

TECHNOLOGICAL LEADERSHIP AND ORGANIZATIONAL PERFORMANCE OF SELECTED DEPOSIT MONEY BANKS IN KATSINA STATE

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Abstract

The study examined technological leadership and organizational performance of selected deposit money banks in Katsina State. Specifically, the research ascertained the impact of technological leadership, innovation output, patent/intellectual property, digital transformation, market capitalization and organizational performance. The study population comprised 509 employees and customers from the five banks under study while 224 were selected as sample representatives. A cross-sectional survey was utilized and a set of structured questionnaires was distributed to the 224 employees and customers for data gathering. The data gathered was analyzed with descriptive and inferential statistics using the SPSS statistical package while simple correlation and regression analysis was used to establish the relationship between technical leadership and organizational performance. The findings indicate that innovation outputs positively and significantly correlated to organizational performance. Patent/intellectual property was positive and significantly correlated with organizational performance and digital transformation has a positive effect on organizational performance. The study therefore recommends that management of the banks should innovate and encourage creative thinking among employees. Also, they should foster an environment that values and rewards innovative ideas and giving more focus on the provision of proactive IT practices on organizational performance. This may involve adopting advanced technologies, digitizing processes, and ensuring that the workforce has equipped with the necessary digital skills.

Keywords: Innovation Output, Patent/Intellectual Property, Technological Leadership, Organizational Performance.

Introduction

The need for organizations to be managed successfully and efficiently with competitive advantage is a clarion call regardless of the nature, type and size of the organization. Apparently, organizational

performance is sacrosanct to organisational success and efficiency which could be highly dependent on both employees and customers factors. Izevbigie and Oriazowanlan (2024) noted the relevance of performance indicators to successful SMEs operations. Organizational performance is a multidimensional concept that assesses how well an organization is achieving its objectives. It is usually measured through a variety of metrics including financial performance (profitability, return on assets, and return on capital), operational efficiency, customer satisfaction, market share, and overall growth. High organizational performance reflects the organization's ability to use resources efficiently, respond to market demand and remain competitive (Lee et al., 2022). Previous researchers, such as Mutie (2018), have shown that technological leadership is related to the organizational performance of government agencies in Kenya in the areas of ATM, mobile banking, credit and debit card use, internet banking and agency banking.

Technological leadership in the banking industry is essential for innovation, customer experience, and operational efficiency. Leaders invest in digital channels such as mobile apps and chatbots and prioritize robust cyber security to minimize data breaches and regulatory compliance (Akpan, 2023). According to a survey conducted by a global multinational professional service accounting firm, Ernst & Young (EY) (2020), China and India lead the adoption rate of 87% and 82% of FinTech in their banking sector. Close behind are Russia 82%, South Africa 82% and the United Kingdom 71% while 96% of customers in the world are aware of alternative FinTech services available to help them transfer money and make payments. This profoundly changes customer expectations in the process, pressuring the banking industry to develop similar services to stay competitive and retain market share in the banking industry (Murinde et al., 2022). This is an indication that banks in developed countries are technological advanced more than the developing countries and provide adequate quality service to their customers. However, considering the important role that banks play in the global economy, Nigeria needs to pay sufficient attention to the organizational performance of the banking industry, as it is one of the sectors driving the country's economy. As a result, bank performance is examined and quantified using a variety of indicators to determine financial stability, efficiency, effectiveness, and overall competitiveness (Paseda, 2012).

Technological leadership is paramount in today's rapidly evolving and competitive business environment. It offers considerable benefits and benefits to businesses across a wide range of industries. Malini and Menon (2017) state that changes are taking place in the banking industry by improving the customer experience, optimizing operations, enhancing security, driving innovation, and improving risk management through technology. As a result, countries such as China, Singapore, the UK and the European Union (EU) are actively investing in fintech and digital banking initiatives and their influence in the industry is growing rapidly (Jones & Critchfield, 2005). It is against this backdrop that the study examines how technology leadership can improve the performance of banks in Katsina by investigating the multifaceted aspects of innovation, patents/intellectual property and digital transformation. According to Sun et al. (2015), the implementation of technology leadership in

banks can serve as a catalyst for good change and innovation across the banking industry, by establishing high standards for customer service, efficiency, risk management, and ethical banking. Technologically advanced banks encourage others to adapt, adopt and continuously develop (Anvari et al., 2014). This will ultimately benefit customers, promote healthy competition and drive the entire industry towards greater innovation and excellence.

