed is the management in your organization to ensuring high-quality financial reporting?	1852	5		3.96	1.243
Overall Mean				4.31	0.842

Source: SPSS 23 Version Outputs

The table presents the descriptive statistics for various questions regarding the quality of financial reporting, based on responses from 185 participants. Overall Mean: 4.31 Overall Standard Deviation.

0.842. On average, the various aspects affecting financial reporting quality are rated highly, indicating a generally positive view of financial reporting practices within organizations.

Table 5. ***Descriptive Statistics***

Variables	Obs	Minimum	Maximum	Mean	Std Deviation
FRQ	185	2.61	5.00	3.80	.22542
DD	185	2.90	5.00	3.95	.31557
DDi	185	1.40	5.00	3.22	.63052

Source: Source: SPSS 23 Version Outputs

The table presents the descriptive statistics for three variables: Financial Reporting Quality (FRQ), Data Description (DD), and Data Diagnostic (DDi), based on 185 observations. Financial Reporting Quality (FRQ). Minimum: 2.61. Maximum: 5.00. Mean: 3.80. Standard Deviation: 0.22542. FRQ scores range from 2.61 to 5.00, with an average score of 3.80, indicating a relatively high overall quality of financial reporting.
Data Description (DD). Minimum: 2.90. Maximum: 5.00. Mean: 3.95. Standard Deviation: 0.31557. DD scores range from 2.90 to 5.00, with an average score of 3.95, suggesting that data descriptions are generally perceived as good.
Data Diagnostic (DDi). Minimum: 1.40. Maximum: 5.00. Mean: 3.22. Standard Deviation: 0.63052. DDi scores range from 1.40 to 5.00, with an average score of 3.22, indicating moderate effectiveness of data diagnostic practices.

Table 6. ***Correlation Matrix of variables***

Variables	Coefficients	FRQ	DD	DDi
FRQ	Correlation Coefficient	1.000		
	Sig. (2-tailed)	.		
DD	Correlation Coefficient	.622**	1.000	
	Sig. (2-tailed)	.000	.	
DDi	Correlation Coefficient	.453**	.272**	1.000
	Sig. (2-tailed)	.000	.000	.

Source: SPSS 23 Version Outputs

The table presents the correlation coefficients among the variables: Financial Reporting Quality (FRQ), Data Description (DD), and Data Diagnostic (DDi).
Financial Reporting Quality (FRQ). Correlation with itself: 1.000 (by definition). No significance value is applicable as it is a perfect correlation with itself.
Data Description (DD). Correlation with FRQ: 0.622**.Significance (2-tailed): 0.000. There is a strong positive correlation between DD and FRQ, which is statistically significant.
Correlation with itself: 1.000 (by definition). Data Diagnostic (DDi). Correlation with FRQ: 0.453**.Significance (2-tailed): 0.000. There is a moderate positive correlation between DDi and FRQ, which is statistically significant.
Correlation with DD: 0.272**.Significance (2-tailed): 0.000. There is a weak positive correlation between DDi and DD, which is statistically significant. Correlation with itself: 1.000 (by definition).
Note: The '**' denotes that the correlation is statistically significant at the 0.01 level (2-tailed).

Table 7 Regression Results of the Study

Variables	Coefficients	T-Values	P-Values
Constants	0.09	6.138	0.001
DD	0.441	8.635	0.002
DDI	0.304	5.363	0.003

R^2	0.644
Adj. R^2	0.712
F-Stat.	51.143
F- Sig	0.00

Source: SPSS 23 Version Outputs

The table presents the regression results for the study, analyzing the impact of Data Description (DD) and Data Diagnostic (DDi) on Financial Reporting Quality (FRQ). Constants. Coefficient: 0.09.T-Value: 6.138 P-Value: 0.001. The constant term is statistically significant, indicating a base-level effect on FRQ when DD and DDi are zero.

