

**CLOUD-BASED RECOVERY STRATEGY AND ADMINISTRATIVE EFFICIENCY IN COMMERCIAL BANKS IN RIVERS STATE****Dr. Chux-Nyeche, Gloria Chinyere<sup>1</sup>, & Obele, Abali James<sup>2</sup>***glochux@yahoo.com, glochux911@gmail.com, Phone: 08035516911***<sup>1</sup>Department of Office and Information Management, <sup>2&3</sup>Doctoral student, Department of Office and Information Management, <sup>1,2&3</sup>Faculty of Administration and Management, Ignatius Ajuru University of Education, Port Harcourt, Nigeria.****ABSTRACT**

The study examined cloud-based recovery strategy and administrative efficiency in commercial banks in Rivers State. The objectives of the study was to examine the relationship between cloud-based recovery strategy and measures of administrative efficiency such as cost efficiency, optimized process and timeliness in commercial banks in Rivers State. The study was anchored on Technology Acceptance Model as its theoretical foundation. The study adopted explanatory cross-sectional survey research design. The accessible population of the study consisted of Three Hundred and Eight (308) administrative heads and supervisors of Twenty-Three (23) commercial banks' headquarters operating in Rivers State. The sample size of the study was One Hundred and Seventy-Four (174) respondents. The above sample size was obtained using the Taro Yamene Formula. To address the differences in the distribution of the population across the commercial banks, Bowley's (1960) Population Proportionate Allocation Formula was adopted and applied. Thus, the study adopted random sampling techniques. Structured questionnaire was used as the main instrument for the collection of primary data. Cronbach alpha via SPSS (Statistical Package for Social Sciences, Version 24.0) was used to ascertain the reliability of the instrument. The Spearman Rank Order (Rho) was used for analysis. It was found that there is a significant positive relationship between cloud-based recovery strategy and administrative efficiency in commercial banks in Rivers State. It was concluded that, in a competitive and digitally driven banking environment, particularly within the operational realities of Rivers State, the adoption of cloud-based recovery is not merely a technological upgrade but a strategic imperative for sustaining efficiency, resilience, and long-term competitiveness. Consequently, the study recommended that management of commercial banks should fully integrate cloud-based recovery strategy systems with their core banking applications and operational workflows to ensure seamless data synchronization and eliminate manual redundancies.

***Keywords: Cloud-Based Recovery, Administrative Efficiency, Cost Efficiency Optimized Process and Timeliness***

**INTRODUCTION**

Administrative efficiency has emerged as one of the most critical determinants of organizational performance in the contemporary banking industry, particularly in environments characterized by increasing competition, regulatory demands, and rapid technological change. Globally, the commercial banking sector is under pressure to provide services that are fast, reliable, secure, and customer-centric while maintaining operational sustainability (Turner & Endres, 2023; Li & Wang, 2022). In emerging economies such as Nigeria, these pressures are compounded by infrastructural limitations, cyber security threats, and fluctuating economic conditions that demand resilient and cost-effective operational systems (Anyanwu & Omotayo, 2023). Within this context, administrative efficiency is the ability of banks to effectively manage resources, streamline processes, and deliver timely services. This has become a strategic imperative for maintaining competitiveness and customer trust (Hassan & Musa, 2022).

In Rivers State, a commercial and industrial hub in Nigeria's oil-rich Niger Delta, the banking sector plays a pivotal role in supporting corporate finance, trade, and small- and medium-sized enterprises

(SMEs). The region's economic vibrancy demands that commercial banks operate at high levels of efficiency to meet the expectations of both multinational corporations and individual customers. However, administrative inefficiencies remain prevalent. Many banks struggle to balance operational costs with revenue generation, manage complex transaction workflows, and deliver services promptly in the face of system interruptions (Okafor & Ibe, 2021). The operational environment in Rivers State further challenges efficiency through factors such as erratic power supply, security concerns, and high transaction volumes, which can strain available resources and infrastructure (Ogunleye & Eze, 2023).

