

## **The Structural Relationship Between Total Quality Management and Organisational Performance: A Study of Deposit Money Banks In Nigeria**

**James Unam Monday**

Department of Management and Accounting, Obafemi Awolowo University, Nigeria

ORCID: <https://orcid.org/0000-0003-4915-859X>

**Olawale Samson Dopemu**

Federal Inland Revenue Service (FIRS), Large Tax Audit, Ibadan, Nigeria

ORCID: <https://orcid.org/0000-0003-1989-2515>

**Blessing Oluwadamilola Olaniran**

Department of Management and Accounting, Obafemi Awolowo University, Nigeria

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**ABSTRACT:** *The study examines the causal relationship between total quality management (TQM) and organizational performance of deposit money banks in Nigeria. A cross-sectional survey design was employed, with primary data collected through structured questionnaires. Ten deposit money banks in Lagos State were purposively selected, representing the ten largest banks in Nigeria by total assets as of H1 2023. A judgmental sampling technique was used to select respondents, specifically managers from the chosen banks. From each bank, 20 managers from various departments were selected, resulting in a sample size of 200 respondents. Partial Least Squares-Structural Equation Modeling (PLS-SEM) was utilized to analyze the collected data. The results reveal that, although TQM practices such as leadership (LD), people management (PEM), strategic planning (SP), process management (PM), and information and analysis (IA), are positively related to employee performance (EMP), only PEM, PM, and IA, are significantly related to EMP. Also, LD, PM and IA are significantly and positively related to the banks' innovation performance. These indicate that TQM practices have significant effect on employee performance and innovation success in deposit money banks in Nigeria.*

**Keywords:** Total quality management, organizational performance, competitive advantage, banking industry

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## INTRODUCTION

Total quality management (TQM) is a comprehensive management philosophy aimed at the continuous enhancement of all organizational functions to produce and deliver goods and services that align with customer needs and preferences, while exceeding competitors' performance. This approach involves the participation of all employees and operates under the guidance of top management (Mehmet et al., 2006; Singh et al., 2018). TQM integrates everyone from the Chief Executive Officer (CEO) to entry-level staff, encompassing all organizational functions such as marketing, finance, design, engineering, production, and customer service, with the objective of meeting customer demands and achieving organizational goals. (Monday et al., 2015; Shah et al., 2022).

TQM encompasses various techniques focused on continuous improvement, meeting customer needs, reducing rework, long-term planning, increasing employee engagement and teamwork, redesigning processes, competitive benchmarking, collaborative problem-solving, ongoing performance measurement, and strengthening supplier relationships (Casteleiro & Mendes, 2020). It can also be viewed as a strategic asset that generates economic value and provides a sustainable competitive advantage.

TQM is widely recognized as a key factor influencing organizational performance, particularly in enhancing employee performance, which in turn drives innovation. To remain competitive in today's fast-paced market, organizations must focus on improving both employee performance and their capacity for innovation. This means that, to thrive in a globalized environment, organizations need to prioritize not only quality enhancements but also the performance of their employees and their innovation capabilities.

Employees are individuals who engage in work for an organization in exchange for compensation, such as salaries or wages. They contribute their skills, knowledge, and efforts toward achieving the organization's objectives. They can occupy various roles, from entry-level positions to executive leadership, and are essential for driving productivity and innovation within the organization (Putri et al., 2017). Their engagement and performance directly impact organizational success and competitiveness. Employees are the most valuable assets of an organization, while other resources are passive and rely on human effort to create value. Therefore, having the right employees is crucial for the survival and success of any organization (Ologunde et al., 2015; Putri et al., 2017).

Innovation, on the other hand, has recently received considerable attention because studies have shown that it plays a major role in bringing about sustainable competitive advantage in the market (Prajogo & Sohal, 2003; Sadikoglu & Zehir, 2010; Long et al., 2015; Latan et al., 2020). Innovation is the new applications of knowledge, methods, and skills which bring about unique capabilities and enhances a firm's competitiveness (Tajouri & Lakhal,

2024). Innovative firms are capable of introducing new or improving existing products or processes as well as defining and redefining the firm or product positioning in a new market (Antunes et al., 2017). While employee performance affects the commitment and productivity of employees, innovation performance affects the wellbeing and progress of the organisation as a whole.

The banking industry contributes substantially to the economic growth of a nation. The success of any bank depends on the quality of services its employees render to its customers. Akinola (2009) emphasized that service quality is a critical prerequisite and determinant of competitiveness as well as for establishing and sustaining satisfying relationships with customers in organisations like banks. In the banking industry there is high level of competition, and the quality of their service is a major aspect that boast or hinder their performance. Poor service could lead to erosion of goodwill which would adversely affect their financial performance. Thus, to achieve improved service quality in the banking industry, TQM is highly essential and necessary.