However, in Nigeria, banks struggle to attract and retain skilled IT professionals and tech-savvy employees, affecting technological leadership efforts (Sun et al., 2015). In addition, the limited funds and resources for research have hindered the comprehensive exploration of technological leadership and performance, leaving the banking sector poor in technological infrastructure, unreliable technical infrastructure, as domestic banks barely boast of self-service deposit machine to improve customer satisfaction, long queues of customers in the bank hall, technical glitches, connectivity problems such as the evidence from the bank's impact on the implementation and performance of technology-based solutions (Anvari et al., 2014). This study therefore aims to examine the factors responsible for the technological leadership and organizational performance challenges of deposit banks in Katsina state.

Previous studies, such as (Kamau & Oluoch, 2016; Silva & Santana, 2022), have consistently used automated teller machines (ATMs), mobile banking, credit and debit cards, Internet and banking, and agency banking to represent technological leadership. These proxies have limited the study's originality and reduced its contribution to the literature because the proxies are not perfectly aligned with the current study's context or objectives which have led to measurement bias. The current study seeks to address the variable gap by using patent/intellectual property and innovation as factors of technological leadership to have a well-established and straightforward comparison with previous studies. Similarly, previous researchers used a minimum scientific determination sample size of 100 to 150, which is not a good representative sample size and creates a methodological gap addressed by the present study. This study therefore examines the technological leadership and organizational performance of selected deposit money banks in Katsina state.

The overarching question of this study is to what extent does technology leadership (patents/IP, innovation outputs and digital transformation) influence the organizational performance of selected deposit money banks in Katsina State while the objectives are to assess the effect of technology leadership (patents/IP, innovation outputs and digital transformation) on the organizational performance of selected depository banks. This research aims to contribute to the study by highlighting how technology leadership influences performance; the study can help banks design effective frameworks for technology adoption. This may include identifying key leadership traits or practices that drive successful digital initiatives and align with organizational goals.

2.0 Literature Review

2.1 Concept of organizational performance

The growth and success of an organization depends on placing the right technologies that can increase key resources that contribute to a sustainable competitive advantage and outstanding performance (Al-Aina & Atan, 2020). The importance of implementing technology in an organization is that it can efficiently and effectively achieve the objectives of the organization with excellent performance, and it is said to be more reliable for the organization because the task execution is so fast that it ultimately results in a great competitive advantage and increased productivity and profitability (Al Aina & Atan, 2020). In the context of banking, organizational performance is the examination and measurement of how a bank or financial institution fulfills its objectives, serves its stakeholders, and competes in the market (Kurdi & Alshurideh, 2020). This includes, amongst other things, financial, operational, customer-centric, and regulatory issues. One of the key indicators of organizational performance in banks is profitability. Banks are committed to generating net income and use metrics such as return on assets (ROA) and return on equity (ROE) to assess their financial health. The evidence shows that banks with consistent profitability are seen to be favored by investors and stakeholders. Analysis of global banking data, for example, shows that well-managed banks tend to have higher ROA and ROE figures, demonstrating their ability to generate profits efficiently (Kurdi & Alshurideh, 2020).

2.2 Concept of technological leadership

The concept of technological leadership refers to an organization's ability to excel in the development, adoption, and utilization of advanced technologies and innovations within its industry or sector (Weng & Tang, 2014). Technological leadership is characterized by being at the forefront of technological progress, setting industry standards and harnessing technology to gain a competitive advantage. The concept of technological leadership in the banking sector is the ability to leverage advanced technology, innovation and digital strategies to excel in operations, deliver outstanding customer experiences and remain competitive within the financial industry (Gençer & Samur, 2016). Technological leadership is inextricably linked to a culture of innovation and creativity. Leading companies encourage their staff to think creatively, experiment with new ideas and discover innovative solutions to the difficulties of the industry. Research and development (R&D) investment is a sign of technological leadership. Organizations spend resources on developing their own solutions, discovering new technologies, and continuously improving existing products and services. Technological leadership in banking includes a comprehensive digital transformation of financial institutions (Gençer & Samur, 2016). This includes digitalizing manual processes, adopting digital channels for customer interaction, and optimizing internal operations with technology. Technologically advanced banks are focused on providing a superior customer experience. They use technology to provide personalized banking services, streamline the on-boarding process and provide convenient self-service options through online and mobile banking platforms (Gençer & Samur, 2016).