One of the most persistent measures of this challenge is cost efficiency. Commercial banks in Rivers State face rising operational expenses driven by energy costs, maintenance of legacy systems, and regulatory compliance requirements. While automation and digital banking platforms have been adopted to improve cost structures, evidence shows that without strategic cost management, these technologies may not deliver their intended benefits (Chinedu & Adebayo, 2022). Redundant workflows, underutilized IT infrastructure, and duplication of tasks contribute to inflated operating costs, undermining profitability and restricting investment in innovation (Oladimeji & Hassan, 2023). However, in many banks, internal workflows remain fragmented, with parallel systems for different service functions, limited integration of back-office operations, and continued reliance on manual verification for certain transactions (Ezenwa & Okonkwo, 2022). These inefficiencies not only lengthen transaction cycles but also increase error rates and reduce responsiveness to customer needs. A lack of process optimization impedes scalability, making it difficult for banks to adapt to sudden surges in transaction volumes or to introduce new service offerings quickly (Adetunji & Ajayi, 2023). Timeliness in service delivery is equally vital for maintaining customer loyalty and sustaining competitive advantage. Delays in processing payments, disbursing loans, or clearing cheques can have significant consequences for both corporate clients and individual account holders. In Rivers State, where many businesses operate under tight production schedules and cash flow constraints, even minor service delays can disrupt supply chains and operational continuity (Nwosu & Iwu, 2021). However, timeliness is often compromised by unplanned downtime, limited redundancy in IT systems, and slow restoration of services following operational disruptions (Ogunyemi & Bello, 2023).

These challenges are further compounded by the low adoption of robust information recovery strategies, particularly cloud-based recovery systems. Cloud-based recovery strategy involves the storage of critical banking data, applications, and system configurations on secure, scalable, off-site platforms, allowing for rapid restoration of services in the event of disruptions such as cyber attacks, hardware failures, or natural disasters (Mohammed & Hassan, 2022). Unlike traditional on-premise recovery strategy methods, which often require significant time and physical resources to restore operations, cloud-based solutions offer faster recovery times, cost savings, and greater flexibility in scaling resources to meet demand (Kumar & Singh, 2023). Despite these advantages, adoption rates among commercial banks in Rivers State remain limited, often due to concerns over data sovereignty, security risks, and the perceived cost of implementation (Ogundele & Okafor, 2023). Cloud-based recovery strategy is a modern approach to disaster recovery strategy and business continuity. Instead of relying only on physical backup sites and on-premises hardware, banks store critical systems, applications, and data in secure cloud environments. In the event of a system failure, cyber attack, or natural disaster, these cloud systems can be quickly activated to restore services. This background necessitated the study.

### **Statement of the Problem**

Scholars are in agreement that poor administrative efficiency remains a persistent challenge in Nigeria's banking sector, undermining service quality, profitability, and competitiveness. In Rivers State, where banking supports high-value oil, gas, and SME's transactions, inefficiencies have greater economic consequences. Cost inefficiency seems to persist as redundant workflows, high facility costs, and underutilized technologies inflate operating expenses. Also, un-optimized

processes which are marked by manual approvals, fragmented IT systems, and repeated data entry, slow operations and heightened error risk. Poor timeliness in payments, loan processing, and settlements further erodes customer trust, often exacerbated by unplanned downtime and slow recovery (Ogundele & Okafor, 2023). A key underlying factor to the above problem is the low adoption of cloud-based recovery systems. Such solutions enable rapid restoration of services through scalable, off-site backups, reducing downtime and operational losses.

Existing studies have examined the relationship between cloud-based recovery strategy and administrative efficiency from several standpoint (Okonkwo & Eze, 2023; Oladejo & Abiola, 2021; Nwachukwu & Ajayi, 2022; Mohammed & Hassan, 2022; Ibrahim & Yusuf, 2023), but rarely integrate this dimension. To the best of the researcher's knowledge, no study has empirically linked cost efficiency, process optimization, and timeliness to cloud-based recovery as information recovery strategies in commercial banks in Rivers State, leaving managers without a unified evidence base for enhancing administrative efficiency through resilient and IT infrastructure which has obviously filled the gap in knowledge.