Previous studies in Nigeria (Gbadeyan & Adeoti, 2008; Okpala, 2012; Adeoti & Omolabi, 2013; Olusanya & Adegbola, 2014; Monday, 2015; Asenge et al., 2019; Anifowose et al., 2022) have shown a significantly positive relationship between TQM and organizational performance. However, most of these studies have primarily focused on the financial aspects of organizational performance, with limited attention given to non-financial performance measures, such as employee performance and innovation outcomes. Without effective employee performance and innovation, an organization's financial success may be compromised. Therefore, this study examines the relationship between TQM and both employee performance and innovation performance in Nigerian deposit money banks. The following hypotheses are tested in the study:

*H<sub>1</sub>: TQM practices have significantly positive relationship with bank employee performance*

*H<sub>2</sub>: TQM practices have significantly positive relationship with bank innovation performance*

## **LITERATURE REVIEW**

### **Total Quality Management**

Total Quality Management (TQM) is a comprehensive approach to quality improvement aimed at enhancing organizational performance across quality, productivity, customer satisfaction, and profitability. It is a management philosophy designed to empower all employees and foster a culture of continuous, sustained improvement while alleviating

fears associated with change. A fundamental tenet of TQM is that the cost of prevention is lower than the cost of correction (Davood et al., 2013). TQM cultivates an organizational culture focused on customer satisfaction through ongoing enhancement efforts. While this culture may differ by country and industry, it shares core principles that can lead to increased market share, higher profits, and reduced costs (Kanji & Wallace, 2000).

Some of the basic elements of TQM as developed in the questionnaire for the purpose of this study were leadership, customer relationship, strategic planning, human resource management, process management and information and analysis. Although these are not all the basic elements, these areas have often been described as the critical factors of TQM (Ahire et al., 1996; Sila & Ebrahimpour, 2003; Conca et al., 2004; Tajouri & Lakhali, 2024).

**Leadership:** Leadership in organizations refers to the managerial function of guiding employees toward achieving specific work objectives. It is a critical factor that significantly impacts the performance of organizations, managers, and employees. As a key component of Total Quality Management (TQM), leadership involves senior executives actively participating in setting strategic goals and developing a leadership framework that promotes high organizational performance, individual growth, and organizational learning (Samson & Terziovski, 1999; Prajogo & Sohal, 2003; Tajouri & Lakhali, 2024). Effective leadership entails maintaining and communicating a vision that aligns with customer needs. The effectiveness of leaders relies more on the influence they cultivate within the organization rather than merely on their formal position. Leaders coordinate and integrate the efforts of individuals to achieve the organization's collective goals.

**Customer Relationship:** Customer relationship is concerned with producing and delivering goods and services to meet the present and future needs and expectations of customers. This element addresses how and how well the organization determines current and emerging customer requirements and expectations, provides effective customer relationship management, and determines customer satisfaction. It also concerned with measuring the extent to which customer related information is disseminated through the organisation and the extent to which customer complaints are resolved (Mittal et al., 2023). In a total quality setting, regular contact with customers is maintained in order to identify their changing needs and requirements via such methods as focus groups and customer site visits, and performance is continuously measured against those requirements (Tajouri & Lakhali, 2024).

**Strategic Planning:** Strategic planning is the process of defining the organization's mission, primary objectives, strategies, and policies that guide the acquisition and allocation of resources to meet its goals (Pearce et al., 1987; Monday, 2015). Strategic planning is a systematic approach to establishing a company's goals and objectives for at least the next three years and formulating strategies for resource acquisition and utilization to achieve these goals (Asenge et al. 2019). Within the context of TQM, strategic planning

emphasizes the organization's strategic and business planning, implementation of those plans, and a focus on customer and operational performance requirements (Samson & Terziovski, 1999; Monday, 2020).

**People Management:** People management involves the extent to which employees can engage in organizational activities and decision-making processes, as well as how effectively they are managed to align with the organization's strategic goals. Achieving excellence in this area can be distilled to a straightforward principle: listening to employees (Olusanya & Adegbola 2014). Team members from research, design, sales, and production need to collaborate interdependently across traditional organizational boundaries rather than working in isolation. This collaboration helps anticipate production challenges and enhances the quality of current and future products or services (Sadikoglu & Zehir, 2010). Effective teamwork in design is crucial, as failing to collaborate from the outset can result in lost time and sales. By working together towards a shared goal, departments can avoid subunit optimization, which prioritizes the needs of individual units over the overall needs of the organization (Lehyani et al., 2023).