2.2.1.1 Innovation Output

In recent years, there has been significant academic interest in innovation, including banking, health transportation and other sectors, to reorganize traditional systems and reach digital transformation to deliver customer experience, safety and efficiency for these organizations. Innovation is a cognitive framework for companies to make money from process and product innovation by deliberately using the ingestion and out flow of information to accelerate innovation (Singh et al., 2021). Innovation is the process of creating, developing, and implementing new or improved ideas, products, services, processes, or methods that bring about significant positive change, value creation, or progress in various aspects of human life, business, or society (Damanpour et al., 2016). Innovation is a multifaceted and dynamic concept that plays an important role in driving progress and growth in various areas (Damanpour et al., 2016). Innovation in banking is an ongoing process driven by a combination of customer demand, regulatory changes and technological advances, successful innovative banks can adapt to changing market conditions, attract and retain customers, and remain competitive in a digital-first world (Rehman & Iqbal, 2020).

2.2.1.2 Patent/intellectual Property

Patent Intellectual property is an intangible asset that, like knowledge capital, serves as a value catalyst in a corporation. Patent and intellectual property place more emphasis on the company's experience, sightings, bonding, knowledge, method, connection, and municipal inspiration (Abdullah & Othman, 2019). The information that each firm possesses enables the firms to convert their respective human resources into intellectual capital, which will be a useful asset for each organization. Patents and intellectual property (IP) in banking play a significant role in protecting innovative technologies, processes, and financial products. Intellectual property has become increasingly crucial with the emergence of fin-tech firms and technology-driven banking solutions (Abdullah & Othman, 2019). Many fin-tech firms develop in areas such as payment processing, data analytics, block-chain, and cyber-security, which results in patent filings to protect their innovations. Banks frequently create their own technologies comprises of mobile banking apps and apply it to prevent unlawful replication and dissemination of features (Abdullah & Othman, 2019).

2.2.1.3 Digital transformation

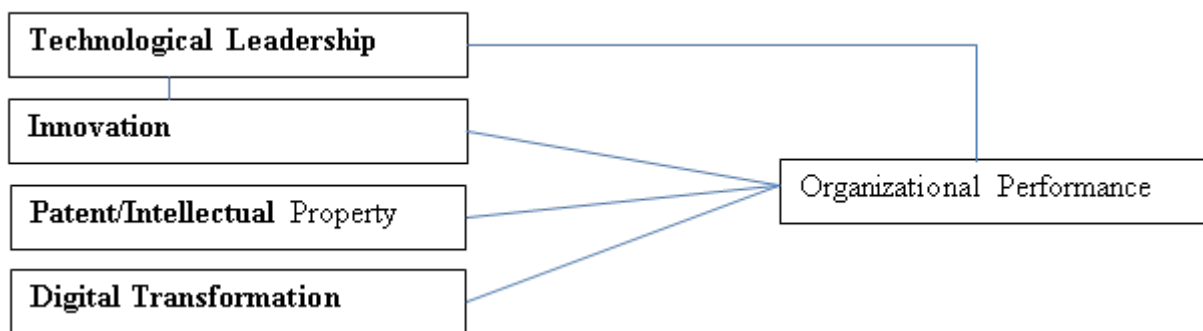
Digital transformation is the use of technology to build new commercial models, processes, software, and systems that result in more profitable income, a higher competitive edge, and higher efficiency. Businesses achieve this by transforming processes and business models, empowering workforce efficiency and innovation, and personalizing customer/citizen experiences (Kraus et al., 2022). Digital transformation in banking is a complete overhaul of traditional banking processes, services and infrastructure through the integration of digital technologies and innovative strategies. This transformation is driven by the need to meet changing customer expectations, improve operational efficiency, enhance security, and stay competitive in an increasingly digital world (Vaska et al., 2021). Banks provide digital wallet solutions, allowing customers to make payments via mobile devices or

internet platforms. Contactless card payments and Near Field Communication (NFC) technologies allow for quick and safe transactions, and banks are leveraging data analytics and artificial intelligence (AI) to better understand client behaviour, personalise offers, and detect fraud. Artificial Intelligence powered chat-bots provide automated customer support and answer inquiries, enhancing efficiency. Some banks explore block-chain technology for secure and transparent transactions, especially in trade finance and cross-border payments (Kraus et al., 2022).