### Conceptual Framework

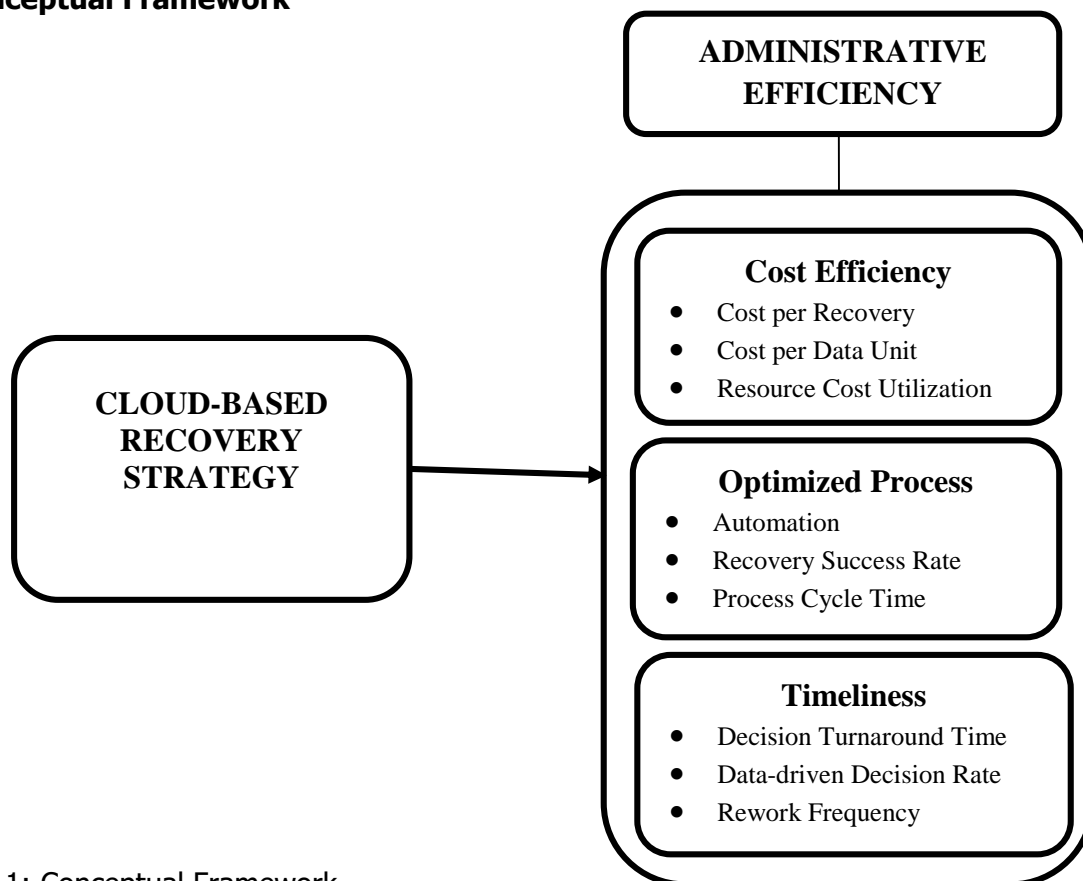


Fig. 1: Conceptual Framework.

Source: (Turner & Endres, 2023; Ogundele & Okafor, 2023; Mohammed & Hassan, 2022)

### Aim and Objectives of the Study

The aim of the study was to examine the relationship between cloud-based recovery strategy and administrative efficiency in Commercial Banks in Rivers State. Specifically, the study sought to:

1. examine the relationship between cloud-based recovery strategy and cost efficiency in Commercial Banks in Rivers State.
2. ascertain the relationship between cloud-based recovery strategy and optimized process in Commercial Banks in Rivers State.

3. determine of relationship between cloud-based recovery strategy and timeliness in Commercial Banks in Rivers State.

### Hypotheses

In line with the objectives, the following null hypotheses were formulated:

- Ho<sub>1</sub>: There is no significant relationship between cloud-based recovery strategy and cost efficiency in Commercial Banks in Rivers State.
- Ho<sub>2</sub>: There is no significant relationship between cloud-based recovery strategy and optimized process in Commercial Banks in Rivers State.
- Ho<sub>3</sub>: There is no significant relationship between cloud-based recovery strategy and timeliness in Commercial Banks in Rivers State.

### Conceptual Review

#### Concept of Cloud-based Recovery

Cloud-based recovery is an information recovery strategy that leverages cloud computing infrastructure to store, back up, and restore critical organizational data, applications, and IT systems after disruptions such as system failures, cyber attacks, or natural disasters. Unlike traditional disaster recovery methods, which often depend on physical servers and on-premise infrastructure, cloud-based recovery strategy enables financial institutions to use remote, internet-based platforms to quickly resume operations (Kumar & Singh, 2023). This approach is built on virtualized environments where computing resources, storage, and networking capabilities are hosted by third-party providers or in hybrid architectures, ensuring that recovery processes can be initiated from anywhere with secure access (Mohammed & Hassan, 2022). In commercial banking, where transaction integrity, service continuity, and regulatory compliance are paramount, cloud-based recovery strategy offers a reliable and scalable solution to mitigate the risks of operational downtime.

Service interruptions in the banking sector can have immediate financial implications, including lost revenue, reputational damage, and regulatory penalties for non-compliance with operational resilience requirements (Alotaibi *et al.*, 2022). Cloud recovery systems provide rapid failover mechanisms, enabling critical banking applications such as core banking systems, payment gateways, and customer databases to be restored within minutes or hours rather than days (Patel & Sahu, 2023). Traditional disaster recovery setups often require significant investment in duplicate physical infrastructure, ongoing hardware maintenance, and dedicated IT personnel (Nash & Baker, 2021). Cloud-based models, by contrast, operate on a subscription or pay-as-you-go basis, allowing banks to scale resources according to demand and reduce capital expenditure (Choudhary & Verma, 2023).

