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DATA PRESERVATION AND EFFICIENCY OF MANAGERS' FUNCTIONS IN THE PUBLIC SECTOR OF RIVERS STATE

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ABSTRACT
This study investigates the impact of data preservation on the efficiency of managerial functions within public sector organizations in Rivers State, Nigeria. In an era where information is central to governance, the ability to preserve, retrieve, and utilize accurate data is fundamental to effective public administration. The study aims to identify existing data preservation practices, assess the extent of digital tool adoption, and explore challenges hindering effective data management. Anchored on the Resource-Based View (RBV) theory, which positions information as a vital organizational resource, the research adopts a descriptive survey design. Data were gathered through structured questionnaires administered to managers in selected public institutions. Findings reveal that effective data preservation enhances managerial efficiency by improving decision-making, accountability, planning, and service delivery. However, the study also identifies persistent barriers, including inadequate technological infrastructure, insufficient training, and weak policy implementation. The study concludes by recommending increased investment in digital infrastructure, capacity building, and the establishment of robust data governance policies as strategies to enhance public sector performance in Rivers State.

Keywords: Data preservation, Managerial Efficiency, Public Sector, Digital Infrastructure, Rivers State, Nigeria

INTRODUCTION
In the digital age, effective data management has become a cornerstone of institutional success across the globe. Nowhere is this more critical than in the public sector, where efficient administrative processes are necessary for the delivery of essential public services, transparency, accountability, and policy continuity. Data preservation—the process of maintaining data in a usable form over time—is an integral aspect of modern information management. It ensures that data remains authentic, reliable, and accessible for future reference (Conway, 2010). For public sector managers in Rivers State, Nigeria, the ability to access and utilize preserved data is crucial to the effective execution of their functions, including planning, budgeting, decision-making, monitoring, and evaluation. Public institutions in Rivers State, like many in other developing regions, are under increasing pressure to improve their operational efficiency and service delivery amid rising public expectations and limited resources. Managers within these institutions often serve as decision-makers and intermediaries between government policies and their implementation. Their performance is greatly enhanced when they can retrieve historical data, understand organizational trends, and evaluate program outcomes based on accurate records (Yusof et al., 2012). Therefore, data preservation plays a pivotal role in enhancing the efficiency of managerial functions by supporting informed decisions, promoting institutional memory, and ensuring compliance with statutory obligations.

Despite the importance of data preservation, many public sector organizations in Rivers State still grapple with poor data management practices, resulting in data loss, duplication, inconsistency, and inaccessibility. These challenges hinder the ability of managers to perform their roles effectively and contribute to administrative bottlenecks, financial irregularities, and poor service delivery (Olatokun & Ayanbode, 2009). Inadequate funding, lack of digital infrastructure, and limited awareness about data preservation techniques further exacerbate the problem in the state's ministries, departments,

and agencies (MDAs). In a well-structured public administration system, data serves as a vital input for effective planning and performance evaluation. Managers require access to reliable data to track project timelines, monitor resource usage, and evaluate policy outcomes. According to Alhassan, Sammon, and Daly (2016) the absence of preserved data negatively impacts the quality of decisions, disrupts continuity, and undermines institutional accountability. In Rivers State, where public projects often span multiple years and administrations, preserved data ensures that new managers can build upon previous records rather than repeating tasks or making uninformed choices.

Moreover, effective data preservation enhances compliance with local and international data protection regulations, such as Nigeria's Data Protection Regulation (NDPR), which requires public institutions to ensure the confidentiality, integrity, and availability of data (NITDA, 2019). Compliance not only safeguards sensitive government and citizen information but also enhances public trust in government institutions. For public sector managers, preserved data provides the audit trail necessary to defend decisions and demonstrate adherence to regulatory frameworks.

Technological innovations offer an opportunity for public institutions in Rivers State to modernize their data preservation practices. Digital storage systems, cloud computing, and electronic document management systems (EDMS) allow for secure and efficient storage and retrieval of information. However, the successful adoption of these technologies depends on institutional readiness, availability of skilled personnel, and policy support (Bassiliades et al., 2015). Unfortunately, many public institutions in the state lack the technical capacity and political will to implement such solutions, leaving managers to rely on outdated, manual record-keeping systems that are vulnerable to damage, theft, and loss. Furthermore, public sector efficiency is closely tied to organizational learning and knowledge transfer. Data preservation enables knowledge retention, which is essential in mitigating the effects of workforce turnover—a common challenge in the public sector. As personnel move or retire, preserved data ensures continuity by allowing new managers to review historical records and reports to guide their actions (Katuu, 2015). In the absence of such data, institutional knowledge is lost, and public institutions may suffer from repetitive mistakes, reduced innovation, and inefficiency.