2.4 Conceptual Framework

Below is the presentation of the conceptual framework that shows the relationship between the independent variables and the dependent variables of the study.

Figure 2.4: Conceptual Framework.



(Source: Self-made, 2024)

The conceptual framework for this study is presented in figure 2.4. Technological leadership is the independent variable, proxies by innovation, Patent/intellectual Property and Digital Transformation, while Organizational Performance is the dependent variable

2.5 Theoretical Review

The study used Resource-Based View (RBV)" theory, the choice of this theory is because RBV theory is explained the variables under study consist of technological leadership output innovation, patent/intellectual property and digital transformation. The RBV theory emphasizes that firms unique and valuable resources, including its capabilities and assets, can contribute to a sustainable competitive advantage. In the context of innovation, the theory suggests that a firm's ability to generate and manage innovation-related resources is a crucial factor in its competitiveness. Patents and intellectual property (IP) represent tangible assets that can constitute valuable and unique resources for a firm (Salazar, 2017). The RBV theory emphasizes that these resources can contribute to a competitive advantage if they are valuable, rare, difficult to imitate, and non-substitutable. In the context of digital transformation, the RBV theory underscores the importance of digital resources and capabilities (Salazar, 2017). Organizations that leverage digital resources effectively can streamline

operations, enhance customer experiences, and drive innovation in their processes and services. For example, adopting cloud computing, implementing data-driven decision-making, and embracing automation are all digital capabilities that can be valuable resources. Resource-Based View (RBV) theory provides a valuable lens for understanding how innovation output, patents/intellectual property, and digital transformation contribute to organizational performance as it emphasizes the role of unique and valuable resources in creating competitive advantage and sustaining superior performance in a dynamic business environment (Varadarajan, 2023).

2.3 Review of Empirical Studies

2.3.1 Innovation and Organization Performance

Numerous empirical studies have been conducted to examine the relationship between overall technology leadership and organizational performance in both developed and developing countries across the world. For instance Kamau and Oluoch (2016) in their study relationship between financial innovation and commercial bank performance in Kenya, adapted descriptive research design with employees from 41 commercial banks. Finding showed that ATM banking had the most impact on the performance of the commercial bank. The regression analysis also showed that ATM, mobile bank, use of credit and debit cards, Internet banking and agency banking services have a positive impact on the performance of commercial banks.

Charles (2014) in his study the impact of technological innovation on organizational performance conducted in Nigeria using correlation, regression analysis with sample size of 137 employees of nestle foods. The finding revealed that strategic planning and marketing capability independently and jointly influence organizational performance. The study recommended that there is a need for organizations to be technologically innovative to be competitive in the market. Mutie (2018) conducted a study effect of technological innovation on organizational performance of government agency in Kenya, employed descriptive cross-sectional survey design. The results showed that innovation based on information technology, digital tools and services, improved systems development and integration of interdepartmental processes had a positive and statistically significant relationship with organizational performance.

2.3.2 Patent and intellectual Property and Organizational Performance

Barbu and Militaru (2019) in their study the moderating effect of intellectual property rights on the link between innovation and corporate performance in the manufacturing sector was analysed using variance correlations. The findings indicate that the expansion of new enterprises, access to risk financing, and new knowledge have a significant positive relationship with innovation and company performance in the processing industry. Davoudi et al., (2018) in their study testing the mediating role of open innovation on the relationship between intellectual property rights and organizational

performance: a case of science and Technology Park in Malaysia used descriptive-correlation analysis with sample size of 126 respondents from 30 new technology based firms. The findings suggest that intellectual property rights have a significant positive impact on open innovation. Furthermore, open innovation has a huge positive impact on firm performance. Furthermore, there was no substantial relationship between intellectual property rights and firm performance. However, intellectual property rights have a positive impact on firm performance through open innovation acting as a mediator. Silva and Santana (2022) conducted a study intellectual property and industry performance in Brazil using panel regression models with sample composed of 49 companies and 746 respondents. The results revealed a positive and statistically significant link between trademark registrations, patent applications, and company market value. Because they are assets that represent the firm's image in the market, trademark protection appears to have a beneficial impact on shareholders' perceptions of the company, hence influencing market value. Patents have a significant impact on market development because investors have high expectations for the company's use of technology, innovation, and intellectual property. There was no evidence that intellectual property increased return on capital.