The strategic significance of cloud-based recovery strategy extends beyond operational resilience; it also plays a role in regulatory compliance and competitive differentiation. Financial regulators increasingly expect banks to implement robust disaster recovery and business continuity plans, often with specific guidelines on data protection and recovery timeframes (Central Bank of Nigeria, 2022).

#### Concept of Administrative Efficiency

Administrative efficiency serves as the backbone of sustainable banking operations. It influences a bank's ability to control costs, enhance process performance, meet regulatory requirements, and deliver customer value consistently. As digital transformation continues to reshape the banking sector, the role of administrative efficiency becomes even more critical in driving resilience, profitability, and competitive advantage. Administrative efficiency in commercial banks refers to the ability of the institution's administrative systems, processes, and personnel to deliver services, manage resources, and coordinate operations in a way that minimizes waste, reduces costs, and ensures timely and quality service delivery. It reflects how effectively a bank uses its human, financial, and technological resources to achieve organizational goals while maintaining customer

satisfaction and regulatory compliance (Hassan & Musa, 2022). In the banking sector, administrative efficiency covers multiple dimensions such as cost control, process optimization, timeliness, service quality, and adaptability to technological and environmental changes. Administrative efficiency supports cost management. By streamlining processes and eliminating redundancies, banks can lower operational expenses, thereby improving profitability and competitiveness (Oladimeji & Hassan, 2023). This is particularly crucial in regions like Rivers State, where operational costs are often elevated due to infrastructural and logistical challenges.

According to Ezenwa and Okonkwo (2022), administrative efficiency is the systematic coordination of tasks, people, and resources to achieve organizational objectives with minimal delays, waste, or redundancies. Furthermore, administrative efficiency strengthens compliance and risk management. Commercial banks operate in a highly regulated environment, and inefficiencies in reporting, documentation, or monitoring can lead to regulatory breaches and penalties (Okafor & Ibe, 2021). Efficient administrative systems ensure that data is accurate, processes are transparent, and compliance tasks are executed within stipulated timelines. Lastly, administrative efficiency enables banks to respond swiftly to environmental and technological changes, such as the increasing shift toward digital banking. Institutions that can adapt their administrative processes to new technologies like cloud-based recovery strategy systems are better positioned to sustain operations and maintain service continuity during disruptions (Ogunyemi & Bello, 2023).

Hassan and Musa (2022) define it as the bank's capacity to execute administrative functions effectively, ensuring that operational processes support profitability, customer retention, and compliance. Similarly, Li and Wang (2022) describe it as the ability of financial institutions to optimize administrative workflows, reduce overhead costs, and enhance the speed and accuracy of service delivery through strategic management and technological adoption. It enhances customer satisfaction by ensuring that banking services such as account management, loan processing, and fund transfers are delivered promptly and without errors (Nwosu & Iwu, 2021).

## **Measures of Administrative Efficiency**

### **Cost Efficiency**

Cost efficiency in commercial banks refers to the ability to deliver high-quality financial services and achieve operational objectives while minimizing resource expenditure and avoiding unnecessary costs. It involves maximizing output from available resources, reducing wastage, and ensuring that investments yield optimal returns (Koch & MacDonald, 2023). In the banking context, cost efficiency is closely tied to profitability, competitive positioning, and long-term sustainability. For example, banks that adopt lean operational models and deploy technology effectively often achieve greater cost efficiency by lowering transaction costs and administrative overheads (Ajayi & Okonkwo, 2022). Berger and Mester (2021) averred that cost efficiency is the ratio of a bank's actual operating costs to the minimum possible costs required to produce its services, given current technology and input prices. It directly impacts profitability by enabling banks to allocate resources to high-return areas such as lending, digital innovation, and customer service (Okafor & Nwankwo, 2023). Cost-efficient banks can offer competitive interest rates and fees, thereby attracting and retaining more customers. Furthermore, in a volatile economic environment such as Rivers State, where operational costs can be elevated due to infrastructure gaps and regulatory compliance burdens, cost efficiency helps banks maintain financial stability.

Oladipo and Yusuf (2022) define it as the ability of a financial institution to control costs without sacrificing service quality or compliance requirements. Similarly, Li and Zhou (2023) describe it as a strategic performance measure that evaluates how effectively a bank uses its resources to generate revenue relative to peers and industry standards. It also enhances resilience by freeing up resources for strategic investments, including advanced technologies like cloud-based recovery strategy systems, which further reduce downtime-related losses and strengthen service continuity (Adebayo & Hassan, 2022). Thus, cost per recovery, cost per data unit and resource cost utilization are used as indicators of cost efficiency.

