ISSN: 3571 - 3586
Volume 10, Number 2, 2026
Journal of International, Entrepreneurship and Management

DIGITAL ARCHIVING UTILIZATION AND SUSTAINABLE COMPETITIVE ADVANTAGE OF COMMERCIAL BANKS IN RIVERS STATE, NIGERIA

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Abstract

Commercial banks in Rivers State, Nigeria, are increasingly finding it important to have sustainable competitive advantage. The study focused on the relationship between the use of digital archiving and sustainable competitive advantage of commercial banks in Rivers State, Nigeria. Organizational culture was used as a moderator. This paper was based on Diffusion of Innovation Theory. The researchers defined digital archiving utilization as an enabler for retrieval efficiency, digital storage and information system reliability, and the measures of sustainable competitive advantage are service quality superiority, organizational resilience and financial performance. The research design used was the cross-sectional survey design that allowed for effective data collection from the respondents and analysis. The population of this study comprised of the twenty-eight (28) commercial banks operation in Rivers State, Nigeria. The researchers used census sample and sampling size technique. The sample size comprised of 184 staff of the records management, information technology and operations departments of twenty eight (28) licensed commercial banks in Rivers State, Nigeria of which 168 questionnaires were returned representing 91.3% response rate. The study finds that the utilization of digital archiving is an important technological competence that can be used to enhance sustainable competitive advantage of commercial banks. Among others, the study suggests strengthening the digital archiving systems by enhancing retrieval mechanisms, secure storage infrastructure and reliable information technology systems to ensure the organization's performance and competitive advantage.

Key words: Digital archiving utilization, sustainable competitive advantage, retrieval efficiency, system reliability, organizational culture.

INTRODUCTION

In the context of the rapidly changing and technologically advanced financial world, sustainable competitive advantage has become a key goal of commercial banks. Commercial banks in Rivers State, Nigeria are confronted with high competition, changing regulatory demands and high expectations of their customers for speed, accuracy and reliability. In this context, sustainable competitive advantage is manifested in three fundamental indicators: superiority in service quality, organizational resilience and financial performance. Service quality superiority includes faster transaction processing, higher customer satisfaction and fewer complaints. Banks that can offer these features will be more successful in retaining both customers and market share today, when banking customers want fast and efficient service, smooth and hassle-free transactions. The empirical results of this study reveal that there is a significant link between service quality and enhancing the competitive position and performance of financial institutions (Al-Hattami, 2024; Weerasekara & Bhanugopan, 2023).

Organizational resilience is another important factor of sustainable competitive advantage. Banks should be able to adjust to regulation and be able to bounce back from crisis, as well as be strategically stable, to face economic shocks and policy changes. In regulated sectors such as banking, compliance is vital to institutional credibility and viability and the ability to withstand disruptions and adapt to compliance requirements are essential. It has been found from the research that resilient organisations are more likely to perform during crisis and protect stakeholder confidence in case of any crisis (Francioni et al., 2015; Rasheed & Siddiqui, 2019). Financial performance, as measured by the growth of profits, reduction in operating costs and diversification of revenue also exemplifies competitive sustainability. Banks' profitability despite market variations is attributed to a cost-efficient cost structure and diversifications of income (O'Regan et al., 2005; Musso & Francioni, 2012).
These measures are what constitute sustainable competitive advantage, but it is becoming more and more dependent on the effective management of digital information resources by banks. Utilization of digital archiving is one of the determinants that has not yet been studied. As the banking industry moves from paper to electronic banking, digital archiving is essential for recording transactions, reporting for compliance and customer data management. The utilization of digital archiving can be conceptualized through three dimensions: retrieval efficiency, digital infrastructure for storage and reliability of the systems. This encompasses search optimization, indexed record systems and fast search protocols. Records are indexed systematically and easily retrieved which accelerates transactions and reduces delays in service provisioning and response to customer queries. The study shows that the result of service delivery in financial institutions is greatly affected by good information retrieval system (Maelah et al., 2021).

Banking records are protected by digital storage infrastructure—such as the integration of cloud technology, secure databases, and backup and disaster recovery solutions—and are protected, scalable, and easily accessible. In addition, cloud integration offers more flexibility when it comes to operations, secure databases effectively protect sensitive data, and disaster recovery systems keep institutions safe from data loss in case of a system failure. Empirical studies have revealed that having strong digital infrastructures is beneficial for sustaining operations and strategic stability (Huang, 2009; Dangayach & Deshmukh, 2005). Not much study has related digital storage infrastructure directly to the sustained competitive advantage of commercial banks in Nigeria. System reliability, expressed by the time during which the system is down, the failure rate and the stability of the system performance, also affects the effectiveness of the digital archiving utilization. System failures can slow down transactions, destroy customer trust and introduce operational risks, and stable systems can increase institutional reliability and customer confidence. There is a high dependency of effective information systems in the effectiveness of decision making and the performance of the organization (Cuéllar-Molina & García-Cabrera, 2019). The subject of the reliability of a digital archiving system in gaining long-term competitive advantage has not yet been well explored.