Empirical studies have shown that public institutions that implement structured data preservation frameworks experience improved coordination, transparency, and accountability (Lee et al., 2011). In the context of Rivers State, where development efforts are often undermined by poor project tracking and weak monitoring mechanisms, data preservation can serve as a tool to enhance project implementation and public resource management. It can also support inter-agency collaboration by enabling data sharing and coordination across ministries and departments. However, challenges persist. A study by Ogbole, Arawomo, and Omoregie (2020) indicates that many Nigerian public institutions are yet to develop a comprehensive strategy for long-term data preservation. Factors such as fragmented data policies, lack of standardization, inadequate ICT investment, and insufficient training of personnel hinder the realization of an efficient data preservation system. In Rivers State, addressing these challenges will require a deliberate effort by both state and federal government actors to strengthen data governance, invest in digital infrastructure, and promote a culture of information preservation.

Ultimately, the efficiency of managers in the public sector of Rivers State is inextricably linked to the quality of data they can access and utilize. Data preservation not only supports day-to-day administrative operations but also strengthens the foundations of good governance, public accountability, and development planning. Therefore, there is a compelling need to prioritize data preservation as a strategic objective within public administration in Rivers State. Doing so will empower public managers to execute their functions more effectively and contribute meaningfully to the socioeconomic development of the state.

Purpose of the Study

The primary purpose of this study is to examine the impact of data preservation on the efficiency of managerial functions within public sector institutions in Rivers State, Nigeria. Specifically, the

study seeks to explore how effective data preservation practices contribute to informed decision-making, organizational continuity, transparency, and overall administrative efficiency. In an era characterized by rapid digitization and information overload, public sector managers require access to accurate and timely data to plan, implement, and evaluate government policies and programs effectively. This study aims to uncover the extent to which current data preservation practices support or hinder these managerial responsibilities.

Furthermore, the study intends to identify the major challenges confronting data preservation efforts in the public sector of Rivers State, including infrastructural deficits, lack of policy implementation, inadequate training, and poor awareness among personnel. It will also explore the role of digital technologies and institutional frameworks in enhancing data preservation systems that support efficient managerial functions. By doing so, the research aims to provide actionable insights that can inform policy formulation, capacity-building programs, and investment in digital infrastructure to strengthen public sector performance in the state. Ultimately, this study contributes to the body of knowledge on public administration and information management by emphasizing the strategic importance of data preservation in achieving effective governance and sustainable development in Rivers State.

Objectives of the Study

The specific objectives of this study are to:

i. Examine the relationship between data preservation practices and the efficiency of managerial functions in public sector institutions in Rivers State.
ii. Identify the current data preservation strategies and systems adopted by public institutions in Rivers State.
iii. Assess the challenges faced by public sector managers in preserving and retrieving data for effective decision-making.
iv. Evaluate the extent to which digital technologies are utilized in data preservation within public sector organizations.
v. Recommend practical strategies for improving data preservation practices to enhance managerial efficiency in the public sector.

Literature Review

Theoretical Framework

In the context of examining the efficiency of managerial functions in the public sector. **Classical Management Theory (Fayol's Principles of Management), Contingency Theory and Resource-Based View (RBV)** theories were applied.

One of the foundational theories in understanding managerial efficiency is **Henri Fayol's Classical Management Theory,** specifically his principles of management, which emphasize efficiency and effectiveness in organizational operations. Fayol proposed that managers should engage in five core functions: planning, organizing, commanding, coordinating, and controlling. These functions provide a systematic approach to management, which helps in streamlining activities, reducing inefficiencies, and ensuring that the resources are used optimally (Fayol, 1949). Fayol's principles, such as division of labor, unity of command, and scalar chain, contribute to improving managerial efficiency by ensuring clear roles and responsibilities, well-defined hierarchical structures, and effective communication within the organization. These principles are applicable in the public sector, where hierarchical and bureaucratic structures are common, and clear guidelines are necessary for maintaining order and accountability in the management of resources (Ogbole, Arawomo, & Omoregie, 2020).

Contingency Theory, proposed by Fred Fiedler, argues that managerial efficiency is not a one-size-fits-all concept; instead, it is contingent upon the specific circumstances or context in which management functions occur. This theory posits that the effectiveness of management practices depends on various external and internal factors, including organizational structure, culture, task

complexity, and the environment (Fiedler, 1964). In the public sector, the contingency approach is highly relevant. For example, the efficiency of public managers may vary depending on the political environment, available resources, the complexity of public services being provided, and the level of bureaucratic control (Yusof & Ismail, 2012). Therefore, managers must adapt their strategies and practices to fit the unique needs of their organizations. For example, a public sector manager in a rural area may face different challenges compared to one in an urban environment, requiring different managerial approaches to maximize efficiency.