**Process Management:** Process management is concerned with how the organisation designs and introduces products and services, integrates production and delivery requirements and manages the performance of suppliers (Monday et al., 2015; Shah et al., 2022). The core idea behind this element of TQM is that organisations are sets of interlinked processes, and that improvement of these processes is the foundation of performance improvement (Lehyani et al., 2023). Process management includes preventive and proactive approaches to quality management, such as designing fool-proof and stable production schedules and work distribution to reduce variations and improve the quality of the product in the production stage (Kaynak, 2003). Some organisations have experienced dramatic performance improvements through process redesign and reengineering (Shah et al., 2022).

**Information and Analysis:** Information and Analysis pertains to how data and information are managed and utilized to maintain a customer-centric approach, promote quality excellence, and enhance organizational performance (Anifowose et al., 2022). The philosophy of TQM stresses the importance of fact-based decision-making, which involves analyzing information about customer needs, operational challenges, and the outcomes of improvement initiatives (Samson & Terziovski, 1999). In a total quality environment, managers provide accurate, high-quality, and timely data to all key stakeholders, including employees and suppliers, to boost organizational efficiency, effectiveness, and innovation. Therefore, decisions should be made based on the analysis of relevant data and information. TQM posits that organizations that consistently gather and analyze information will outperform those that do not (Nguyen & Nagase, 2019).

## **Organizational Performance**

Organizational performance is defined as the measure of how well an organization meets its goals and objectives across various dimensions, including financial outcomes, operational efficiency, employee engagement, customer satisfaction, and innovation (Monday et al., 2015; Tajouri & Lakhali, 2024). In the view of Neely et al. (2005), organizational performance can be assessed through a range of indicators, both quantitative (e.g., profit margins, market share) and qualitative (e.g., employee morale, innovation, customer satisfaction). For this study, our focus is on employee performance and innovation capability.

**Employee Performance:** Employee performance refers to how well employees understand the organization's objectives and how effectively they contribute to achieving those goals (Lehyani et al., 2023). It encompasses the alignment between the organization's goals and the employees' skills, competencies, and contributions. Essentially, it measures how effectively employees fulfil their roles and responsibilities (Putri et al., 2017; Monday, 2020). Evaluating employee performance can be done annually or quarterly to identify areas for improvement. In the context of TQM, employee performance is crucial, as it significantly impacts the overall productivity, sales, and profitability of the organization, highlighting the need for skilled and dedicated personnel to achieve optimal results (Sadikoglu & Zehir, 2010).

**Innovation Performance:** The OECD (2005) defines innovation as the implementation of a new or significantly improved product (goods or services), process, marketing approach, or organizational method in business practices, workplace structure, or external interactions. This definition highlights the various areas where innovation can occur, including products, processes, markets, and organizations. Innovation performance refers to the measurable outcomes of an organization's innovation activities, assessing how effectively it develops and implements new ideas, products, services, or processes. It is an important indicator of an organization's competitiveness and ability to adapt to market changes (Tang, 1998; Sadikoglu & Zehir, 2010; Monday, 2020).

## **METHODOLOGY**

### **Research Design and Sample**

This study employed a cross-sectional survey design in which primary data were collected through the administration of a structured questionnaire. The research population consisted of 20 deposit money banks, from which 10 banks in Lagos State were purposively selected. The selected banks include First Bank, United Bank for Africa, Guaranty Trust Holding Company Plc., Access Bank, Zenith Bank, First City Monument Bank, Union Bank,



Sterling Bank, Fidelity Bank, and Stanbic Bank. These banks are the ten largest in Nigeria by total assets as of H1 2023. A judgmental sampling technique was used to select respondents who are managers at the chosen banks. From each bank, 20 managers from different departments were selected, resulting in a sample size of 200 respondents. The study was conducted between August 2023 and March 2024.

**Research Instrument**

The major instrument used was a structured questionnaire. The questionnaire was administered directly to the managers of the banks. The questionnaire was divided into four sections, namely; sections A, B, C, and D. Section A elicited information on the socio-demographic characteristics of the respondents such as sex, age, academic qualification, professional qualification, designation, years in service and marital status. The question items in this section were a combination of closed- and open-ended questions. Section B elicited information on TQM practices in deposit money banks; Section C evaluated the influence of TQM practices on employee performance, and Section D focused on determining the effect of TQM practices on innovation performance of the banks. The question items in Sections B to D were in Likert scales.

**Measurement of Variables**

The independent variable of the study is total quality management (TQM) which was measured by leadership, people management, information and analysis, strategic planning, and process management. The dependent variable is organizational performance which was measured by employee performance and innovation performance.