2.3.3 Digital Transformation and Organizational Performance

Guo and Xu (2021) studied the impact of digital transformation on firm performance. Evidence from China's manufacturing sector utilized panel data from 2254 Chinese manufacturing enterprises collected between 2010 and 2020. The findings revealed that digital transformation had a significant correlation with process-based operational performance and a U-shaped correlation with profit-based financial performance. The study also revealed that digital transformation has a substantially lasting influence on operational performance than on financial performance. Youssef and Lebdaoui (2020) in their study the impact of digital transformation on SMEs organizational performance: The mediating effect of digital innovation with respondents from 186 Moroccan SME. The findings indicate that digital orientation and capability have a positive impact on digital innovation. Digital innovation, technical orientation, and digital skills all have a positive and significant impact on the performance of the organization. However, the study recommended that SMEs participate in the digitalization trend by implementing digital orientation plans and obtaining digital capabilities in order to improve digital innovation and hence promote organizational performance. Perera (2021) examined impact of digital transformation in measuring business performance of small & medium scale businesses in Sri Lanka. The study found that digital technologies are widely used in marketing among the surveyed companies, even though they are often classified as traditional tools. IT technologies and digital tools also impact marketing, helping to build customer relationships and bringing value to any organization. From the above findings, it is clear and important that, innovation, patent and intellectual property and digital transformation application into businesses, will go a long way to significantly impact an organization's success, competitiveness, and long-term sustainability, because it will create confidence amongst the customers.

3.0 Methodology.

This study employed a cross-sectional survey with descriptive characteristics. Descriptive research is best used when the problem is well defined and there is available information about the phenomenon, allowing the researcher to conduct a survey and ask respondents to explain specific aspects of the problem under study (Mugenda & Mugenda, 2003). The target population of the study consists of 509 customers and employees of deposit money banks (DMBs) in Katsina State, North-Western Nigeria. The decision to select bank employees and customers is because they are the only ones who can adjudge whether the banks are using modern technology in their banks to satisfy customers to improve their products and services. The study obtained a sample size of 224 customers and employees of the banks in Katsina state by the researcher. Using the Yamane (1967) statistical formula, an adequate sample size of 224 was obtained for the study. The proportionate stratum allocation approach and simple random sample technique was used to select respondents for this study. The proportional stratum allocation approach is utilized because it ensures a representative sample, whereas the simple random technique is employed since each stratum has a mutually exclusive finite number of participants who are homogeneous. This study used a questionnaire to collect data containing closed statements based on a 5-point Likert scale, which has the nominal values of 5 (strongly agree), 4 (agree), 3 (neutral), 2 (agree disagree) and 1 (strongly disagree). The questionnaire consists of four sections: "A" collects data on the demographic characteristics of the respondents such as gender, age, academic and professional qualifications, employment status, professional level and experience in banking. Sections "B", "C" and "D" collect data on innovation, patents/intellectual property and digital transformation of banks. In this study, data collected was analyzed using descriptive statistic, that is simple percentage for demographic data while regression analysis was used to test the hypothesis of the study using Statistical Product and Solution Service (SPSS) software application which is suitable for testing direct relationship of the variables under study.

3.5 Model specification

The study used simple linear model specification of multivariable function to estimate the parameters of the model. This functional effect are operationalized using the following

$$\text{Organizational Performance} = F(\text{Technological Leadership}) \dots \dots \dots (1)$$

Where:

$$\text{Technological Leadership} = F(\text{innovation output, Patent/intellectual Property, Digital Transformation})$$

$$\text{Therefore, OP} = f(\text{IO, PIP, DT}) \dots \dots \dots (2)$$

Where:

OP = Organizational Performance

IO = Innovation Output

PIP = Patent/Intellectual Property

DT = Digital Transformation

The above function simply states that organizational performance is a function of Innovation output, patent/intellectual property and digital transformation. This function is transformed into an econometric form as:

$$y_i = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + u \dots\dots\dots(3)$$

Where: y_i = Organizational Performance

β_0 = Intercept

β_1 = Parameter associated with x_1

β_2 = Parameter associated with x_2

β_3 = Parameter associated with x_3

x_1 = Innovation output

x_2 = Patent/Intellectual Property

x_3 = Digital Transformation

u = The error term or disturbance.