The Resource-Based View (RBV), introduced by Barney (1991), emphasizes that organizational efficiency is dependent on the resources and capabilities that a firm or institution controls. According to the RBV, managers achieve efficiency by leveraging their organization's unique resources, such as human capital, technology, and financial assets, to create a competitive advantage. In the public sector, the RBV suggests that managerial efficiency can be enhanced when public sector managers effectively utilize available resources. For example, managers can improve efficiency by effectively allocating personnel, using advanced technology for data management, and optimizing financial resources to achieve organizational goals (Alhassan, Sammon, & Daly, 2016). Public sector managers are also tasked with maintaining transparency and accountability in the use of public resources, making the efficient management of resources even more critical. The RBV underscores the importance of investing in resource development, such as training programs for employees, acquisition of state-of-the-art technologies, and fostering organizational capabilities. These resources, when properly managed, enhance the efficiency of managerial functions in the public sector (Adebayo & Adeleke, 2018).
The theoretical framework for understanding managerial efficiency in public sector organizations incorporates various management theories that highlight the role of leadership, resource management, organizational structures, and external factors. Classical management theory, contingency theory, systems theory, the resource-based view, and leadership theories all offer unique insights into how managerial functions can be optimized for greater efficiency. By integrating these theories, public sector managers can better understand the dynamics of their roles and improve their ability to deliver quality services while utilizing resources effectively.

Data Preservation

Data preservation refers to the process of maintaining and safeguarding data over time to ensure its integrity, accessibility, and usability for future use. It is a critical aspect of data management, especially in organizations and institutions where the longevity and reliability of data are essential for decision-making, research, legal compliance, and operational continuity. In the context of public sector organizations, data preservation plays a vital role in ensuring transparency, accountability, and efficient governance. Data preservation is defined as the systematic approach to ensuring that data remains intact, accessible, and usable over time, regardless of the technological or environmental changes that may occur. It encompasses a range of activities, including the storage, backup, archiving, and protection of data against loss or corruption. The ultimate goal is to maintain the value and usability of data for as long as it is required for institutional, legal, or historical purposes (Kramer, 2015). The future of data preservation is closely tied to advancements in technology, particularly in areas such as cloud computing, artificial intelligence, and blockchain. Cloud storage offers scalable and cost-effective solutions for preserving large volumes of data, while AI can assist in data classification, backup automation, and the detection of anomalies in data integrity (Alhassan et al., 2016). Blockchain technology holds promise for enhancing data security and providing immutable records, making it an exciting development for future data preservation practices.

Importance of Data Preservation

The importance of data preservation can be understood in several key areas:

i. **Continuity and Availability**: Ensuring that data is preserved over time guarantees that it remains available when needed, even in the face of system failures, natural disasters, or other unforeseen events (Yusof & Ismail, 2012). Public sector organizations, for instance, rely on preserved data for day-to-day operations, policy-making, and legal processes.
ii. **Legal and Regulatory Compliance**: Many public sector organizations are required by law to preserve certain types of data for extended periods. This includes records related to financial transactions, public health, personnel, and other administrative functions. Failure to preserve such data may result in legal consequences or non-compliance with government regulations (Ogbole, Arawomo, & Omoregie, 2020).
iii. **Historical and Research Value**: Data preservation is also essential for historical records and research purposes. Public sector data, including government decisions, public health data, and other administrative records, can be of great value for future analysis, research, and policy development (Conway, 2010).
iv. **Operational Efficiency**: Well-preserved data improves the efficiency of organizational functions by providing accurate and timely information. For managers in the public sector, having reliable data at their disposal is crucial for decision-making and accountability (Bassiliades et al., 2015).

Data preservation is a critical function for ensuring that data remains accessible, secure, and usable over time. In the public sector, effective data preservation is essential for operational efficiency, legal compliance, historical research, and governance. By implementing strategies such as data storage and backup, digital archiving, data integrity management, and metadata management, public institutions can enhance their data preservation efforts. However, challenges such as technological obsolescence, infrastructure limitations, and data security risks must be addressed to ensure the long-term success of data preservation practices.