**Cost per Recovery:** Cost per recovery refers to the total financial expenditure incurred by an organization, such as a commercial bank, to restore its operations, systems, and data after a disruption or disaster. This metric typically includes all direct and indirect costs involved in the recovery process such as cloud service charges, data restoration fees, IT labor, downtime-related revenue loss, and any penalties for failing to meet contractual or regulatory deadlines (Sharma & Kaur, 2022). It is a key performance indicator in evaluating the economic efficiency of a disaster recovery strategy, especially when comparing traditional on-premises recovery with cloud-based recovery models.

**Cost per Unit:** Cost per unit in commercial banking refers to the total expenditure a bank incurs to deliver a single unit of service such as processing a customer transaction, approving a loan, or completing a data recovery operation calculated by dividing the total operational cost by the total number of such service units delivered within a given period (Horngren *et al.*, 2021). This metric is vital because it provides a clear measure of how efficiently a bank is using its resources to serve customers.

**Resource Cost Utilization:** Resource cost utilization in commercial banks refers to the extent to which a bank uses its available resources such as personnel, technology, infrastructure, and capital efficiently and effectively to achieve desired operational outcomes, relative to the cost incurred (Basu & Kumar, 2022). It measures how well the bank converts invested resources into productive output without unnecessary waste or underutilization. This metric is particularly important in a service-oriented sector like banking, where operational efficiency depends heavily on optimizing both human and technological resources (Johnson & Powell, 2021).

### Optimized Process

Davenport (2021) averred that process optimization is the systematic improvement of operational workflows to achieve greater efficiency, effectiveness, and adaptability in delivering services. Also, optimized process in commercial banks refers to the strategic design, coordination, and continuous improvement of operational workflows to maximize efficiency, reduce redundancies, and enhance service delivery. It involves leveraging technology, data analytics, and best practices to ensure that banking activities such as loan processing, account management, and transaction verification are performed in the most effective and timely manner (Smith & Kumar, 2022). Process optimization ensures that all components of a bank's operations are aligned with organizational goals, regulatory requirements, and customer expectations, while minimizing errors and delays (Eze & Obi, 2023). Iwuchukwu and Nwachukwu (2022) define it as the re-engineering of banking processes to eliminate bottlenecks, reduce turnaround times, and improve resource utilization. Similarly, Li and Huang (2023) describe it as the integration of technology, performance metrics, and continuous feedback loops to ensure that every banking activity delivers maximum value with minimal waste. Streamlined processes lead to faster service delivery, reduced operational costs, and improved customer satisfaction (Okeke & Adamu, 2023). In competitive banking environments such as Rivers State, where customers expect quick and error-free transactions, optimized processes can be a key differentiator. Moreover, process optimization reduces compliance risks by ensuring that regulatory tasks such as reporting and anti-money laundering checks are completed accurately and on time (Adeyemi & Lawal, 2022). It also facilitates the effective adoption of advanced technologies, including cloud-based recovery strategy systems, by ensuring that these tools are integrated seamlessly into existing workflows, thereby enhancing business continuity and operational resilience. Indicators of optimized process as used in his study include automation, recovery success rate and process cycle time.

**Automation:** In commercial banks, automation has a direct impact on cost reduction, productivity improvement, and error minimization. By replacing manual, time-consuming processes with

automated systems, banks can serve more customers in less time, reduce reliance on extensive human labor for routine tasks, and ensure consistent service delivery standards. For instance, automated loan processing systems can evaluate creditworthiness, verify documentation, and approve loans within hours instead of days, thereby enhancing customer satisfaction and freeing staff to focus on higher-value functions (Patel & Desai, 2023). Automation in commercial banks refers to the use of technology-driven systems and processes to perform tasks that would otherwise require manual intervention, thereby improving operational speed, accuracy, and efficiency (Gupta & Kohli, 2022).

**Recovery Success Rate:** In the context of commercial banking, recovery success rate is critical because banking operations are highly sensitive to downtime and data integrity issues. Even a short disruption can affect transaction processing, loan disbursement, ATM services, and online banking availability, leading to financial losses and reputational damage. Factors influencing recovery success rate include the reliability of backup systems, frequency of data replication, staff training, and the speed of recovery operations. With customer trust and regulatory compliance at stake, banks cannot afford repeated recovery failures (Okonkwo & Adeyemi, 2023). Recovery success rate in commercial banks refers to the percentage of data restoration or system recovery operations that are successfully completed within the required time and quality standards after a disruption, such as a cyber attack, hardware failure, or natural disaster (Kaur & Sharma, 2022).