**Model Specification**

The relationship between TQM and organizational performance measures was demonstrated by the linear regression models:

*Organizational performance* = *f* (*TQM*)..... (1)

$EMP_i = \beta_0 + \beta_1 LD_i + \beta_2 PEM_i + \beta_3 SP_i + \beta_4 IA_i + \beta_5 PM_i + \varepsilon_i$  ..... (2)

$INV_i = \beta_0 + \beta_1 LD_i + \beta_2 PEM_i + \beta_3 SP_i + \beta_4 IA_i + \beta_5 PM_i + \varepsilon_i$  ..... (3)

- Where EMP = Employee Performance;
- INV = Innovation Performance;
- LD = Leadership;
- PEM = People Management;
- SP = Strategic Planning;
- IA = Information and Analysis; and

PM = Process Management  
 $\varepsilon_i$  = Error terms  
 $\beta_0$  = Regression constant  
 $\beta_i$  = Regression coefficients;  $i = 1, 2, \dots, 5$   
Apriori Expectation:  $\beta_1 > \beta_2 > \beta_3 > \beta_4 > \beta_5 > 0$

The cross-sectional models (2) and (3) were estimated using the Partial Least Squares Structural Equation Modeling (PLS-SEM).

## DATA ANALYSIS AND FINDINGS

### Validity and Reliability Tests

The research instrument for this study was validated using appropriate validity and reliability tests. Validity test determined the extent to which the study actually measured what it was supposed to measure while reliability test assessed the reliability of the instruments to yield the same result on repeated trials. The validity test comprised face validity, content validity, convergent and divergent/discriminant validity, while the reliability test comprised test-retest, item loading, Cronbach's Alpha, RhoA and composite reliability analyses (Hair et al., 2017).

For face validity; the questions were framed in line with previous similar studies and was given to academic staff that are knowledgeable in quality management, to view it in line with the research objectives. The content validity was carried out by viewing the questionnaire items in the light of adequacy of international literature and criteria of international quality award such as the Malcolm Baldrige National Quality Award Criteria (MBNQA).

Convergent validity indicates whether a test that is designed to measure a particular construct correlates with other tests that assess the same or similar construct. Discriminant validity indicates whether two tests that should not be highly related to each other are indeed not related. Both need to be assessed in order to determine the construct validity of the instrument. The convergent validity was ascertained using Average Variance Extracted (AVE), while the Fornell-Larcker Criterion (FLC) was used to establish the divergent validity. According to Hair et al. (2020), convergent validity is satisfactory if the AVE is greater than 0.5, while the divergent/discriminant validity is met when FLC is greater than 0.6. The results in Table 1 revealed that the AVE ranged from 0.592 to 0.734, and the FLC ranged from 0.770 to 0.857. These satisfied the thresholds; thus, the convergent and divergent validities were satisfactorily met.



The test-retest was conducted by administering the questionnaire to five deposit money banks in Osun State. This helped to rephrase questions that were not well structured so as to generate the right responses. Item loading, Cronbach's Alpha, Rho\_A and composite reliability (CR) measure the internal consistency of the constructs. Generally, reliability coefficient of 0.70 or more are considered good (Hair et al., 2020). The results of the analysis in Table 1 showed that all the coefficients of item loading, Cronbach's Alpha, Rho\_A and composite reliability were greater than 0.700, indicating a high reliability of the research instrument.

**Table 1: Validity and Reliability Analyses**

Construct	Variable	Item Loading	Cronbach's Alpha	Rho_A	CR	AVE	FLC
Information & Analysis	IA1	0.846	0.870	0.880	0.905	0.657	0.811
	IA2	0.846					
	IA3	0.811					
	IA4	0.816					
	IA5	0.728					
Leadership	LD1	0.824	0.879	0.882	0.912	0.673	0.821
	LD2	0.810					
	LD3	0.829					
	LD4	0.844					
	LD5	0.794					
People Management	PEM1	0.746	0.828	0.837	0.879	0.592	0.770
	PEM2	0.827					
	PEM3	0.750					
	PEM4	0.735					
	PEM5	0.786					
Process Management	PM1	0.782	0.901	0.909	0.927	0.718	0.847
	PM2	0.848					
	PM3	0.895					
	PM4	0.841					
	PM5	0.866					
Strategic Planning	SP1	0.804	0.859	0.869	0.899	0.641	0.801
	SP2	0.844					
	SP3	0.863					
	SP4	0.718					
	SP5	0.767					
Employee Performance	EMP1	0.823	0.871	0.877	0.912	0.721	0.849
	EMP2	0.906					
	EMP3	0.831					
	EMP4	0.835					
Innovation Performance	INV1	0.743	0.908	0.918	0.932	0.734	0.857
	INV2	0.858					
	INV3	0.905					
	INV4	0.940					
	INV5	0.824					

### Demographic Characteristics of Respondents

This study used a Google form structure for the questionnaire to collect data from the respondents. Out of the 200 copies administered, 176 were retrieved, resulting in a response rate of 88%. The analysis in Table 2 shows the respondents' demographic data like the gender, age, educational qualification, membership of professional bodies, designation, years of service and marital status. From the analysis, the gender distribution shows that 65.9% of the respondents are male and 34.1% female, suggesting that more male work in the Nigerian Banking Industry.