In addition, the relationship between using digital archiving and sustainability competitive advantage might be dependent on the extent of organizational culture in the bank. Process efficiency, cost reduction and risk minimisation are elements of the organisational culture that increases the ability of organisations to effectively use digital systems. The more efficient the process, and the more effective the risk management system, the greater the likelihood that technological capabilities will be put into practice. This has been proven in previous studies that investing in technology can be more effective in gaining competitive advantages if combined with effective operating systems (Al-Hattami, 2024). Empirical studies however, focusing on organizational culture as a moderator in the digital archiving and competitive sustainability are limited. The use of Digital Information Systems is gaining momentum in Banking due to its emerging significance, but there is hardly any contextual research that investigates the influence of Digital archiving utilization on Sustainable Competitive advantage of Commercial Banks in Rivers State, Nigeria. This study is designed to address this empirical and contextual void and substantiate the current study by examining how the predictor variables (retrieval efficiency, the digital storage infrastructure and system reliability) influence the superior service quality, organizational resilience and financial performance, with organizational culture as a moderator.

Statement of the Problem

Sustainable competitive advantage is a key factor to the survival and growth of commercial banks especially in technologically dynamic and highly regulated environment like Rivers State, Nigeria. Commercial banks are expected to provide better service quality in terms of faster transaction processing, better customer satisfaction and lower complaint rate. They must also show organizational resilience, adjusting to regulatory changes, bouncing back quickly from operational disruptions and ensuring long-term strategic stability. Moreover, steady profit increases, cost cutting and revenue diversification are still key measures of financial performance. Even with the rise in investments in digital technologies, many banks are still facing service delays, system interruptions, escalating operational costs, data retrieval inefficiencies, and occasional compliance issues. This indicates that there is a disconnect between digital transformation initiatives and achieving sustainable competitive advantage. Digital archiving utilization has been recognized as one of the most important technological capabilities that can improve information accessibility, regulatory compliance, and continuity of operations. The efficient retrieval systems, cloud-based storage infrastructure and reliable system performance are expected to enhance service delivery, resilience and financial outcomes. Empirical research validates the positive relationship between effective information systems and decision making and organizational performance. Al-Hattami (2024) concluded that the success of the accounting information system has a significant effect on the effectiveness of decision making, and Maelah et al., (2021) reported that structured information systems have a positive effect on the efficiency of managers. Francioni et al., (2015) also highlighted the strategic importance of reliable systems to improve the performance of the organization, while O'Regan et al., (2005) related structured decision systems to better competitive results. While these studies have established the significance of digital systems and structured information management, they have not specifically looked at the utilization of digital archiving system in terms of retrieval efficiency, digital storage infrastructure and system reliability as a predictor of sustainable competitive advantage in commercial banks in Rivers State.

Furthermore, although organizational culture has been linked to better organizational outcomes in terms of process efficiency, cost reduction and risk minimization, there is limited empirical research on the moderating role of organizational culture in enhancing the relationship between digital archiving utilization and sustainable competitive advantage. While previous research has recognized the positive relationship between operational efficiency and returns on technological investments, few studies have empirically examined the relationship between operational efficiency and returns on technological investments in the banking sector in developing economies. Thus, the problem that necessitated this study is that there is no empirical clarity on the effect of digital archiving utilization

ISSN: 3571 - 3586
Volume 10, Number 2, 2026
Journal of International, Entrepreneurship and Management

on sustainable competitive advantage of commercial banks in Rivers State, Nigeria and the moderating effect of organizational culture. This gap is the reason for the current study.

