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ADVANCED TECHNOLOGY AND SHAREHOLDERS' VALUE CREATION IN SELECTED DEPOSIT MONEY BANKS IN NIGERIA

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ABSTRACT

This study examined the effect of advanced technology on shareholders' value creation in Zenith Bank Ltd and Wema Bank Ltd with desire whether the adoption of AI, big data analytics and cloud computing impacts on shareholders' value creation. The study adopts survey research design using structured questionnaires to gather responds from the employees of the selected banks. Descriptive statistics and multiple regression analysis were used to analyse the data collected. The study's results showed that artificial intelligence and big data analytics positively impacted shareholders' value creation, likewise, cloud computing has significant and positive impact on shareholders' value creation. It is recommended that effective use of advanced technology improve operational efficiency, decision making and reduced operational expenditure therefore, management of banks should continuously invest in technological infrastructure and enhance employees' technological skills as technology-driven strategies.

Keywords: Advanced Technology, Artificial Intelligence Adoption, Big Data Analytics, Shareholders' Value Creation.

1 INTRODUCTION

Technology has seen tremendous growth and development in today's business landscape, which has made it imperative for organizations to embrace innovation and technology to stay competitive and sustain value. The integration of advanced technologies like AI, big data analytics, cloud computing, blockchain, and automation has emerged as a critical asset for enhancing operational efficiency, cost savings, and decision-making, while also shaping new business models. Digital transformation has been shown to be crucial to improve efficiency of capital and labour allocation. (Zhao et al., 2024).

The creation of value for the shareholders is one of the key goals of corporate management as investors investments should lead to sustainable value creation through profit growth, dividend payments, and firm value (Shmelev & Gilardi, 2025), with growing pressure on organizations to show the financial returns for technology investment. Shareholder value creation is the benefits derived from quality transformation of services and goods through the application of technology rather than by intuition.

Statement of the Problems

New technologies are being embraced by companies to maximize efficiency; cut operating expenses; bolster decision making; and boost competitiveness. Although many organizations invested in technologies like artificial intelligence, big data solutions, cloud computing, automation, and digital platforms and still struggle to see the impact of such investments on shareholder's value (Al-Kalach, 2023).

The financial implication of implementing advanced technology is of significant to management and stakeholders for efficient and operational benefits through cost effectiveness. In the short term, investing in technology demand investing in skilled staff which is costly couple with infrastructure and maintenance costs (Soomro et al., 2025). However, the benefits are of long-term, meaning that it is hard to measure the value created for the firm by the shareholder/manager. Literature indicates that digitalization yields positive effects on the performance of companies, but the level of impact differs among companies and technological applications (Opoku et al., 2024).

Objectives of the Study

The main aim of this study was to examine advanced technology and shareholders' value creation in selected deposit money banks in Nigeria. This research therefore seeks to:

- Examine the effect of artificial intelligence adoption on shareholders' value creation in selected deposit money banks in Nigeria.
- Evaluate the effect of big data analytics on shareholders' value creation in selected deposit money banks in Nigeria.
- Determine the effect of cloud computing on shareholders' value creation in selected deposit money banks in Nigeria.

1.1 Scope of the Study

The study investigates the impact of advanced technology on shareholders' value creation of selected deposit money banks in Nigeria; where primary data were gathered from employees of Zenith Bank Ltd and Wema Bank Ltd are the respondents.

2 LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 Artificial Intelligence Adoption

Artificial intelligence (AI) adoption is the use and integration of computers platform to perform tasks than human intelligence, such as learning, predicting, problem-solving, and decision-making (Enholm et al., 2022). Within the banking industry, AI is being used in chatbots and automated customer support systems, fraud detection, credit scoring, predictive analysis, and risk management tools. Applications helped in cost reduction, increase service delivery, improve operational efficiency, and accurate managerial decisions (Pasupuleti et al., 2024). Thus, implementing AI led to better financial performance and ultimately drive shareholder value. New research suggests that the introduction of AI boost bank profitability by cutting down costs, diversifying revenue streams, and enhancing digital banking services (Tong & Yang, 2025).