Taking into consideration the marital status of the respondents, a high percentage (76.1%) are married, 22.7% are single, and 1.1% are widows/widowers. Also, 20.5% of the respondents are between the ages of 21 and 30 years, 44.3% are between 31 and 40 years, and 35.2% are 41 years and older, indicating that the majority of the respondents are above 30 years. This suggests that the respondents are mature and capable of providing relevant information without feeling intimidated.

**Table 2: Distribution of Respondents by Demographic Characteristics**

Characteristic	Variable	Frequency	Percentage
Sex	Male	116	65.9
	Female	60	34.1
	Total	176	100.0
Age (years)	21-30	36	20.5
	31-40	78	44.3
	41 and above	62	35.2
	Total	176	100.0
Highest Level of Education	ND/NCE	8	4.5
	B,Sc/A/B.Ed./HND	114	64.8
	Postgraduate	54	30.7
	Total	176	100.0
Membership of Professional Bodies	None	114	64.8
	CSCP/CILT	4	2.3
	NIM/CIA/CIPM/CRMI	25	14.2
	Chart Inst of Educat'l Mgt and Admin	4	2.3
	ICAN/ACCA	18	10.2
	None management professional bodies	11	6.2
	Total	176	100.0
Designation	Operation Manager	104	59.1
	Quality Manager	14	8.0
	Production Manager	10	5.7
	Senior Executive Projects	6	3.4
	Accountant	8	4.5
	Sales Manager/Executive	10	5.7
	Finance Manager	24	13.6
	Total	176	100.0

Publication of the European Centre for Research Training and Development-UK

Years of service in the bank (Years)	1-5	64	36.4
	6-10	72	40.9
	11-15	22	12.5
	16-20	8	4.5
	21 Years and Above	10	5.7
	Total	176	100.0
Marital Status	Single	40	22.7
	Married	134	76.1
	Widow/Widower	2	1.1
	Total	176	100.0

*CSCP-chartered supply chain professional, CILT-Chartered institute of Logistics and Transport of Nigeria, NIM-Nigerian Institute of Management (Chartered), CIA-Chartered Institute of Administration, CIPM-Chartered Institute of Personnel Management of Nigeria, CRMI-Chartered Risk Management Institute of Nigeria*

The analysis also reveals that 64.8% of the respondents are not members of professional bodies, 2.3% were members of CSCP/CIL, 14.2% are members of NIM/CIA/CIPM/CRMI, 10.2% are members of ICAN/ACCA, and 6.2% are members of non-management professional bodies. This indicates that only a small number of respondents belonged to management-related professional associations. Furthermore, 4.5% of the respondents have ND/NCE qualifications, 64.8% hold a first degree or HND qualification, and 30.7% have postgraduate qualifications. This demonstrates that a substantial proportion of the respondents possess at least a first degree, indicating that they are highly educated and knowledgeable, which enhances the quality of their responses.

Moreover, the analysis indicates that 59.1% of the respondents are Operational Managers, 8.0% are Quality Managers, 5.7% are Production Managers, 3.4% are Senior Executive Project Managers, 4.5% are Accountants, 5.7% are Sales Managers/Executives, and 13.6% are Finance Managers. This suggests that the respondents are highly qualified employees who are likely knowledgeable about TQM and its impact within their respective banks.

Regarding years of service, 36.4% of the respondents have worked for 1 to 5 years, 40.9% have served for 6 to 10 years, 12.5% have worked for 11 to 15 years, 4.5% have served for 16 to 20 years, and 5.7% have been employed for 21 years or more. This indicates that 63.6% of the respondents have at least 6 years of experience, demonstrating their familiarity with bank management operations. Therefore, the responses obtained from these participants can be considered reliable. In summary, the demographic characteristics of the respondents highlight that the data provided in this study are both relevant and largely trustworthy.

### **Relationship between TQM Practices and Bank Employee Performance**

The analysis in Table 3 shows the relationship between TQM practices and employee performance in the selected Deposit Money Banks in Lagos State. This was achieved using Partial Least Squares - Structural Equation Modelling (PLS-SEM). The independent

variable, TQM comprises the following constructs leadership, people management, strategic planning, information and analysis, and process management. Each construct of the TQM is measured by five variables. The employee performance construct (dependent variable) consists of four variables (Table 1).