Data Description (DD).Coefficient: 0.441.T-Value: 8.635 P-Value: 0.002. DD has a positive and statistically significant impact on FRQ. For each unit increase in DD, FRQ increases by 0.441 units. Data Diagnostic (DDi). Coefficient: 0.304.T-Value: 5.363.P-Value: 0.003.DDi also has a positive and statistically significant impact on FRQ. For each unit increase in DDi, FRQ increases by 0.304 units. Model Fit: R^2: 0.644. 64.4% of the variance in FRQ is explained by DD and DDi. Adjusted R^2: 0.712. After adjusting for the number of predictors, 71.2% of the variance in FRQ is explained by the model. F-Statistic: 51.143. The overall regression model is statistically significant. F-Significance: 0.00. The p-value indicates that the regression model is significant at the 0.01 level.

Test of Hypotheses

To test hypotheses H01 and H02, the study used the regression results provided in Table 7. The significance level (p-value) and the t-values for each variable will be used to determine whether to reject the null hypotheses.

H_{01}: *Data description does not significantly affect financial reporting quality in Nigeria's public sector*.

The p-value for DD is 0.002, which is less than the common significance level of 0.05. The t-value is 8.635, which is significantly higher than the critical t-value for typical significance levels. Since the p-value is less than 0.05, the study rejects the null hypothesis H01. This means Data description significantly affects financial reporting quality in Nigeria's public sector.

H_{02}: *Data diagnostic does not significantly affect financial reporting quality in Nigeria's public sector.*

The p-value for DDi is 0.003, which is less than the common significance level of 0.05. The t-value is 5.363, which is significantly higher than the critical t-value for typical significance levels.

Since the p-value is less than 0.05, the study rejects the null hypothesis H02. Data diagnostics significantly affect financial reporting quality in Nigeria's public sector.

Discussion of Result

The findings of this study indicate a significant positive effect of data description on financial reporting quality (FRQ), as supported by a coefficient of 0.441, a t-value of 8.635, and a p-value of 0.002. This suggests that improving the clarity and transparency of data descriptions enhances the overall quality of financial reports in Nigeria's public sector. Boelens (2009) emphasizes that clear and comprehensive data descriptions are crucial for stakeholders to understand financial information accurately, thereby facilitating better decision-making processes. Albu and Albu (2012) argue that transparent data descriptions reduce information asymmetry and enhance trust between stakeholders and the organization, leading to improved financial reporting quality. In contrast, Cohen and Sayag (2010) suggest that while detailed data descriptions are important, their effectiveness in improving financial reporting quality can be hindered by bureaucratic inefficiencies and organizational culture. Jones and Pendlebury (2000) caution that overly complex data descriptions might overwhelm users and fail to significantly enhance the perceived quality of financial reports, especially among non-financial stakeholders. The Data-Driven Decision-Making (DDD) theory posits that organizations

can improve decision-making processes by leveraging data to derive insights and make informed choices. In the context of financial reporting, clear and transparent data descriptions align with DDD principles by providing stakeholders with accessible information. This transparency fosters trust and enables stakeholders to base their decisions on reliable financial data. Effective data descriptions contribute to the accuracy and reliability of financial reports, which are essential for data-driven decision-making. When data is well-described, stakeholders can rely on it confidently to make strategic and operational decisions.

Accountability and Governance: DDD theory underscores the importance of data governance and accountability. Comprehensive data descriptions support these principles by ensuring that financial information is easily understandable and auditable, thereby enhancing governance practices.

Data Diagnostic and Financial Reporting Quality. The study found a significant positive effect of data diagnostic on financial reporting quality, with a coefficient of 0.304, a t-value of 5.363, and a p-value of 0.003. This suggests that rigorous data diagnostic practices, such as internal audits and control mechanisms, contribute positively to the quality of financial reports. DeFond and Zhang (2014) argue that effective data diagnostics are essential for detecting errors and inconsistencies in financial reporting, thereby improving the accuracy and reliability of the information presented. Lapointe (2012) highlights the role of data diagnostics in ensuring compliance with accounting standards and regulatory requirements, which enhances the overall quality of financial reports. Conversely, Wright (2004) suggests that while data diagnostics are important, their impact on financial reporting quality can be influenced by factors such as management override, resource constraints, and the competence of audit teams. Data diagnostic practices align with DDD theory by ensuring the reliability of financial reports. By systematically reviewing and verifying data, organizations can reduce errors and discrepancies, providing stakeholders with trustworthy information for decision-making. Effective data diagnostics support compliance with regulatory requirements and internal controls, which are crucial aspects of data-driven decision-making. By mitigating risks and enhancing control mechanisms, organizations strengthen their governance frameworks. DDD theory emphasizes continuous improvement through data analysis and feedback loops. Data diagnostic processes facilitate this by identifying areas for improvement in financial reporting practices, thereby supporting organizational learning and adaptation.