2.1.2 Big Data Analytics

Big data analytics is a systematic collecting, processing, analysing, and interpreting large data sets of structured and unstructured data to gain business insights (Shahnawaz & Kumar, 2025). It helps institutions to process and analyze customer transactions, market information, credit records and operational data to make better decisions. Study revealed that there are several notable applications of big data analytics, such as fraud detection, credit-risk analysis, decision-making enhancement, and the development of new products (Mhlanga, 2024). When big data analytics are applied effectively, it enhances operational efficiency and organizational productivity by empowering informed decisions based on data. To summarize, Rahman (2025) revealed that the pressure of data-driven decision-making has a positive impact on banks' output, which is enhanced by the influence of data analytics.

2.1.3 Cloud Computing

The term cloud computing is used to describe the provision of computing services, including servers, storage, databases, software and processing power, over the internet instead of using only the resources the company owns. Cloud technology gave access to scalable and flexible technological resources, and lower some of the expenses related to infrastructure and maintenance (Malallah et al., 2023). Cloud computing has the potential to improve operational

efficiency by enabling rapid and more efficient deployment of services, enabling data accessibility, scaling up services and capability, and enabling better digital services (Aithal, 2023).

2.2 Shareholders' Value Creation

Shareholders' value creation describes the capacity of a company to deliver increased value to its shareholders in terms of higher profitability, better market valuation, higher dividends and higher and sustainable returns on investment, this is where the actual returns for the shareholders are greater than expectation on their equity investment, as the firm creates value (Stoelhorst, 2023). Management must make strategic decisions in order to create value in an effective way in the long run and grow sustainably, not focusing on maximizing short- term profit. According to Ben-Fatma and Chouaibi (2024), good corporate governance fosters trust in the market, sustainable growth and long-term value creation.

2.3 Advanced Technology and Shareholders' Value Creation

Advanced technology is becoming a vital strategic asset for organizations to enhance performance and generate shareholder value in a sustainable way. Artificial Intelligence, big data analytics, and cloud computing technologies helped businesses to optimize their operations, cut costs, enhance decision-making, mitigate risks, and create new products and services (Rane et al., 2024). In the industry, investment in technology have direct impact on profitability and other performance measures. There is growing evidence that positive relations between technology spending industry profitability. (Whited et al., 2022).

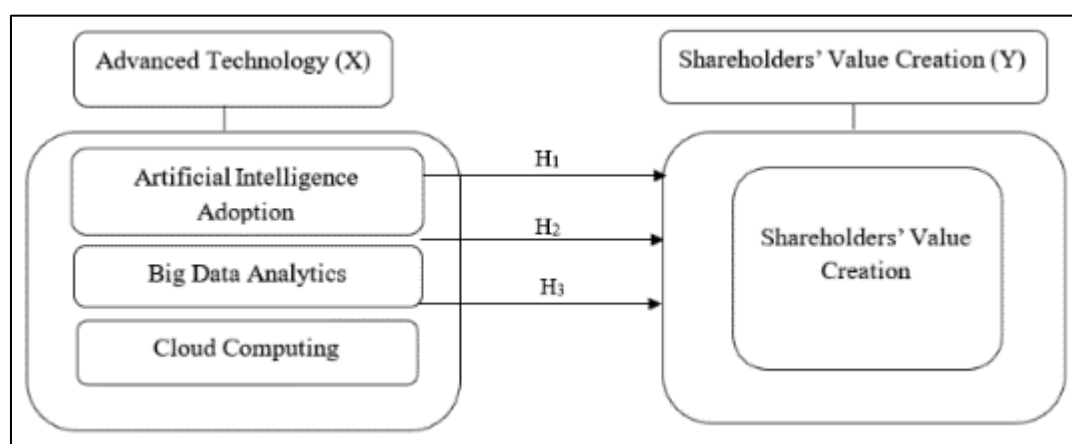


Figure 1: Conceptual Model

Source: Researcher's Conceptual Model (2026)

3 THEORETICAL REVIEW

3.1 Resource-Based View (RBV) Theory

The Resource-Based View (RBV) Theory has been developed by Jay Barney in 1991, based on the other resource-based theories of Penrose and Wernerfelt. The theory makes the assumption that firms in an industry have resources that are not perfectly identical, and not perfectly mobile between firms. Resources can offer a sustainable competitive advantage if they are valuable, rare, non-substitutable and difficult to imitate (Zvarimwa and Zimuto, 2022). The theory was supported by others, including Zeng et al. (2023) who elucidate the theory's economic basis and connect critical resources with value creation and economic rents.