Figure 1 presents the diagram of Partial Least Square-Structural Equation Modelling (PLS-SEM) depicting the structural relationship between TQM practices and employee performance in the Nigerian deposit money banks. The outer model reveals the T values which are significant for all the constructs, while the inner model shows the path coefficients and Tvalues. The results of the path coefficients report that leadership (0.072), people management (0.249), process management (0.179), information and analysis (0.243), and strategic planning (0.111) are positively related to employee performance in the selected deposit money banks. However, people management ( $t = 2.737, p < 0.05$ ), information and analysis ( $t = 3.669, p < 0.05$ ), and process management ( $t = 2.036, p < 0.05$ ) have a significant influence on the employee performance in the banks.

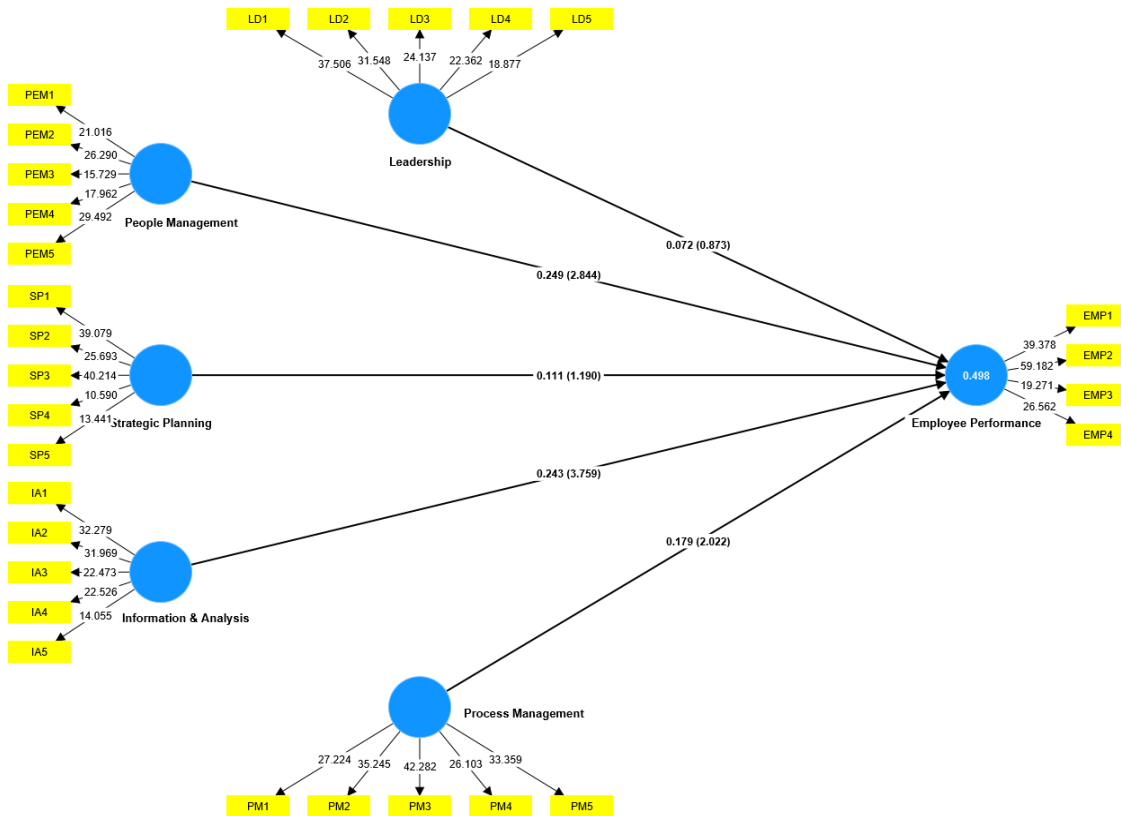


Figure 1: PLS-SEM showing Path Coefficients and T Statistics for Bank Employee Performance

Furthermore, the analysis in Table 3 demonstrates that TQM practices have a joint significantly positive relationship with employee performance in the deposit money banks ( $F = 31.029$ ,  $p < 0.05$ ). Supporting this finding, the coefficient of determination indicates that TQM practices explain as much as 49.8% of the variation in employee performance. These results suggest that increasing the intensity of TQM implementation will enhance employee performance in the banks. As a result, hypothesis  $H_1$  is accepted, demonstrating that TQM practices have a significantly positive relationship with employee performance in Nigeria's deposit money banks.

The assumptions of the regression model (2) are verified for multicollinearity and autocorrelation. Variance Inflation Factor (VIF) establishes the multicollinearity, while Durbin-Watson (DW) statistic establishes the autocorrelation. A VIF value above 5.00 depicts a high presence of multicollinearity among the independent variables, and DW value of 2.0 portrays no autocorrelation in the residuals from the regression model (Hair et al., 2020). The analysis in Table 3 shows that there is no multicollinearity in the independent variables as none of the VIF are up to 3. Also, there is no autocorrelation as the DW is approximately 2.0.