Conceptual Framework

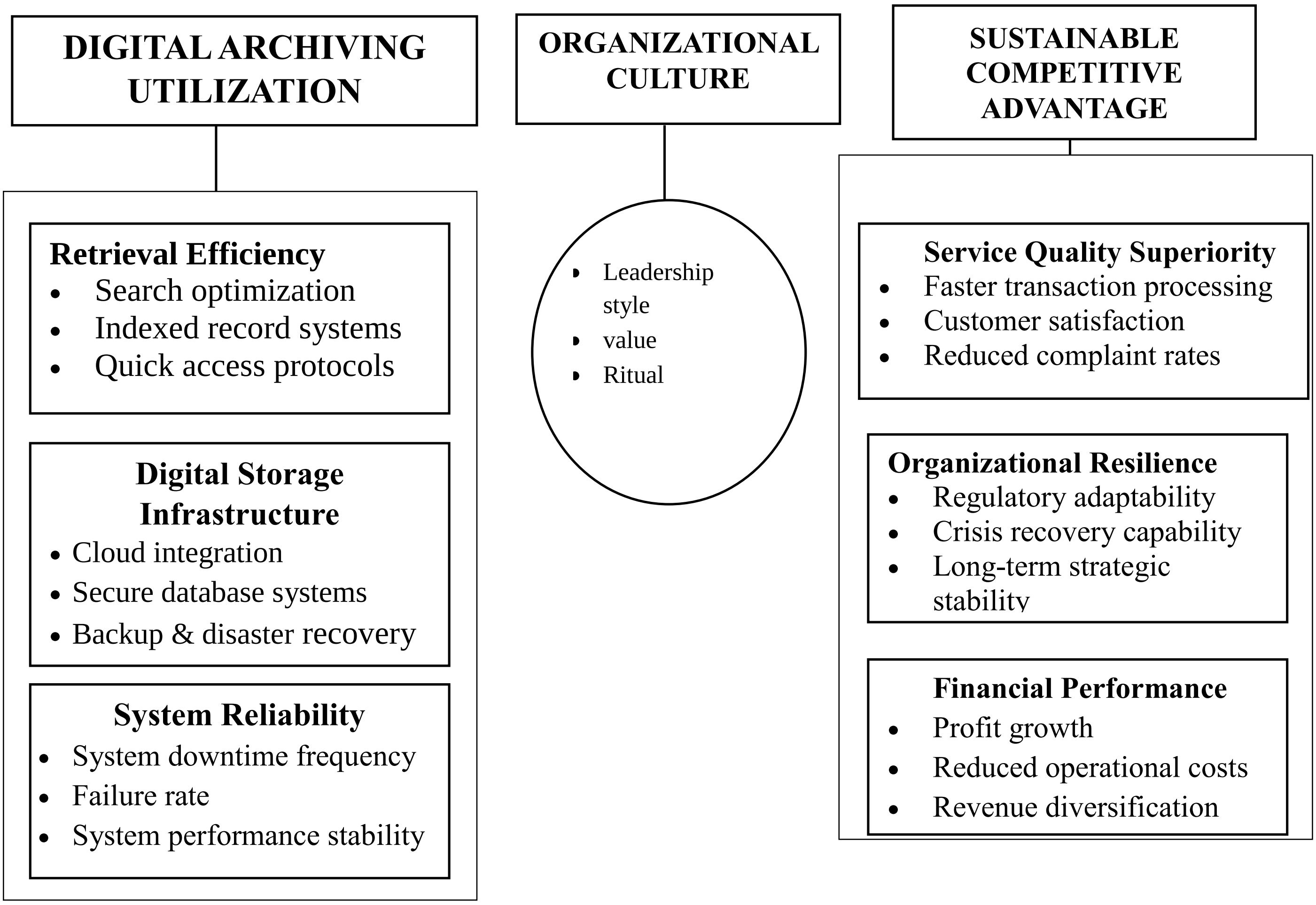

Fig 1.1: Conceptual framework showing the relationship between digital archiving utilization and sustainable competitive advantage of commercial banks in Rivers State, Nigeria.
Source: Mithas et al., (2011)

RESEARCH HYPOTHESES

The aim of this study is to examine the relationship between digital archiving utilization and sustainable competitive advantage of commercial banks in Rivers State, Nigeria. To achieve the above aim, the following hypotheses were stated and tested in the course of this study at a 0.05 level of significance:

H_{o1}: There is no significant relationship between retrieval efficiency and service quality superiority of commercial banks in Rivers State, Nigeria.

H_{o2}: There is no significant relationship between digital storage infrastructure and organizational resilience of commercial banks in Rivers State, Nigeria.

H_{o3}: There is no significant relationship between system reliability and financial performance of commercial banks in Rivers State, Nigeria.

H_{o4}: There is no significant relationship between digital archiving utilization and sustainable competitive advantage of commercial banks in Rivers State, Nigeria.

ISSN: 3571 - 3586
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THEORETICAL FRAMEWORK

Theoretically, this study is based on Diffusion of Innovation (DOI) Theory proposed by Everett Rogers (2003). The theory offers a basic explanation of the process of new technology adoption, implementation and use in organizations. It describes how innovations can be diffused over time through social systems and what factors can affect the speed and the amount of adoption. Diffusion of Innovation Theory in this study is used to describe the adoption and use of digital archiving system in commercial banks and the use of digital archiving system as a sustainable competitive advantage. Rogers (2003) argues that the five attributes of relative advantage, compatibility, complexity, trialability, and observability are factors that affect the adoption of an innovation. Relative advantage is the extent to which an innovation is seen as better than the system it is replacing. For commercial banks, digital archiving systems can provide benefits like quicker retrieval of records, better data security, decreased paperwork, and better regulatory compliance. If bank managers believe that digital archiving can enhance the delivery of services and the performance of their operations, the chances of its effective use are greater.

Compatibility is the degree to which an innovation is consistent with the values, practices and technology already in place. The use of digital archiving via retrieval efficiency, digital storage infrastructure, and system reliability needs to be consistent with current banking practices, compliance requirements, and service delivery expectations. For example, search optimization, indexed record systems and quick access protocols are more easily implemented if they can be integrated with the core banking applications. Likewise, cloud integration, secure database systems, backup and disaster recovery mechanisms need to be within regulatory and risk management frameworks to ensure that they are used. Another attribute is complexity, which is the degree to which an innovation is easy to understand or use. Adoption and effective use of digital archiving systems can be limited if they are seen as too complicated or prone to failure or downtime. On the other hand, stability of system performance and ease of use promote sustained use and institutional integration. Trialability and observability further facilitate diffusion; as banks are able to try digital archiving systems and see the increase in transaction speed, reduction in complaints, and increase in operational efficiency, the commitment to the system increases.

The concept of Digital Archiving Utilization is a new concept that has been introduced.
Digital archiving utilization is the effective implementation and ongoing use of electronic record management systems for the storage, preservation, organization and retrieval of institutional records in digital format. In modern banking institutions, digital archiving is not just the digitization of paper records, but a well-defined information governance practice that makes records accessible, secure, authentic and compliant with regulatory requirements (ISO 15489-1, 2016). Effective utilization means that archived records are used to facilitate operations, compliance reporting, audit trails, and managerial decision making. For banks, there is a vast amount of transactional and customer data that is created every day and needs to be stored systematically and accessed in a controlled manner. Digital archiving systems, when used correctly, can increase the accessibility of information, minimize manual handling mistakes, streamline workflow coordination, and boost accountability measures. Studies have shown that the utilization of digital information systems can greatly enhance the quality of decision-making and the performance of the organization (Al-Hattami, 2024). Likewise, the use of structured electronic records management has been linked to better transparency and efficiency in organizations (Maelah, Al Lami, & Ghas, 2021).