5. Conclusion and Recommendations

Conclusion

In conclusion, both data description and data diagnostic practices significantly influence financial reporting quality in Nigeria's public sector. These findings underscore the importance of transparent data descriptions and effective diagnostic processes in enhancing decision-making processes and governance practices. By aligning with Data-Driven Decision-Making theory, organizations can leverage these practices to improve transparency, reliability, and compliance in financial reporting, ultimately fostering stakeholder trust and organizational effectiveness.

Recommendations

i. Enhance Data Description Practices. Improve the clarity, transparency, and comprehensiveness of data descriptions in financial reports. Develop standardized templates and guidelines for data descriptions to ensure consistency across different financial reports.

ii. Strengthen Data Diagnostic Processes. Enhance the effectiveness and efficiency of data diagnostic practices to improve the accuracy and reliability of financial reporting. Conduct

regular and thorough internal audits to review financial reporting practices and identify areas for improvement or potential discrepancies.

REFERNCES

Abolaji, A., & Ojo, A. (2020). "Big Data Analytics and its impact on public sector performance in nigeria." Journal of Public Affairs, 20(4), e2141.

Adebayo, A. A., & Okafor, I. G. (2013). "Budgeting and public sector management in Nigeria." public Administration Research, 2(2), 18-27.

Adebayo, E. O., Ogunleye, J. O., & Salawu, R. O. (2019). "Effect of IPSAS Adoption on Financial reporting Quality in Nigerian Public Sector." Journal of Accounting and Taxation, 11(2), 29-42.

Adebisi, J. F., & Gbegi, D. O. (2013). "Effect of tax administration on government revenue in a developing economy." International Journal of Business and Social Science, 4(10).

Adegbite, E. O., & Nakpodia, F. (2017). "Institutions and financial reporting quality in Nigeria." meditari Accountancy Research, 25(2), 203-229.

Adegbite, E. O., & Oladele, R. O. (2018). "Capacity Building for Big Data Analytics in Nigeria's public Sector." Journal of Public Administration and Policy Research, 10(2), 23-34.

Adeyemi, A. O., & Jegede, O. O. (2019). "Big Data Analytics in Nigeria's Healthcare Sector: prospects and Challenges." Journal of Health Informatics in Developing Countries, 13(1), 1-12.

Adeyemi, B., & Adeniji, A. (2011). "Internal control systems and financial management in the Nigerian public sector." Journal of Financial Crime, 18(1), 44-53.

Adeyemi, S. B., & Fagbemi, T. O. (2010). "Audit Quality and Financial Reporting Quality in nigerian Public Sector: An Empirical Study." Asian Journal of Business and Management sciences, 1(10), 1-15.

Adeyemo, A. K., & Olowookere, J. A. (2020). "The role of diagnostic analytics in fraud detection within Nigeria's public sector." Journal of Financial Crime, 27(4), 1025-1040.

Adeyeye, G. B., Ayanbimpe, R. D., & Adeniyi, O. S. (2017). "Corruption and Its Effects on financial Reporting Quality in Nigeria." Journal of Financial Regulation and Compliance, 25(3), 227-244.

Afolabi, M. O., & Tayo, A. M. (2021). "Challenges of implementing data analytics in public financial reporting in Nigeria." Journal of Financial Crime, 28(2), 450-465

Afolabi, M. O., & Tayo, A. M. (2021). "Challenges of implementing data analytics in public financial reporting in Nigeria." Journal of Financial Crime, 28(2), 450-465.

Agbo, E. E., & Nwankwo, O. F. (2020). "Transparency, Accountability, and Financial Reporting quality in the Nigerian Public Sector." Journal of Financial Crime, 27(2), 421-436.

Akinbami, A. A., & Adebayo, A. (2021). "Impact of big data analytics on financial reporting quality in Nigeria's public sector." International Journal of Financial Research, 12(4), 56-72.