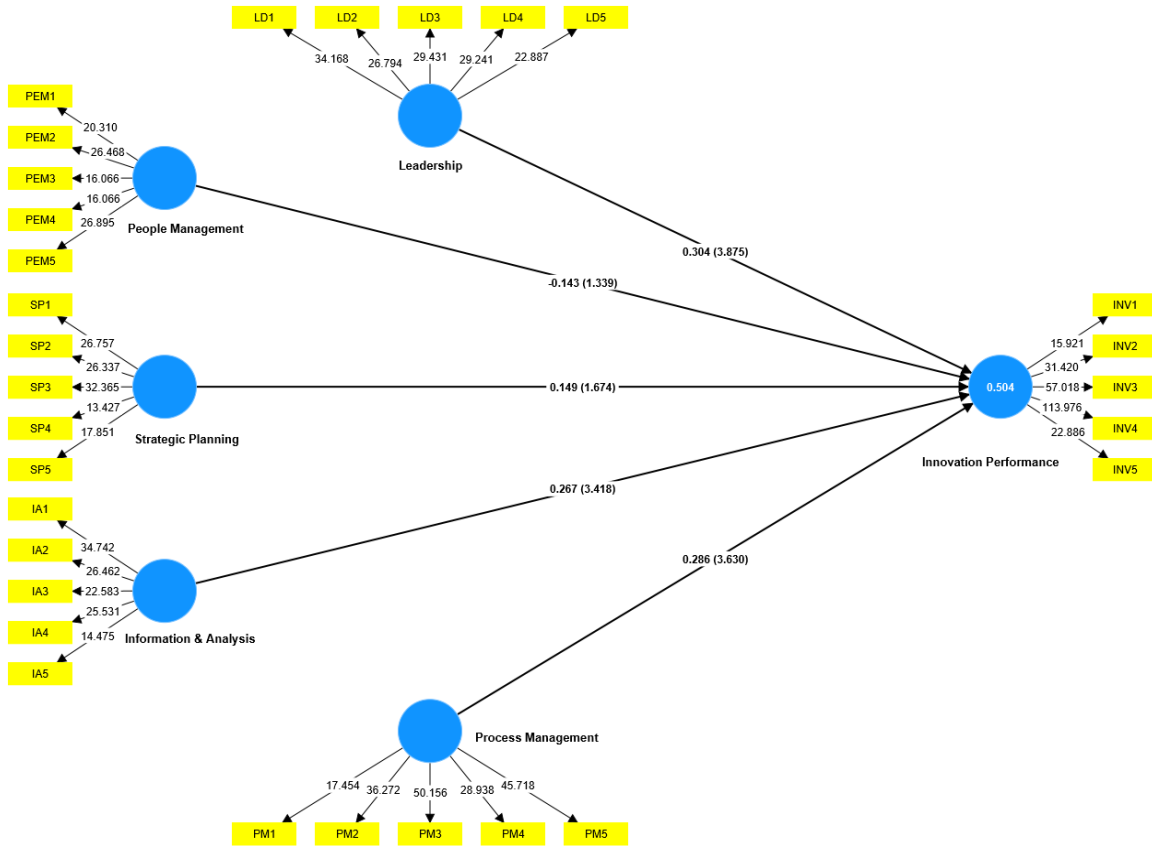
**Table 3: PLS-SEM on the Relationship between TQM Practices and Employee Performance in DMBs**

Predictor	Coeff	STDEV	t	p	VIF
IA -> EMP	0.243	0.066	3.669*	0.000	1.741
LD -> EMP	0.072	0.083	0.863	0.388	1.749
PEM -> EMP	0.249	0.091	2.737*	0.006	2.574
PM -> EMP	0.179	0.088	2.036*	0.042	2.106
SP -> EMP	0.111	0.092	1.204	0.229	2.125
R-square			0.498		
R-square adjusted			0.484		
F-statistic			31.029*		
p (F-stat)			0.000		
Durbin-Watson			1.817		

*Coeff – Path Coefficient, STDEV – Standard Deviation, \*Significant at 5% level*

### Relationship between TQM Practices and Bank Innovation Performance

The analysis in Table 4 shows the relationship between TQM practices and innovation performance in the selected Deposit Money Banks. This was achieved using Partial Least Squares - Structural Equation Modelling (PLS-SEM). Leadership, people management, strategic planning, information and analysis, and process management are the constructs of TQM. Five different variables are used to measure each construct. The innovation performance construct (dependent variable) consists of five variables.