Therefore, the model becomes:

$$OP_i = \beta_0, + \beta_1IO, + \beta_2PIP, + \beta_3DT, + u, \dots\dots\dots(4)$$

Therefore, organizational performance is examined by the three explanatory variables and other unobserved factors included in the error term (u). The study is still mainly interested in the relationships between technological leadership and organizational performance, i.e., this study is interested in the parameters β_1 , β_2 , and β_3 .

4.0 Analysis of Results and Discussion of Findings

This chapter presents an analysis of the data acquired by the questionnaire, including explanations of the links and relationships discovered.

4.1 Data presentation.

The different socio demographic characteristics of respondents are important for this type of study. Such information provides the composition of the study population, shows the relationship between individual characteristics and the degree of influence on behavior. Age, gender, organization membership, academic title and bank name are socio demographic variables used in this study.

Table 4.1 Age Distribution of Respondents

Age of Respondents	Frequency	Percentage
15-25 year	64	28.6%

26-35 years	83	37.1%
36-45 years	47	21.0%
Above 45 years	30	13.4%
Total	224	100.0%

Source: Researchers field survey 2023

Table 4.1 for all age groups, shows the age structure of the sample of respondents (26-35 years) the largest percentage of respondents (37.1%). The table also reveals that 28.6% belonged to the age group of 15-25 years, while 21.0% indicated the age group of 36-45 years. However, only 13.4 % of the age group was 46 years. This disparity may follow the fluctuations in the recruitment policy of various currency deposits.

Table 4.2: Gender Distribution of Respondents

Gender of Respondents	Frequency	Percentage
Male	148	66.1
Female	76	33.9
Total	224	100.0%

Source: Researchers field survey 2023

Table 4.2 displays the gender distribution of the responses. The study's valid sample consists of 224 respondents, 148 (66.1%) are male and 76 (33.9%) are female. This disparity in the gender composition of staff has spread to various deposit money banks.

Table 4.3: Length of Service in the organization

Length service of Respondents	Frequency	Percentage
Less than 5 years	96	42.9
5-10 years	78	34.8
Above 10 years	50	22.3
Total	224	100.0%

Source: Researchers field survey 2023

Table 4.3 above shows the frequency and percentage distributions of the respondents by their length of years served in the banks. Staff who indicated less than 5 years is 96 respondents which constitute 42.9% of the total sampled respondents. Staff who indicated between 5-10 years are 78 (34.8%) of the sample size, while those staff who have stayed above 10 years are 50 respondents which constitute 22.3% of the total sample. This indicates that the respondents have stayed in the banking industries for 1 year to 10 years with a total percentage of 77.7%.

Table 4.4: Educational Status of Respondents

Education of Respondents	Frequency	Percentage
PhD	11	4.9
Masters	19	8.5
First degree/HND	77	34.4
Diploma/NCE	89	39.7
Others	28	12.5
Total	224	100.0%

Source: Researchers field survey 2023

The frequency and percentage distribution of the respondents are shown in figure 4.4. 11 (4.9%) of the total respondents had PhD degree, while 19 (8.5%) of the respondent has MSc degrees. The table further revealed that 77 (34.4%) had first degree/HND, while 89 (39.7%) had Diploma/NCE/OND across the various deposit money banks. Finally, 28 of the respondents which constitute 12.5%, other category like SSCE or FSLC. Thus, it can be said that the sample used for this study are highly literate.

Table 4.5: Various Banks of Respondents

Banks of Respondents	Frequency	Percentage
GTB	75	33.5
Zenith Bank	55	24.6
UBA	26	11.6
Access Bank	46	20.5
Eco Bank	22	9.8
Total	224	100.0%

Source: Researchers field survey 2023

Table 4.5 shows the category banks which various are grouped in this study. Guarantee Trust Bank 75 (33.5%) has the highest frequency and percentage distribution of respondents, while Zenith Bank had 55 respondents which constitute 24.6%. United Bank for Africa had the second lowest frequency distribution among the sampled banks with 26 (11.6%). Access Bank had 46 respondents which constitutes 20.5% and finally, Eco Bank respondents are 22 (9.8%) of the sampled distribution. This disparity may be due to the nature of the Nigerian banks.