**Process Cycle Time:** Process cycle time in commercial banks refers to the total amount of time required to complete a specific banking process from the point of initiation to its final completion (Lee & Park, 2022). It measures the duration of end-to-end activities, including all operational steps, waiting periods, and handoffs between departments. In banking, process cycle time is often used to evaluate the efficiency of critical functions such as loan approvals, account opening, funds transfer processing, and compliance checks. A shorter cycle time typically indicates higher operational efficiency, while a longer one may suggest bottlenecks, redundant procedures, or inadequate resource allocation.

### Timeliness

In the assertion of Udeh and Okoro (2022), timeliness is the speed and punctuality with which a financial institution responds to operational and customer demands to meet expected standards. Similarly, Zhang and Li (2023) explain timeliness as a measure of the extent to which financial services and decision-making processes are conducted without unnecessary delays, ensuring that value is delivered when it is most needed. Prompt service delivery enhances customer satisfaction, builds trust, and strengthens a bank's competitive position (Okafor & Eze, 2023). Furthermore, in environments like Rivers State where infrastructural and technological challenges can slow down banking operations, achieving timeliness often requires the adoption of advanced solutions such as automation and cloud-based recovery systems to minimize downtime and ensure uninterrupted service delivery (Ibrahim & Lawal, 2022). By embedding timeliness into operational culture, banks can better align with customer expectations and maintain operational resilience in dynamic market conditions.

Timeliness in commercial banks refers to the ability to deliver banking services, process transactions, and respond to customer or regulatory requirements within the shortest possible time without compromising quality. It is a critical performance measure that reflects how quickly and efficiently a bank can meet both internal and external deadlines, whether in handling loan approvals, payment processing, customer inquiries, or compliance reporting (Adeleke & Musa, 2023). Johnson and Brown (2021) describe timeliness as the capability of an organization to execute tasks, deliver services, and fulfill obligations within the required timeframe. In today's highly competitive financial environment, timeliness has become a determinant of customer loyalty and operational excellence, as clients increasingly expect real-time or near-instant banking services (Nguyen & Le, 2022). Banks

that prioritize timeliness can adapt more swiftly to market changes, regulatory demands, and technological advancements. Indicators include the following:

**Decision Turnaround Time:** Decision turnaround time refers to the total elapsed time between the initiation of a decision-making process such as loan approval, credit assessment, or investment authorization and the point at which the final decision is communicated to the customer or relevant stakeholders (Singh & Malhotra, 2022). It is a critical performance metric in banking because timely decisions directly affect customer satisfaction, operational efficiency, and competitive positioning.

**Data-driven Decision Rate:** Data-driven decision rate in commercial banks refers to the proportion of operational and strategic decisions that are based primarily on data analytics, rather than on intuition, past experience, or unstructured judgment (Mensah & Boateng, 2023). This metric measures the extent to which a bank's decision-making process relies on accurate, timely, and relevant data drawn from core banking systems, market analytics, customer behavior insights, and risk assessment tools. A higher data-driven decision rate reflects a stronger integration of analytics into the bank's operations, leading to improved accuracy, reduced bias, and greater accountability in decision outcomes.

**Rework Frequency:** Rework frequency in commercial banks refers to how often a task, process, or transaction must be redone due to errors, incomplete work, or non-compliance with required standards (Hassan & Musa, 2022). It is a key operational performance metric because high rework frequency directly translates into wasted time, increased costs, and reduced service quality. In banking, rework can occur in various forms such as correcting errors in loan documentation, reversing incorrect transactions, revalidating customer identification data, or reprocessing failed payment instructions. Measuring rework frequency allows banks to identify process weaknesses, skill gaps, or technology inefficiencies that contribute to recurring mistakes.

### Theoretical Review

This study was anchored on Technology Acceptance Model (TAM). Technology Acceptance Model was founded by Fred D. Davis in 1986. The model focuses on the interaction between the user and the technology, often excluding broader organizational or social dynamics unless explicitly included as external variables as such, the intention to use a system is the immediate precursor to actual usage. This means that attitudes toward the system significantly influence intention and, consequently, behavior.

### Assumptions:

- i. Individuals make rational decisions about using technology based on their perceptions of its usefulness and ease of use.
- ii. Users believe that the technology will enhance their job performance or provide value, which strongly influences their decision to adopt it.
- iii. Technology that is easy to use is more likely to be adopted.
- iv. The user has some degree of choice in adopting the technology, making the model less applicable in contexts where use is mandatory.

### Implications of Technology Acceptance Model to the Present study

This theory is important to this study because when innovation is perceived as valuable for enabling faster responses to market changes, customer demands, or technological shifts, it directly contributes and strengthens the administrative process of commercial banks. If an administrative staff finds digitalization easy to integrate into existing workflows, adoption increases. For instance, cloud-based recovery strategy systems such as information recovery strategy that require minimal training are more likely to be embraced.