**Figure 1: PLS-SEM showing Path Coefficients and T Statistics for Bank Innovation Performance**

Figure 2 presents the diagram of PLS-SEM depicting the structural relationship between TQM practices and innovation performance of the Nigerian deposit money banks. The results of the path coefficients report that, except for the people management (-0.143), all other TQM practices such as information and analysis (0.267), leadership (0.304), process management (0.286), and strategic planning (0.149) are positively related to the innovation performance of the banks. However, information and analysis ( $t = 3.418$ ,  $p < 0.05$ ), leadership ( $t = 3.875$ ,  $p < 0.05$ ), and process management ( $t = 3.630$ ,  $p < 0.05$ ) have a significant effect on innovation performance of the banks.

More so, the analysis in Table 4 demonstrates that the TQM practices have a joint significantly positive with the innovation performance of the deposit money banks ( $F = 33.363$ ,  $p < 0.05$ ). This is confirmed by the coefficient of determination which shows that the practices explain as much as 50.4% of the variation in the bank innovation performance.



This implies that increasing the intensity of TQM implementation will lead to an enhancement of the banks' innovation performance. Thus, the hypothesis H<sub>2</sub> is accepted, indicating that TQM practices have a significantly positive relationship with innovation performance of the deposit money banks in Nigeria.

The assumptions of the regression model (3) are checked for multicollinearity and autocorrelation. The analysis in Table 4 shows that the VIF ranged from 1.741 to 2.574, suggesting the absence of multicollinearity in the independent variables. Also, there is no autocorrelation in the residuals from the regression model as the DW is approximately 2.0.

**Table 4: PLS-SEM on the Relationship between TQM Practices and Innovation Performance of DMBs**

	Coeff.	STDEV	t	p	VIF
IA -> INV	0.267	0.078	3.418*	0.001	1.741
LD -> INV	0.304	0.079	3.875*	0.000	1.749
PEM -> INV	-0.143	0.107	-1.339	0.181	2.574
PM -> INV	0.286	0.079	3.630*	0.000	2.106
SP -> INV	0.149	0.089	1.674	0.094	2.125
R-square	0.504				
R-square adjusted	0.489				
F-statistic	33.363*				
P (F-stat)	0.000				
Durbin-Watson	2.015				

*Coeff – Path Coefficient,*

*STDEV – Standard Deviation,*

*\*Significant at 5% level*

## DISCUSSION OF FINDINGS

The main objective of this research is to explore the relationship between total quality management (TQM) and the organizational performance of banks, as measured by employee performance and innovation performance. The findings indicate that TQM practices, such as leadership, people management, information and analysis, strategic planning, and process management, are positively related to employee performance in banks, suggesting that increasing the intensity of these practices enhances employee performance in deposit money banks. Furthermore, the results highlight that people management, information and analysis, and process management significantly influence employee performance in these banks. This aligns with the findings of Sadikoglu and Zehir (2010), Putri et al. (2017), and Lehyani et al. (2023), which showed that the implementation of TQM practices in organizations significantly impacts employee effectiveness and productivity.

Numerous empirical studies have found a significant positive relationship between TQM practices and innovation performance in organizations (Abrunhosa & Moura E Sa, 2008; Kim et al., 2012; Sadikoglu & Zehir, 2010; Antunes et al., 2017; Monday, 2020; Tajouri &

Lakhal, 2024). This research confirms that TQM practices positively impact innovation performance in deposit money banks in Nigeria. The results further indicate that leadership, information and analysis, and process management have a significant positive effect on innovation performance, while people management and strategic planning do not. This suggests that leadership, information and analysis, and process management are more influential in driving innovation performance within the Nigerian banking sector.

### **IMPLICATION TO RESEARCH AND PRACTICE**

The study identifies five key TQM practices: leadership, people management, information and analysis, strategic planning, and process management. These practices are essential for achieving optimal organizational performance. Nearly all research on TQM underscores that leadership is the primary driver for implementing TQM programs. Joiner (2007) and Bouranta (2021) specifically highlight the critical role of leadership or top management support in realizing the benefits of TQM practices. Additionally, Joiner (2007) and Putri et al. (2017) stressed the importance of effective people management for enhancing organizational performance. The implementation of TQM may be sub-optimal if employees feel they are not being carried along or supported by the organisation. Therefore, for an organization to reach its full potential, the TQM practices outlined in this study are vital.

### **CONCLUSION**

The study finds that TQM practices (leadership, people management, information and analysis, strategic planning, and process management) significantly influence employee performance in banks and positively impact the innovation performance of deposit money banks (DMBs). Consequently, the study concludes that implementing TQM practices is crucial for achieving optimal organizational performance in the Nigerian banking sector. It recommends that banks allocate a significant portion of their resources to people management, especially in employee training and development, to ensure a skilled and experienced employee. This focus will improve the execution of TQM practices and the effective use of other resources. Besides, the management of deposit money banks should invest more in information and analysis, and process management tools as they contribute substantially to innovation performance.

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