Regression Analysis

Table 4.6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.542 ^a	.640	.520	.45200	.640	5.041	3	220	.002

a. Predictors: (Constant), DT, PIP, IO

Source: Researcher Statistical Computation (2023).

Table 4.6 reports that change in organizational performance is brought about by innovation management practices by 64.0% (.640) as indicated by the adjusted R² value. The independent variables explain 64% of the variability of the dependent variable.

Table 4.7: Fitness of the Model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.090	3	1.030	5.041	.002 ^b
	Residual	44.947	220	.204		
	Total	48.037	223			

a. Dependent Variable: OP

b. Predictors: (Constant), DT, PIP, IO

Source: Researcher Statistical Computation (2023).

The F-ratio in table 4.7 shows that the variables of innovation management practices, patent/intellectual property and digital transformation significantly predict organizational performance, $F(3, 220) = 5.041, p < .005$ (this means that the regression model has a goodness of fit of the regression line).

Table 4.8: Regression Analysis of technological leadership on organizational performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.355	.351		9.549	.000
	IO	.247	.073	.231	3.370	.001
	PIP	.074	.075	.267	-3.983	.007
	DT	.120	.054	.145	-2.212	.028

a. Dependent Variable: OP

Table 4.8 above reported the regression analysis result for technological leadership and organizational performance. The Table exhibited that innovation outputs has positive and significant effect on organizational performance ($\beta_1 = .247, P < 0.05$). This implies that if technological leadership increases by 1 unit that would lead to an increase of organizational performance of deposit money banks by 0.247 units and is statistically significant at 5 percent level.

It was also reported that Patent/Intellectual Property has positive and significant effect on organizational performance ($\beta_2 = .074, P < 0.05$). It means that all things being equal, if Patent/Intellectual Property increases by 1 unit it would lead to an increase of organizational performance by 0.074 units and is statistically significant at 5 percent level.

Finally, the regression result revealed that digital transformation has positive and significant impact on organizational performance of deposit money banks ($\beta_3 = .120, P < 0.05$). From the empirical result, the study discovered that if digital transformation increases by 1 unit all things being equal, it would lead to an increase in organization performance by 0.120 units and is statistically significant at 5 percent level.

Discussion of Findings

The study focused on assessing technological leadership and organizational performance: Evidence from deposit banks in the Katsina State, Nigeria. The results obtained from the statistical analyses show that measures of technological leadership such as innovation management practices (patent/intellectual property and digital information) influence organizational performance positively. This result is in consonance with the findings of (Kamau and Oluoch, 2016; Mutie, 2018; Davoudi et al., 2018 and Guo and Xu, 2021), that information technology base innovation, digital tools and services had positive and statistically significant relationship with organizational performance. The application of mechanical advancements to meet emerging trade opportunities, social needs, and natural challenges may be a tool for financial development. Any business that wants to compete must be creative and innovative. Imaginative progression and focus intensity value beneficial relationship.

Conclusion and Recommendations

The study provided data and analysis the relationship between technological leadership and organizational performance. . It concludes that the coefficients associated with the independent variables innovation output, patient/intellectual Property and Digital Transformation (provide insights into their impact on organizational performance, evidence from deposit money banks in Katsina State. The overall model, as indicated by the constant term and the combination of the independent variables,

is statistically significant ($p = .000$), reinforcing the relevance of the chosen variables in explaining organizational performance.

Recommendations

Based on the findings, the following recommendations were made by the researcher:

Promote Innovation Orientation: Organizations should actively promote a culture of innovation. This may involve investing in research and development, encouraging creative thinking among employees, and fostering an environment that values and rewards innovative ideas. The positive relationship between Innovation Orientation and organizational performance suggests that such efforts can contribute to overall success.

Emphasize Proactive IT Practices: Given the positive impact of Proactive IT Practices on organizational performance, organizations should focus on staying ahead in terms of technology adoption and integration. Proactive measures, such as regularly updating IT systems and embracing emerging technologies, can contribute to enhanced performance.

Invest in Digital Transformation: Organizations should consider investing in digital transformation initiatives. This may involve adopting advanced technologies, digitizing processes, and ensuring that the workforce is equipped with the necessary digital skills. The positive relationship between Digital Transformation and organizational performance highlights the strategic importance of embracing digital advancements.

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