According to Diffusion of Innovation Theory (Rogers, 2003), the degree of adoption of digital archiving will be determined by the perceived relative advantage, compatibility, and ease of integration of digital archiving in the institutions. The benefits of sustainable use are not just from adoption, but from consistent and strategic use that is integrated into organizational processes.

Therefore, digital archiving utilization is a strategic information management capability that can improve efficiency, compliance and long-term institutional stability of commercial banks.

Retrieval Efficiency

Retrieval efficiency is the ability of a digital archiving system to quickly, accurately and easily retrieve stored record information via search optimization, indexed record systems and speedy access protocols. Archived documents can be easily retrieved by keyword, metadata or advanced searching functions to conserve time in searching for documents. A file is organized logically with indexed record systems that provide classification systems that enhance the traceability and logical organization of data. Quick access protocols are the procedures set up to provide ready access to the information that is needed for the authorized user to access without having to engage in unnecessary procedures.

Research indicates that good information retrieval systems can significantly enhance the productivity and responsiveness of a technology based organisation's workflows and services (Al-Hattami 2024). Similarly, in digital record environments (ISO 15489-1, 2016), structured indexing and management of metadata have been shown to improve information access and mitigate operational delays. For commercial banks, efficient retrieval can translate to customer information, compliance records, transaction history, and more being readily available, facilitating timely decision-making and improving service delivery.

Digital Storage Infrastructure

Digital storage infrastructure is the foundation of technology that supports digital records storage, security and preservation. It comes with cloud integration, secure database systems, backup and disaster recovery. Cloud integration enables scalable storage and access to banking data, which means that large volumes of banking data can be securely stored and accessed from different locations. Secure database systems secure sensitive financial information, ensuring that it cannot be accessed by anyone without permission, is immune from cyber attacks, and is not subject to data breaches. Backup and disaster recovery systems ensure that data remains accessible in case of system failures, cyber attacks, or other environmental disruptions, helping to maintain operations. The resilience and continuity of operations of data-intensive institutions are linked to robust digital infrastructures in a significant way (Francioni et al., 2015). Compliance readiness and risk management are also benefits of good digital storage solutions, as they are able to keep accurate audit trails. Robust storage solutions are crucial for commercial banks, providing data integrity, security, and uninterrupted service, which boost the bank's reliability.

System Reliability

The reliability of the systems in the digital archive is characterized by their consistency, stability and the uninterrupted performance of the systems. It can be determined based on the frequency of system downtime, failure rate and overall stability in system performance. Few Downtime Hours mean that records are always available and a low Failure Rate is an indicator of technical strength. Performance Stability: When the system is tested with varying workloads it will remain efficient, fast and accurate. The linkage between reliable information system and effectiveness of the organization is strong and with the reduction of the operational risk is also strong (Weerasekara & Bhanugopan, 2023). The frequency of outages may lead to delays in transactions, affect customer service and reduce trust of the institutions. The other side of the coin is a stable system performance that can help ensure a smooth workflow and user confidence. System reliability is important for commercial banks because all records are kept and are always accessible, thus sustaining their efficient and competitive operations.

Sustainable Competitive Advantage: It is a concept which deals with the company's capacity to maintain the competitive advantage in the long-term.

The advantage an organization can provide itself when compared to its competitors and that it can maintain over time by utilizing the resources, capabilities and strategies that are difficult for competitors to match or replace. According to Clulow et al. (2003) the key to a sustainable competitive advantage for commercial banks is their capacity to offer the customer a better value, in an efficient service delivery, innovative financial products, technological capability and good customer relation and good management practices. Sustainability of competitive advantage is not short-term market opportunities, but positioning from a strategic point of view and creation of value over a longer period of time, in the banking sector. Given the competitive, regulatory and technologically dynamic banking environment, sustainable competitive advantage can only be achieved by the banks by leveraging their assets, both tangible and intangible, such as the skilled human resources, advanced information technology infrastructure, knowledge, and reputation. As revealed by the study, financial institutions (FI) must rely on non-physical assets particularly on the intellectual capital and managerial skills to maintain a competitive position in the future (Abdelrahim, 2024; Apreku-Djan et al., 2022). These in-house capabilities help banks to streamline their operations, boost customer satisfaction, and adapt to changing market dynamics.

In the banking sector sustainable competitive advantage is associated with innovation, service quality, technological incorporation and the good management. Financial technology partnerships, investing in digital banking platforms, and data-driven decision making systems will help banks to stand out and remain relevant in the long run (Subanidja & Sorongan, 2022). Similarly, other organizational attributes such as knowledge management, employee skills, and organizational culture, which enable institutions to continuously improve the service they offer and process in which they conduct their business, are also crucial in attaining a competitive position (Fields, 2022; Choge et al., 2018). Sustainable competitive advantage for commercial banks in Rivers State, Nigeria, may be realised by investing in digital banking technologies, implementing customer relationship management (CRM) systems, optimising service delivery processes, and having a strong regulatory compliance measures. The Nigerian banking sector is rapidly changing, characterized by a shift towards digitalization and competition, making it crucial for banks to continually adapt their strategies and capabilities to remain competitive and sustainable. In this context, sustainable competitive advantage is an organizational aptitude of the commercial banks to maintain their performance, customer satisfaction and growth in the dynamic financial market.