Akinbami, A. A., & Adebayo, A. (2021). "Impact of big data analytics on financial reporting quality in Nigeria's public sector." International Journal of Financial Research, 12(4), 56-72.

Akinola, O. O., & Lawal, F. R. (2022). "Diagnostic data analytics and decision-making in Nigeria's public financial management." International Journal of Public Sector Performance management, 18(1), 55-70.

Akinyele, S. T., & Fasoranti, M. M. (2019). "The role of technology in enhancing public sector financial management in Nigeria." Journal of Financial Management & Analysis, 32(2), 112-128

Akinyemi, O. D., & Awosika, F. O. (2018). "The Role of Big Data Analytics in Economic development in Nigeria." Nigerian Journal of Economic and Social Studies, 60(2), 231-246.

Amidu, M., Effah, J., & Abor, J. (2011). "E-accounting practices among small and medium enterprises in Ghana." Journal of Management Policy and Practice, 12(4), 146-155

Arowoshegbe, A. O., & Uniamikogbo, E. (2016). "Agency Theory and Financial Reporting quality in the Nigerian Public Sector." International Journal of Accounting and Financial reporting, 6(2), 178-197.

Chukwu, L. E., & Nwankwo, U. I. (2020). "The Impact of Technological Infrastructure on Big data Analytics in Nigerian Public Sector." African Journal of Science, Technology, Innovation and Development, 12(1), 123-135.

Chukwu, L. E., & Ogu, C. C. (2021). "Adoption of Big Data Analytics in Nigeria's Public Sector: a Diffusion of Innovation Perspective." Technology in Society, 67, 101704

Chukwuemeka, E. E., & Okeke, I. O. (2019). "Descriptive analytics and decision-making in nigeria's public sector: A study of selected ministries." Journal of Public Sector management, 13(1), 77-92.

Chukwuemeka, E. E., & Okeke, I. O. (2019). "Descriptive analytics and decision-making in nigeria's public sector: A study of selected ministries." Journal of Public Sector management, 13(1), 77-92

Donaldson, L. (2001). "The Contingency Theory of Organizations." Sage Publications.

Egbunike, F. C., & Emudainohwo, O. B. (2018). "The Role of Technology in Enhancing Financial reporting Quality in Nigeria's Public Sector." Journal of Accounting and Finance, 18(2), 113-127.

Ekeocha, P. C. (2012). "An analysis of the adoption of International Public Sector Accounting standards in Nigeria." Journal of Management Policy and Practice, 13(1), 66-74.

Ekeocha, P. C., & Onuorah, A. C. (2021). "Leveraging Big Data for Improved Public Service delivery in Nigeria." International Journal of Public Sector Management, 34(5), 467-483.

Ekeocha, P. C., & Udo, E. S. (2014). "Capacity building for public sector financial management in Nigeria." Journal of Management Development, 33(1), 92-105.

Enofe, A. O., Mgbame, C. O., Otuya, S., & Ovie, C. (2015). "Stakeholder Theory and Financial reporting Quality in the Public Sector: Evidence from Nigeria." Journal of Management and Sustainability, 5(3), 44-59

Eze, S. C., & Nwankwo, U. I. (2019). "Resource-Based View and Big Data Analytics: A Study in nigerian Public Sector." Journal of Business Research, 101, 415-426.

Ezeani, E. J., & Udeh, J. A. (2021). "Impact of diagnostic analytics on internal control systems in nigeria's public financial management." African Journal of Accounting and Finance, 10(3), 210-225.

Ezeani, E. J., & Udeh, J. A. (2021). "Impact of diagnostic analytics on internal control systems in nigeria's public financial management." African Journal of Accounting and Finance, 10(3), 210-225.

Igbokwe, C. E., & Ifeanyichukwu, C. (2021). "Diagnostic analytics in public sector financial management: A Nigerian perspective." International Journal of Financial Studies, 9(2), 35-52.

Ijeoma, E. M., & Ogbu, A. A. (2022). "The impact of descriptive data analytics on regulatory compliance in Nigeria's public sector financial reporting." International Journal of Public sector Accounting, 15(3), 200-215.