**METHODOLOGY**

The study adopted explanatory cross-sectional survey research design. The accessible population of the study consisted of Three Hundred and Eight (308) administrative heads and supervisors of Twenty-Three (23) commercial banks' headquarters operating in Rivers State. The sample size of the study was One Hundred and Seventy-Four (174) respondents. The above sample size was obtained using the Taro Yamene Formula. To address the differences in the distribution of the population across the commercial banks, Bowley's (1960) Population Proportionate Allocation Formula was adopted and applied. Thus, the study adopted random sampling techniques. Structured questionnaire was used as the main instrument for the collection of primary data. To establish the validity of the instrument, copies of the questionnaire was submitted to the project supervisor and two other experts in Office and Information Management. Their comments were used to validate the final copy of the instrument that was administered. Thus, Cronbach alpha via SPSS (Statistical Package for Social Sciences, Version 24.0) was used to ascertain the reliability of the instrument. A total of One Hundred and Seventy-Four (174) copies of the questionnaire were administered to respondents with the help of two research assistants. The researcher was able to retrieve One Hundred and Fifty-Two (152) copies of the questionnaire distributed representing 87% and were used for analysis. The Spearman Rank Order (Rho) with the aid of Statistical Package for Social Sciences (SPSS) Version 24.0 was used for the analysis. The formula is presented below:

$$r = 1 - \frac{6\sum d^2}{n(n^2 - 1)}$$

Where:

n = number of pairs of data

d = difference between the ranking in each set of data.

$\Sigma$  = Summation.

**Decision Rule:** Using a level of significance of 0.05 (confidence interval of 95%), when a calculated significant value is less than 0.05 the null hypothesis was rejected, if otherwise, the null hypothesis was accepted. For the coefficient values, the following interpretation scheme was applied as stated below: (a) No Relationship = 0, (b) Low/Weak Relationship = 0.1-0.2, (c) Moderate or Relatively Strong Relationship = 0.3-0.5, (d) High/Strong Relationship = 0.6-0.7, (e) Very High/Very Strong Relationship = 0.8-0.9, (f) Perfect Relationship = 1.

**RESULT**

Ho<sub>1</sub>: There is no significant relationship between cloud-based recovery and cost efficiency in commercial banks in Rivers State.

**Table 1: Correlations between Cloud-Based Recovery and Cost Efficiency**

		Cloud-Based Recovery	Cost Efficiency
Spearman's rho	Cloud-Based Recovery	Correlation Coefficient Sig. (2-tailed) N	1.000 .666** 152
	Cost Efficiency	Correlation Coefficient Sig. (2-tailed) N	.666** .000 152

\*\* . Correlation is significant at the 0.05 level (2-tailed).

Source: SPSS Output, 2025

Table 1 above reveals r value of 0.666 at a P=0.00<0.05 for the hypothesis relating cloud-based recovery strategy and cost efficiency. Since the significance value 0.00 is less than the alpha level of 0.05, the null hypothesis (Ho<sub>1</sub>) which states that there is no significant relationship between cloud-based recovery and cost efficiency in commercial banks in Rivers State was rejected and the

alternate ( $H_{a1}$ ) was accepted. This implies that there is a strong positive relationship between cloud-based recovery strategy and cost efficiency in commercial banks in Rivers State.

$H_{o2}$ : There is no significant relationship between cloud-based recovery strategy and optimized processes in commercial banks in Rivers State.

**Table 2: Correlations between Cloud-Based Recovery and Optimized Process**

			Cloud-Based Recovery	Optimized Process
Spearman's rho	Cloud-Based Recovery	Correlation Coefficient	1.000	.901**
		Sig. (2-tailed)	.	.000
		N	152	152
	Optimized Process	Correlation Coefficient	.901**	1.000
		Sig. (2-tailed)	.000	.
		N	152	152

\*\* . Correlation is significant at the 0.05 level (2-tailed).

Source: SPSS Output, 2025

Table 2 above reveals r value of 0.901 at a  $P=0.00 < 0.05$  for the hypothesis relating cloud-based recovery strategy and optimized process. Since the significance value 0.00 is less than the alpha level of 0.05, the null hypothesis ( $H_{o2}$ ) which states that there is no significant relationship between cloud-based recovery and optimized process in commercial Banks in Rivers State was rejected and the alternate ( $H_{a2}$ ) was accepted. This implies that there is a very strong positive relationship between cloud-based recovery strategy and optimized process in Commercial banks in Rivers State.

$H_{o3}$ : There is no significant relationship between cloud-based recovery strategy and timeliness in commercial banks in Rivers State.