Service Quality Superiority

Capability of delivering banking services consistently, superior to customer's expectation in terms of efficient operation, reliability of service delivery and superior customer experience. In the commercial banking arena, this indicator of sustainable competitive advantage manifests itself in the form of speedier transaction processing, high customer satisfaction and low complaint rates. Faster transaction processing involves implementing advanced banking technologies and streamlined processes to ensure that transactions are processed quickly and accurately, including deposits, withdrawals, transfers, and more. The processing is efficient, reduces waiting time and builds trust in the service delivery system of the bank with customers. Customer satisfaction is a measure of how well the banking services meet or surpass customer expectations of the quality of services, responsiveness, reliability and convenience. A more customer-centric service delivery will be more likely to develop a strong bond with the customers and customer loyalty. Complaints are an indicator of the quality of service rendered, and an assessment of the bank's ability to minimize its level of service errors, delays and inefficiencies that may lead to customer dissatisfaction. Minimized complaints and met customer expectations help boost the reputation and market positioning of banks.

In services such as banking, high level of service quality is one of the important parameters that can provide sustainable competitive advantage (Clulow et al., 2003). In addition, this research indicates that banks that focus on service for their customers and on efficiency with their operations also have better customer retention and competitive position (Donnellan & Rutledge, 2019). A service quality superiority provides support to banks to attract and retain their customers in a very competitive financial environment and gives the banks a competitive advantage in the long term in Rivers State commercial banks, Nigeria.

Organizational Resilience

Organizational resilience is the capacity of a bank to endure shocks, adapt to changes in the regulatory and environmental landscape and persist in the long-term. For commercial banks, this sustainable competitive advantage will be expressed in terms of the adaptability of the banks for regulations, their ability to overcome a crisis and the long-term strategic stability of the banks. Regulatory adaptability is the capacity of banks to adapt their policies, procedures, and operational structures to the changing financial regulations and compliance requirements. The banking industry is a highly regulated industry, and banks that can operate successfully, while remaining in compliance with the regulatory requirements are likely to avoid penalties, establish a reputation and continue to grow. Crisis recovery capability is the bank's ability to recover quickly from a crisis in the financial sector, in the event of a cyber attack, in the event of a system failure or in the event of an economic shock. However, banks with effective risk management, contingency and disaster recovery programs will be able to get up and running rapidly and minimize financial and reputational damage. However, strategic stability in the long term is the ability of a bank to have a clear strategic direction and consistently perform in the market amidst volatility and uncertainty. Strategic stability contributes to alignment of the goals of the organisation with long term development goals and provides the opportunity for adaptation.

Organizational resilience is an important factor to sustain competitive advantage in a dynamic and uncertain business environment is emphasised by researchers (Kamukama et al., 2017). Resilient institutions with adaptive capacity are better able to continue to be effective and relevant in the market in the face of disruption. In Rivers State commercial banks, Nigeria, the strength of the organizational resilience is a driver towards sustainability and helps build confidence among stakeholders and ensures smooth service delivery in the face of regulatory and economic challenges.

Financial Performance

Financial performance is the economic outcomes of the efficient use of resources, management and competitiveness by a bank. Typically, it is evaluated through elements such as profit growth, decrease in Operating Expenses or Diversification of revenues. Profit growth is a measure of the bank's ability to see a greater return on its finances over time because of efficient operations, effective investment strategies and greater opportunities in the marketplace. If the bank is able to keep growing its profits, then this is a good sign that the bank is working effectively and utilizing its resources and capabilities in a sustainable way to generate financial success.

Operational efficiency is the bank's cost reductions in their operations and resource allocation. Technology innovation, process automation, and improved systems of operation will help banks save unnecessary expenses, while maintaining their levels of service. They can save money for banks, which may increase their profitability and remain competitive in markets in which the operating cost may be a determinant of profitability.

Revenue diversification also means diversifying income sources other than the conventional income stream of banks such as interest on loans. Banks are generating greater revenues from digital banking services, investment products, advisory services and financial technology solutions this time. A bank's income base is enhanced and financial risk is reduced by having multiple revenue sources. Apreku-Djan et al. (2022) found sustainable competitive advantage to be a significant factor in improving the financial performance of banking institutions through empirical studies. Similarly, the research on the concept of intellectual capital and competitive advantage shows that the banking institutions which can utilize the internal resources are more likely to exhibit better financial performances and long-term profitability (Abdelrahim, 2024). In the context of commercial banks in Rivers State, Nigeria, good financial performance is the ability to convert strategic resources and capabilities into tangible economic benefits and hence, sustain competitive advantage.

Organizational Culture

Organizational culture is a collection of shared values, beliefs, norms and behaviours that influence the interactions, decisions and response of employees to the challenges faced in an organization. In the banking sector, the culture of the organization is seen through the level of innovation, cooperation, flexibility and customer orientation which the banks practice to improve operational performance and gain a competitive edge. Digital technologies work best when implemented in a bank with a positive organizational culture which is more likely to improve the delivery of services and bank resiliency. The definition of organizational culture in this study is innovation orientation, collaboration of employees and adaptability to change.