But RBV has been discredited. The theory faced conceptual and logical challenges, such as the challenge of identifying strategically important resources and of defining causal links between resources and competitive advantage, as argued by Valentine et al. (2024). Bhandari et al. (2022) also point out issues with the concepts of resources, value, and competitive advantage. However, this study is highly relevant to RBV, as AI, big data analytics and cloud computing can be important strategic technological resources. These resources can, when used effectively, lead to enhanced efficiencies, innovation, profitability and competitive advantage, and thus be a catalyst to shareholders' value creation.

3.2 Technology Acceptance Model (TAM)

In 1989, Fred Davis proposed the Technology Acceptance Model (TAM) as a model for understanding and predicting user acceptance and use of information technology. The theory is based on two key beliefs that significantly predict

user's intention to use technology: perceived usefulness and perceived ease of use. Perceived usefulness revolves around the idea that technology assist with job performance, and perceived ease of use revolves around how easy the technology is used. (Shata & Hartley, 2025).

There are a few scholars who have confirmed and extended TAM. Izuagbe et al. (2022) added to TAM2. They supported the extended model through their longitudinal study. But there are some criticisms such as from Ishengoma (2024) and Wang et al. (2023) stating that TAM is too simple as it does not consider organizational, social and contextual factors sufficiently. Though there are a lot of critiques on TAM, it is a relevant study for this research as the acceptance of the AI, Big Data Analytics, and Cloud Computing influenced by the employees' perceptions of usefulness and ease of use. However, good implementation of these technologies enhanced efficiency and performance, benefiting shareholders' value creation.

3.3 Empirical Review

Nguyen-Phu et al. (2025) studied the effect of cloud computing technology on the adoption of cloud accounting and financial management of companies. Structural equation modeling (SEM) was used to assess links between cloud investment and performance outcomes. The results indicated that cloud computing has an impact on financial performance, internal processes, and learning and growth. The researchers found that business benefits from cloud technology can be achieved in the following areas: Flexibility, Cost reduction, Access to information, and Organization capabilities. The results corroborate the thesis that high technology can enhance performance and shareholder value.

Malik et al. (2024) focused on the study of cloud digital forensics: going beyond tools, techniques, and challenges. The researchers used the event-study methodology to analyze how the stock market reacted during the announcement dates. Results indicated that the market reacted positively to the initiatives of cloud computing, while the reaction was different in terms of firm-specific, resource-specific, and vendor-specific attributes. The study found evidence that cloud adoption brings value and enhances the market value, supporting the positive role that cloud could play in shareholder wealth creation in an empirical way.

Aithal (2023) investigated how technological innovations can lead to business value with respect to ICCT underlying technologies, focusing on technical and social characteristics of cloud computing and their impact on performance. The findings indicated that the different types of clouds influenced primary and support uses, and these contributed to an increase in value creation and better performance. The research highlighted that the factors necessary for cloud adoption are complementary organizational capabilities, with the conclusion that technology is not sufficient to ensure the creation of shareholder value.

Tahmid (2023) examined if companies which made use of cloud computing obtain better accounting performance in the future. The analysis revealed that cloud adopters had greater annual accounting returns in the subsequent year. The positioning also played an important role: differentiation strategies had the positive effect of enhancing profit margins while cost leadership strategies had the positive effect of enhancing asset turnover. The results indicate that adopting cloud technology can generate financial value if combined with the right business models and strategies, which could improve shareholders' values.

Chen et al. (2022) explored the effect of cloud computing on firm performance. The study employed differences in different models with propensity-score matching using firms that have implemented cloud services. Adopting clouds had a significant positive impact on profitability, as measured by return on assets, and on market value as measured by Tobin's Q, according to results. The results remained, although there were variations among the firms in size and industry, for several years. The results proved that investment in advanced technology improve financial and shareholder value.

4 METHODOLOGY

4.1 Research Design

Qualitative research design was used to investigate the relationship between advanced technology and shareholders' value creation. The design was appropriate as it involved the use of structured questionnaires for the collection of primary data from respondents of Zenith Bank Plc and Wema Bank Plc.