Iyoha, F. O., & Oyerinde, D. (2010). "Accounting infrastructure and accountability in the management of public expenditure in developing countries: A focus on Nigeria." Critical perspectives on Accounting, 21(5), 361-373.

Janssen, M., & van der Voort, H. (2016). "Adaptive governance: Towards a stable, accountable, and efficient public sector." Public Administration Review, 76(1), 86-95.

Kitchin, R. (2014). "Big Data and human geography: Opportunities, challenges and risks." dialogues in Human Geography, 4(3), 262-267.

Obara, L. C., & Nangih, E. (2017). "Capacity Building and Financial Reporting Quality in the nigerian Public Sector." International Journal of Development and Management Review, 12(1), 46-58.

Obi, U. I., & Obioma, D. I. (2020). "Root cause analysis and financial reporting quality in Nigerian public institutions." Journal of Public Sector Accounting, 14(2), 94-108.

Ofoegbu, G. N., & Odo, F. C. (2018). "The Impact of Internal Control Systems on Financial reporting Quality in the Nigerian Public Sector." International Journal of Business and management, 13(8), 183-195.

Ogundiya, I. S. (2010). "Corruption and public financial management in Nigeria." Journal of Social sciences, 22(2), 83-91.

Ojo, M. T., & Adebayo, A. A. (2019). "Challenges of Big Data Analytics Adoption in Nigeria's public Sector." Journal of Information Technology & Politics, 16(3), 289-305.

Ojo, M., & Olanipekun, S. (2017). "Transparency, accountability, and good governance in public financial management in Nigeria." International Journal of Public Sector Management, 30(5), 489-506.

Okaro, S. C., Ofoegbu, G. N., & Okafor, T. C. (2018). "The impact of IFRS adoption on public sector financial reporting quality in Nigeria." International Journal of Accounting and financial Reporting, 8(4), 106-125.

Okoye, E. I., & Oghaghomeh, T. (2011). "Accounting policy and practice: A diagnostic review of local government area councils in Nigeria." African Research Review, 5(5), 146-157.

Okoye, E. I., & Onyekwelu, U. L. (2020). "Big Data and Good Governance in Nigeria: An assessment of the Role of Big Data in Enhancing Transparency and Accountability." international Journal of Public Administration and Management Research, 5(3), 45-57.

Okpala, K. E., & Chidi, O. (2020). "Regulatory Framework and Financial Reporting Quality in the nigerian Public Sector." International Journal of Law and Management, 62(3), 309-327.

Olaniyi, O. I., & Olanrewaju, O. S. (2022). "The future of big data analytics in public financial management in Nigeria: Opportunities and threats." International Journal of Public administration, 45(7), 615-627

Olaniyi, O. I., & Olanrewaju, O. S. (2022). "The future of big data analytics in public financial management in Nigeria: Opportunities and threats." International Journal of Public administration, 45(7), 615-627.

Omolehinwa, E. (2012). "Government Accounting in Nigeria: An IPSAS Approach."

Oni, O., & Pienaar, J. (2021). "Challenges in implementing big data analytics in public sector organizations in Nigeria." African Journal of Information Systems, 13(1), 1-19.

Oni, O., & Pienaar, J. (2021). "Challenges in implementing big data analytics in public sector organizations in Nigeria." African Journal of Information Systems, 13(1), 1-19.

Onuoha, S. C., & Ogbonna, B. C. (2020). "The role of data analytics in improving transparency and accountability in public financial management in Nigeria." African Journal of accounting, Auditing and Finance, 9(2), 130-145.

Provost, F., & Fawcett, T. (2013). "Data Science for Business: What You Need to know about data Mining and Data-Analytic Thinking." O'Reilly Media, Inc.

Uwuigbe, U., Uwuigbe, O. R., & Igbinoba, E. E. (2016). "Financial reporting quality in the nigerian public sector." Meditari Accountancy Research, 24(4), 463-485.

Waller, M. A., & Fawcett, S. E. (2013). "Click here to win! – Using big data to drive performance in the supply chain." Journal of Business Logistics, 34(2), 77-92.

Yakubu, I. N., & Adah, A. (2015). "Public sector accounting and financial reporting in Nigeria: an overview of the theoretical framework." International Journal of Business and Social science, 6(12), 89-97.