Banks' innovation orientation indicates openness for new technologies and ideas and encouragement to creativity and experimentation. Innovation-banks are likelier to implement digital transformation initiatives such as on-line banking systems, automated working processes, and digital archiving systems. These cultures make members of staff consider ways to do things better, and make technological innovations part of banking processes. Recent studies (Cyfert et al., 2025; Velyako & Musa, 2024) have proven the importance of innovative organizational culture in enhancing digital transformation and financial institutions' competitive advantage. Similarly, Salem et al. (2026) found that the companies with high culture of innovation and entrepreneurship are more likely to be able to lead the digital transformation and competitive in the market. Employee collaboration refers to how employees interact, knowledge sharing and collaboration between departments to achieve organizational objectives. Authorities in banking institutions enable the coordination of workflow, communication and enhance the capabilities of solving problems. If employees have a shared culture, information can be easily shared and best use made of digital tools such as digital archiving platforms. Organizations with collaborative culture have better digital capabilities, innovativeness, and ability to gain sustainable competitive advantage (Mahayani & Darma, 2025; Zhang et al., 2025). Furthermore, the Probojakti et al. (2024) report that the culture of collaboration and learning helps to improve the agility and resilience of banks in today's changing financial landscape.

Change is something that is inevitable and adaptability to change is the ability of an organisation and its employees to respond to changes in technology, customer needs, regulations and market conditions. In the rapidly evolving technology-driven banking sector, banks have to adapt to continually changing technology and competition. Adaptive culture is one of the major factors contributing to banks to embrace digital systems, adjust to environmental uncertainty and ensure long term performance. There is some evidence that an adaptive organisational culture can significantly contribute to the outcomes of digital transformation, organisational agility and competitive advantage for banks (Rani et al., 2025; Gashi & Xhaferi, 2025). Likewise, in their findings, Abed Alhameed and Emeagwali (2026) reported that the key factors that can enable sustainable transformation and excellent organizational performance are organizational culture and agility.

Hence, organizational culture is a mediated variable which has influence on the level of utilization of digital archiving that is used to gain sustainable competitive advantage for commercial banks. Banks that encourage innovation, teamwork within the bank and adaptability to adaptation reap the benefits of digital archiving systems even more effectively, such as increased information access, improved decision making and more efficient administration. According to recent studies, a strong bank's organizational culture is one of the crucial factors for banks to become digital mature, increase operational efficiency and remain competitive in the market (Tactria et al., 2025; Anggraini & Lubis, 2025). Organizational culture is a key factor in strengthening the linkage between the utilization of digital archive and sustainable competitive advantage of commercial banks in Rivers State, Nigeria because it ensures the acceptance, implementation and integration of digital archive technology in the day to day activities of commercial banks.

Empirical Review

Based on the research findings of Zenith Bank Plc (Nigeria), Wey (2019) did an empirical study to investigate the role of a disaster recovery database backup system in the survival and continuity of banks. The study was case-based, using primary data gathered from the operational environment of the bank and descriptive analysis was conducted to highlight the preparedness of backup and disaster recovery to prevent service disruption and improve continuity of operation. The outcomes indicated that a good back-up plan and disaster recovery plan can improve the bank's recovery of important information assets in the event of disruptions, thereby ensuring the continuity and stability of the bank's operations. The evidence presented in this study is relevant to the current study as it shows that the digital storage infrastructure, specifically backup & disaster recovery, contributes to the resilience element of sustainable competitive advantage which is the ability of a bank to sustain services in the case of shock (Wey, 2019).

A quantitative study was carried out in the banking sector to explore the relationship between digital banking channels and organizational factors on the organizational culture in terms of outcomes related to operational efficiency and cost reduction, as shown by Bataineh et al. (2024). A survey research design was used, with statistical modeling used for testing relationships between constructs and greater digital channel capability being found to correlate with better operational performance (faster processes and improved cost-related performance indicators). The researcher also noted that the organizational culture is the added value of digital systems as it transforms the use of a technology into quantifiable efficiencies. This evidence is consistent with the present study in that it emphasizes that when commercial banks achieve organisational culture (process efficiency and cost reduction), the benefits of using digital archives such as retrieval of information in less time and use of indexed systems and better access procedures will be more likely to translate into service quality superiority and better service outcomes that would demonstrate sustainable competitive advantage in terms of performance measures (Bataineh et al., 2024).

Shehadeh & Almajali (2023) used a quantitative approach to study the impact of digital transformation on the operational efficiency and competitive advantage of banks and implemented a survey design with multivariate analysis to measure the strength and direction of the relationship between the major variables. The study revealed that digital transformation initiatives had a significant impact on operational efficiency, which the authors attributed to better competitive positioning, in terms of speed, service responsiveness and operational control. Another key finding of the study was that there was a need for operational controls and stability in digital banking; efficiency gains could be more sustainable when paired with effective operational controls. The evidence is applicable to the current study because it indicates that technology-based systems (digital archiving, retrieval tools, reliable information systems, etc.) have more influence on sustainable competitive advantage when the banks' organizational culture has a significant impact on reducing the operational risk and stabilizing processes (Shehadeh & Almajali, 2023).