**Table 3: Correlations between Cloud-Based Recovery and Timeliness**

			Cloud-Based Recovery	Timeliness
Spearman's rho	Cloud-Based Recovery strategy	Correlation Coefficient	1.000	.749**
		Sig. (2-tailed)	.	.000
		N	152	152
	Timeliness	Correlation Coefficient	.749**	1.000
		Sig. (2-tailed)	.000	.
		N	152	152

\*\* . Correlation is significant at the 0.05 level (2-tailed).

Source: SPSS Output, 2025

Table 3 above reveals r value of 0.749 at a  $P=0.00 < 0.05$  for the hypothesis relating cloud-based recovery strategy and timeliness. Since the significance value 0.00 is less than the alpha level of 0.05, the null hypothesis ( $H_{o3}$ ) which states that there is no significant relationship between cloud-based recovery strategy and timeliness in commercial banks in Rivers State was rejected and the alternate ( $H_{a3}$ ) was accepted. This implies that there is a strong positive relationship between cloud-based recovery strategy and timeliness in commercial banks in Rivers State.

### Discussion of Findings

The findings of this study are discussed below:

The test of hypothesis one revealed that there is a strong positive relationship between cloud-based recovery strategy and cost efficiency in Commercial Banks in Rivers State. Cloud-based recovery strategy plays a pivotal role in enhancing cost efficiency in commercial banks by reducing the need for expensive physical infrastructure and on-premises disaster recovery facilities. Traditionally, banks invested heavily in redundant hardware, and high-maintenance backup systems to ensure

business continuity in case of disruptions. In consonance with this view, Choudhary and Verma (2023) found that with cloud-based recovery strategy, these capital expenditures are replaced by scalable, pay-as-you-go service models that shift costs from fixed to variable. Moreover, cloud providers manage system updates, security, and redundancy, thereby lowering maintenance costs and allowing banks to focus more on core operational priorities rather than IT overheads (Kumar & Singh, 2023).

The hypothesis test two shows that there is a very strong positive relationship between cloud-based recovery and optimized process in commercial banks in Rivers State. Cloud-based recovery strategy streamlines data backup, restoration, and operational continuity procedures by automating and integrating them into a bank's daily operations. Instead of relying on manual interventions or fragmented backup systems, cloud recovery platforms offer centralized dashboards, real-time replication, and automated failover processes that minimize human error and operational bottlenecks (Alotaibi *et al.*, 2022). For example, in the event of a server failure, cloud-based systems can automatically redirect banking transactions to alternate servers without interrupting customer services. This integration ensures that critical workflows such as loan approvals, transaction verifications, and compliance reporting are maintained seamlessly, supporting a continuous process optimization culture. Additionally, because cloud-based recovery strategy systems are regularly updated by service providers, they remain aligned with evolving regulatory requirements and cyber security standards, further improving process integrity and reliability (Gaur & Sharma, 2022).

The test of hypothesis three shows that there is a strong positive relationship between cloud-based recovery and timeliness in commercial banks in Rivers State. Cloud-based recovery strategy significantly reduces downtime by enabling rapid restoration of data and applications after system disruptions. In the traditional model, recovering operations after a hardware or system failure could take hours or even days, depending on the location and accessibility of backup systems. Patel and Sahu (2023) found that cloud-based recovery strategy solutions, however, leverage high-speed replication and geographically distributed servers to restore critical banking operations in minutes, ensuring that customers experience minimal service delays. This speed is vital in today's competitive banking environment, where delays can lead to lost revenue, damaged reputation, and customer dissatisfaction. Furthermore, the ability to quickly recover from cyber attacks, natural disasters, or technical failures ensures that statutory and compliance-related deadlines are met, strengthening both operational resilience and customer trust (Mohammed & Hassan, 2022).

## CONCLUSION

The study concluded that there is a significant positive relationship between cloud-based recovery strategy and administrative efficiency in commercial banks in Rivers State. In a competitive and digitally driven banking environment, particularly within the operational realities of Rivers State, the adoption of cloud-based recovery strategy is not merely a technological upgrade but a strategic imperative for sustaining efficiency, resilience, and long-term competitiveness.

## RECOMMENDATIONS

Based on the findings, the following recommendations were made:

1. Management of commercial banks should prioritize migrating their disaster recovery infrastructure to cloud-based platforms to reduce high capital expenditures on physical backup facilities and hardware maintenance.
2. Management of commercial banks should fully integrate cloud-based recovery strategy systems with their core banking applications and operational workflows to ensure seamless data synchronization and eliminate manual redundancies.
3. They should adopt high-availability cloud architectures that ensure rapid data replication and minimal downtime, enabling critical banking services to be restored within minutes of disruption.

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