4.1.1 Population

The population of the study was 11,277 employees working in Zenith Bank limited and Wema Bank ltd. Moreover, Zenith Bank ltd has 8,773 workers while Wema Bank Its has 2,504 employees.

4.1.2 Sample Size

The ample population was 378 at 0.5 error rate and 95% level of confidence. The sample size obtained was based on Krejcie and Morgan, (1970) sample size calculator.

4.2 Method of Data Collection

Primary data was used to obtain responds from the respondents by applying structured questionnaire which was administered to the selected employees of Zenith Bank Ltd and Wema Bank Ltd by the researcher. The questionnaire questions were rated on a 5-point Likert scale.

4.3 Reliability of Data

The reliability of research instruments was conducted using Cronbach's Alpha coefficient and the result was 0.70,

4.4 Method of Data Analysis

The collected data was analysed using descriptive and inferential statistics. Responses were summarized using frequencies, percentages, means and standard deviations, and multiple regression analysis used to test the effects of artificial intelligence, big data analytics and cloud computing, at the 5% significance level, for the creation of value for shareholders.

4.5 Model Specification

The study uses a model specification to explore advanced technology and shareholders' value creation in selected deposit money banks in Nigeria. The functional relationship is expressed as:

$$\text{SVC} = f(\text{AID}, \text{BDA}, \text{CC})$$

- Where:
- SVC = Shareholders' Value Creation
- AID = Artificial Intelligence Adoption
- BDA = Big Data Analytics
- CC = Cloud Computing
- The econometric form of the model is specified as:
- $\text{SVC}_i = \beta_0 + \beta_1 \text{AID}_i + \beta_2 \text{BDA}_i + \beta_3 \text{CC}_i + \mu_i$
- Where:
- β_0 = Constant ter
- $\beta_1, \beta_2, \beta_3$ = Coefficients of the independent variables
- μ = Error term, i = Individual investor/respondent

5 DATA ANALYSIS

The biographical data for the 367 respondents of the study are summarized in Table 1. According to gender distribution, 58.6% of the respondents were males, and 41.4% were females. This suggests that the majority of the respondents were male. As far as marital status is concerned, 59.4% of the respondents were married while 40.6% were single, which meant that the married respondents made up the larger proportion.

The age distribution shows that 267 (72.8%) were 30-50 years, 97 (26.4%) were under 30 years and only 3 (0.8%) were over 51 years. This indicates that the age groups of the respondents were mainly economically active. In terms of work experience, 203 respondents (55.3%) had less than 10 years of experience, 146 (39.8%) had 10–20 years, while 18 (4.9%) had more than 20 years. Lastly, the educational qualification reveals that 324 respondents (88.3%) had B.Sc./HND qualifications, 35 respondents (9.5%) had M.Sc. degree, and 8 respondents (2.2%) had Ph.D. Education qualification.

Table 1: Biographical Information of Respondents

Variables	Characteristics	Frequency	Percentage (%)
Gender	Male	215	58.6
	Female	152	41.4
	Total	367	100
Marital Status	Single	149	40.6
	Married	218	59.4
	Total	367	100
Age	Less than 30 years	97	26.4
	30 – 50 years	267	72.8
	More than 51 years	3	0.8
	Total	367	100
Experience	Less than 10 years	203	55.3
	10 – 20 years	146	39.8
	More than 20 years	18	4.9
	Total	367	100
Qualification	B.Sc./HND	324	88.3
	M.Sc.	35	9.5
	Ph.D.	8	2.2
	Total	367	100

Source: Field Survey (2026)

5.1 Testing Hypotheses

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.649	0.422	0.417	1.45162
a. Predictors: (Constant), Cloud Computing, Artificial Intelligence Adoption, Big Data Analytics				

Source: Researcher's Study (2026)

The model summary can be seen in Table 2. The value of the R-Value is 0.649 which is considered as a moderately strong positive relationship between cloud computing, artificial intelligence adoption, big data analytics, and shareholders' value creation. The result of R Square is 0.422 which means that the three independent variables explain 42.2% of the variation in shareholders' value creation and the remaining 57.8% is explained by the other factors that are not part of the model. The Adjusted R Square value of 0.417 shows that the model still has 41.7% of the power of explaining. The standard error of 1.45162 indicates the model's prediction error.