Methodology

The study was a cross sectional survey research design which was used to investigate the relationship between digital archiving utilization and sustainable competitive advantage of commercial banks in Rivers State, Nigeria with organizational culture as a moderating variable. The design was suitable as it allowed the data to be gathered from the respondents at one point in time to explore the relationships between variables without manipulation. The study population consisted of 184 staff of selected commercial bank branches in Rivers State, Nigeria that were engaged in records management, information technology and operations departments. The employees selected were those that are directly involved in digital record management, information processing and operational activities involved in digital archiving systems of banking institutions. Since the population size was manageable, the study used census sampling technique where all the members of the population were involved in the study which made the study more representative. The data were collected by adopting a structured questionnaire instrument which is aligned with the variables in the study, that is, digital archiving utilization, sustainable competitive advantage and organizational culture. Digital archiving utilization was measured by the retrieval efficiency, digital storage infrastructure and system reliability, while sustainable competitive advantage was measured by the service quality superiority, organizational resilience and financial performance. Organizational culture was the moderating variable used in the analysis of the process efficiency, cost reduction and minimization of risks. Responses were made on a 5 point Likert scale from Strongly Agree (5) to Strongly Disagree (1). The instrument was face and content validated by experts and reliability was tested by Cronbach's alpha coefficient with the results of 0.88 which is considered high. 184 questionnaires were sent and 168 were returned (91.3% response rate), and completed correctly. SPSS version 26 was used to analyze the data. The information for the responses was presented in descriptive statistics (frequency, mean and standard deviation) and the hypothesis was tested by Pearson Product Moment Correlation (PPMC). Moderating effect of the organizational culture was tested with multivariate analysis at 0.05 level of significance.

RESULT/FINDING

Hypothesis One: There is no significant relationship between retrieval efficiency and service quality superiority of commercial banks in Rivers State, Nigeria.

		Retrieval efficiency	Service quality superiority
Retrieval efficiency	Pearson Correlation	1	.517**
	Sig. (2-tailed)		.002
	N	168	168
Service quality superiority	Pearson Correlation	.517**	1
	Sig. (2-tailed)	.002	
	N	168	168

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS version 26

H_{01}: There is no significant relationship between retrieval efficiency and service quality superiority of commercial banks in Rivers State, Nigeria. The result reveals a significant positive relationship (r = .517, p = 0.002). We reject the null hypothesis and accept the alternative hypothesis: there is a significant relationship between retrieval efficiency and service quality superiority of commercial banks in Rivers State, Nigeria.

Hypothesis Two: There is no significant relationship between digital storage infrastructure and organizational resilience of commercial banks in Rivers State, Nigeria.

		Digital storage infrastructure	Organizational resilience
	Pearson Correlation	1	.502**

Digital storage infrastructure	Sig. (2-tailed)		.000
	N	168	168
Organizational resilience	Pearson Correlation	.502**	1
	Sig. (2-tailed)	.000	
	N	168	168

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS version 26

Ho2: There is no significant relationship between digital storage infrastructure and organizational resilience of commercial banks in Rivers State, Nigeria. The result reveals a significant positive relationship (r = .502, p = 0.000). We reject the null hypothesis and accept the alternative hypothesis: there is a significant relationship between digital storage infrastructure and organizational resilience of commercial banks in Rivers State, Nigeria.

Hypothesis Three: There is no significant relationship between system reliability and financial performance of commercial banks in Rivers State, Nigeria.

		System reliability	Financial performance
System reliability	Pearson Correlation	1	.610**
	Sig. (2-tailed)		.000
	N	168	168
Financial performance	Pearson Correlation	. 610**	1
	Sig. (2-tailed)	.000	
	N	168	168

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS version 26

Ho3: There is no significant relationship between system reliability and financial performance of commercial banks in Rivers State, Nigeria. The result reveals a significant positive relationship (r = .610, p = 0.000). We reject the null hypothesis and accept the alternative hypothesis: there is a significant relationship between system reliability and financial performance of commercial banks in Rivers State, Nigeria.

Hypothesis Four: There is no significant relationship between digital archiving utilization and sustainable competitive advantage of commercial banks in Rivers State, Nigeria.

Control Variables			Digital archiving utilization	Sustainable competitive advantage
Organizational Culture	Digital Archiving Utilization	Correlation	1.000	.643
		Significance (2-tailed)	.	.000
		Df	0	166
	Sustainable Competitive Advantage	Correlation	. 643	1.000
		Significance (2-tailed)	.000	.
		Df	166	0

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS version 23

H_{04}: The null hypothesis states that there is no significant relationship between digital archiving utilization and sustainable competitive advantage of commercial banks in Rivers State, Nigeria. The result reveals a significant positive relationship (r = .643, p = 0.000). We therefore reject the null hypothesis and accept the alternative hypothesis that there is a significant relationship between digital archiving utilization and sustainable competitive advantage of commercial banks in Rivers State, Nigeria.

S/N	Hypotheses	Outcome	Extent of Relationship	Decision
H01	There is no significant relationship between retrieval efficiency and service quality superiority of commercial banks in Rivers State, Nigeria.	(r = .517, p = 0.002)	Moderate Relationship	Reject Null Hypothesis
H02	There is no significant relationship between digital storage infrastructure and organizational resilience of commercial banks in Rivers State, Nigeria.	(r = .502, p = 0.000)	Moderate Relationship	Reject Null Hypothesis
H03	There is no significant relationship between system reliability and financial performance of commercial banks in Rivers State, Nigeria.	(r = .610, p = 0.000)	Moderate to Strong Relationship	Reject Null Hypothesis
H04	There is no significant relationship between digital archiving utilization and sustainable competitive advantage of commercial banks in Rivers State, Nigeria.	(r = .643, p = 0.000)	Moderate to Strong Relationship	Reject Nu

Source: SPSS Output (2026)

DISCUSSION OF FINDINGS

The study shows that there is a moderate relationship between retrieval efficiency and the superiority of service quality of commercial banks in Rivers State, Nigeria as the r value is 0.517 and p value is 0.002 which is significant. This discovery indicates that the capacity to efficiently retrieve digital records and archived information can greatly enhance banks' capacity to provide better service for their customers. Well-structured digital archiving systems enable banking staff to access customer records, transaction history, and operational data swiftly, leading to faster, more accurate, and reliable service delivery. This results in the reduction of waiting time, speedy problem solving and responsiveness of the service which in turn leads to the superiority of the service quality in commercial banks.

This result aligns with the study of Bataineh et al. (2024) which indicated that better digital banking services lead to better operational efficiency and process performance in banks. They found that good digital systems help them to access information more quickly, which helps to minimise delays in operations and enhance the responsiveness of services. Likewise, Shehadeh and Almajali (2023) discovered that the digital transformation efforts boost operational efficiency and competitive positioning by improving speed, responsiveness, and service reliability. The present study thus reinforces the notion that retrieval efficiency in digital archiving systems plays a crucial role in enhancing the superiority of service quality, as it allows banks to retrieve information faster and meet customer needs.

The study also revealed that there is a moderate relationship between digital storage infrastructure and organizational resilience of commercial banks in Rivers State, Nigeria with r value of 0.502 and p value of 0.000 which is significant. This suggests that robust digital storage solutions like cloud storage systems, backup servers, and disaster recovery measures can help banks recover from operational disruptions and ensure continuity of services. With robust digital storage systems in place, banks can ensure that their essential information is safely stored, accessible, and recoverable in case of unforeseen incidents like cyber attacks or system failures. This enables banks to keep their operations stable, secure their information assets and continue to deliver services even in difficult situations.

This result supports Wey (2019) who showed that disaster recovery and backup database system are crucial for banking operations during disasters. The research highlighted the importance of robust digital storage and recovery solutions for financial institutions, as they can rapidly recover essential information systems and continue operations. Similarly, Shehadeh and Almajali (2023) emphasized that digital transformation enhances organizational resilience with the help of stable operational systems and effective technological infrastructure. Thus, the current study confirms the notion that robust digital storage infrastructure plays a crucial role in enhancing organizational resilience, promoting information security, operational continuity, and institutional stability in the banking sector.

Moreover, the study reveals that there is a significant positive relationship between system reliability and financial performance of commercial banks in Rivers State, Nigeria ($r = 0.610$, $p = 0.000$) which shows that there is moderate to strong relationship between the two variables. This indicates that reliable and stable information systems are an important factor to improve the financial performance of banking institutions. Reliable banking systems help to minimize operational errors, improve transaction processing, and reduce service interruptions. This enables banks to keep customers' trust, boost productivity in their operations, and maximize revenue generation. Reliable systems also improve decision making processes, providing accurate and timely information to management.
This result is consistent with the results of Bataineh et al. (2024) who found that the enhancement of digital capabilities and organizational culture has a significant impact on cost efficiency and organizational performance in banks. It also corroborates the results of Shehadeh and Almajali (2023) who highlighted the importance of reliable digital infrastructures and stable operational systems to gain sustainable competitive advantage and enhance organizational outcomes. The relatively higher correlation found in this study indicates the importance of system reliability in banking system as the uninterrupted availability of the system directly affects the financial activities, customer transactions and profitability of the organization.
The study revealed that there was a significant positive relationship between digital archiving utilization and sustainable competitive advantage of commercial banks in Rivers State, Nigeria with $r = 0.643$ and $p = 0.000$ which showed that there was a moderate to strong relationship. This indicates that the effective application of digital archiving systems leads to an increase in the operational efficiency, quick access to information, better decision making and service delivery, which in turn enhances the competitive position of banks. The banks that are able to make the best use of digital archives can better meet customer needs, minimize delays, and maintain long-term performance.
This result is in line with Shehadeh and Almajali (2023) who found that digital transformation contributes to sustainable competitive advantage by increasing efficiency and service delivery. It also backs the findings of Bataineh et al. (2024) that digital capabilities enhance organizational performance and competitiveness in financial institutions.

CONCLUSION
The study found that the utilization of digital archiving has a significant effect on the sustainable competitive advantage of commercial banks in Rivers State, Nigeria. In particular, retrieval efficiency enhances the superiority of the services offered, as it allows for quicker access to customer and

transactional data, and the digital storage infrastructure contributes to the resilience of the organization by providing secure data storage, backup mechanisms, and disaster recovery options. Moreover, system reliability contributes to better financial performance, minimizing service disruptions and optimizing transaction processing. In addition, the use of digital archiving enhances sustainable competitive advantage by optimizing operations, decision making and service delivery. The results thus validate that the effective use of digital archiving systems is a key technological skill to enhance the performance, resilience, financial results and competitiveness of commercial banks in the long run. By incorporating efficient retrieval systems, robust digital storage infrastructure, reliable information systems, and effective digital archiving practices, banks can enhance their services, ensure operational stability, and stay competitive in a digitalized banking landscape.

RECOMMENDATIONS

The following recommendations are suggested based on the results of this study:

i. Commercial banks need to develop the digital archiving retrieval system, and use advanced search optimization tools, indexed record management frameworks, and standardized access protocols to make information more accessible and improve the superiority of service.
ii. To enhance the resilience of banks and ensure continuity of operations in the event of system disruptions, banks should invest in robust digital storage infrastructure, such as secure cloud-based platforms, encrypted database systems, and reliable backup and disaster recovery mechanisms.
iii. The system reliability should be the top priority of bank management, which includes the stable information technology infrastructure, regular system maintenance procedures, and the use of performance monitoring tools to reduce the likelihood of system failures and improve financial performance.

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