Table 3: Analysis of Variance (ANOVA)

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	557.472	3	185.824	88.186	0.000
Residual	764.911	363	2.107		
Total	1322.384	366			
a. Dependent Variable: Shareholders' Value Creation					
b. Predictors: (Constant), Cloud Computing, Artificial Intelligence Adoption, Big Data Analytics					

Source: Researcher's Study (2026)

The ANOVA results for the combined effect of cloud computing and AI use and big data on shareholders' value creation are displayed in Table 3 below. The regression sum of squares is 557.472, the residual sum of squares is 764.911, and the total sum of squares is 1,322.384. The model p-value of 0.000 means that the model is statistically significant. The significance value is less than 0.05 hence the regression model is statistically significant, concluded that the null hypothesis is rejected and it is concluded that the combined effect of cloud computing, adoption of artificial intelligence, and big data analytics is significant upon value creation of shareholders.

Table 4: Coefficients of Variables

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.178	0.916		4.564	0.000
	Artificial Intelligence Adoption	0.329	0.050	0.330	6.519	0.000
	Big Data Analytics	0.214	0.059	0.203	3.610	0.000
	Cloud Computing	0.221	0.056	0.226	3.935	0.000
a. Dependent Variable: Shareholders' Value Creation						

Source: Researcher's Study (2026)

Table 4 reported that the regression coefficients of AI adoption, big data analytics, and cloud computing impacted on shareholders' value creation. The constant coefficient of 4.178 represents the expected value of shareholders' value creation as other predictors are kept constant. The positive correlation of AI is 0.329 and a standardized beta value of 0.330, at P-value of 6.519, and at significance value of 0.000. This means artificial intelligence is positively and significantly associated with shareholders value creation. Big data analytics has positive associated with coefficient of 0.214, standardized beta of 0.203, t -value of 3.610 and the value of significance is 0.000. Likewise, the coefficient of cloud computing is positive, 0.221, and the standardized beta is 0.226 which has a t-value of 3.935 and the significance value of 0.000. All significance values are less than 0.05 so that all three null hypotheses are rejected. Adoption of artificial intelligence, followed by cloud computing and big data analytics, is the most influential of the predictors relative to the other variables.

6 DISCUSSION OF FINDINGS

6.1 Artificial Intelligence Adoption and Shareholders' Value Creation

Prior research backs up the finding that artificial intelligence implementation has a positive and notable impact on the value creation of shareholders. According to the research of Gyau et al. (2024), the adoption of AI innovation has a positive impact on the performance of banks, specifically return on assets, which indicates that AI innovation can enhance financial performance. The result, however, contrasts with some researchers' findings, which revealed problem areas of the relationship between AI use and firm value. Gao and Feng (2023) are one study that claimed that AI investments might yield marginal productivity gains for companies that do not have necessary organizational traits and trained employees.

6.2 Big Data Analytics and Shareholders' Value Creation

Saeed et al. (2023) found that a firm's big data analytics capability adds direct and indirect positive effect on firm performance via dynamic capabilities, which supports the finding that big data analytics has a significant positive effect on shareholders' value creation. Ansari and Ghasemaghahi (2023) discovered that this correlation between analytics capability and the firm performance is dependent upon contextual factors like performance type and country.

6.3 Cloud Computing and Shareholders' Value Creation

Based on the results of Abu-El-Haija et al. (2025), the authors demonstrated that the adoption of the cloud had a substantial positive effect on the profitability and market value of the listed companies. However, the present finding is contradictory to the finding by Chen and Srinivasan (2024) that found that after adopting cloud computing, the financial performance of the firm declined, and only improved over time, indicating that there is a possibility for the lag time in realizing value after adopting cloud computing.

7 CONCLUSION

The study finds that the application of advanced technology has a significant effect on shareholders' value creation in Zenith bank Plc and Wema bank Plc respectively. The result proved that AI, big data analytics and cloud computing each exerts a strong positive impact on shareholders' value creation. The findings also support the notion that these technological dimensions are both interrelated and collectively create value for shareholders. The relative impact was highest for artificial intelligence adoption, with cloud computing and big data analytics coming in second.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

Disclosure of conflict of interest

The authors declare no conflicts of interest regarding this manuscript

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