Efficiency in Managerial Functions

Efficiency in managerial functions refers to the ability of managers to achieve organizational goals and objectives using the least amount of resources, such as time, money, and human effort. It emphasizes the optimal utilization of available resources to achieve desired outcomes with minimal waste or inefficiency. Managerial efficiency is crucial in both public and private sector organizations as it directly influences performance, productivity, and the overall effectiveness of the organization. In this context, managerial functions include planning, organizing, leading, and controlling—four core activities that are critical for ensuring organizational success. Managerial efficiency is often defined as the ability of managers to accomplish tasks effectively while minimizing resources used in the process (Fayol, 1949). It is not merely about doing things right but about achieving the best results with the least effort or cost. The efficiency of managerial functions is typically measured in terms of output produced per unit of input. In other words, it reflects how well a manager can translate resources—whether human, financial, or technological—into desired outcomes.

Importance of Managerial Efficiency

Managerial efficiency is critical for the success of any organization, whether in the public or private sector. In the public sector, where resources are often limited and public accountability is paramount, efficiency is especially important. Some key reasons why managerial efficiency is crucial include:

i. **Cost Reduction**: Efficient managers can significantly reduce costs by minimizing waste and ensuring that resources are used effectively. This is particularly important in the public sector, where budgets are constrained, and there is increasing pressure to ensure that taxpayer money is used wisely (Yusof & Ismail, 2012).
ii. **Improved Service Delivery**: Managerial efficiency directly impacts the quality and speed of service delivery. In public sector institutions, efficient management ensures that public services are delivered promptly and meet the needs of the citizens (Ogbole, Arawomo, &

Omoregie, 2020). For instance, in government agencies, efficient data processing and response times improve overall public satisfaction.

iii. **Enhanced Decision-Making**: Managers who operate efficiently can make better decisions because they have access to reliable data, have streamlined processes, and can assess situations quickly. This improves their ability to respond to changing environments and emerging issues (Conway, 2010).

iv. **Increased Organizational Performance**: Organizations with efficient managers tend to outperform others because their management processes are optimized. Efficient management practices lead to higher productivity, faster goal attainment, and better utilization of resources (Adebayo & Adeleke, 2018).

Managerial efficiency is essential for the effective functioning of any organization, particularly in the public sector where limited resources must be optimized to serve the public effectively. By focusing on key areas such as decision-making, leadership, resource management, and technological adoption, managers can enhance their efficiency and contribute to improved organizational performance. Overcoming challenges like bureaucracy, political interference, and resource limitations is crucial for ensuring that public sector managers can work efficiently and deliver high-quality services.

How Data Preservation Influences the Efficiency of Managerial Functions in the Public Sector of Rivers State

Data preservation significantly influences the effectiveness and efficiency of managerial functions in the public sector by enhancing information accessibility, decision-making accuracy, accountability, and continuity in administrative processes. In the context of Rivers State, Nigeria—where public sector organizations often struggle with inconsistent record-keeping, lack of digitization, and poor documentation practices—data preservation becomes a vital element in supporting managerial performance.

i. **Improved Decision-Making:** Effective data preservation ensures that managers have continuous access to accurate, complete, and timely historical data. This enables them to make informed decisions based on empirical evidence rather than assumptions or anecdotal information. For instance, budget managers in ministries can analyze past expenditure patterns to develop realistic future budgets, thereby avoiding misallocation of resources (Yusof et al., 2012).

ii. **Enhanced Administrative Continuity:** Frequent personnel changes in the public sector can disrupt the flow of institutional knowledge. Preserved data bridges this gap by offering new managers access to project histories, reports, and administrative records. This reduces the learning curve and prevents redundancy or repetition of errors, which often delay public service delivery (Katuu, 2015).

iii. **Efficient Monitoring and Evaluation:** Preserved data enables systematic monitoring and evaluation (M&E) of government programs. Managers can use archived information to assess project milestones, track key performance indicators, and generate reports for stakeholders. This promotes a results-oriented culture in public administration and fosters evidence-based reporting and accountability (Lee et al., 2011).

iv. **Transparency and Accountability:** One of the key expectations of public sector managers is to maintain transparency in the use of public resources. Properly preserved data supports audit processes and public scrutiny by providing verifiable records of decisions, expenditures, and outcomes. In Rivers State, where accountability challenges persist, data preservation contributes to institutional integrity and citizen trust in government (Ogbole et al., 2020).

v. **Support for Policy Implementation:** Data preservation helps managers follow through with policies and development plans initiated by previous administrations. With access to past plans and progress reports, managers can align current strategies with long-term

objectives. This consistency in policy implementation enhances the effectiveness of governance across political transitions.

vi. **Time and Cost Efficiency:** Retrieving information from well-organized digital archives or physical record systems reduces the time spent searching for documents and re-creating lost data. This leads to time savings and operational cost reduction. In contrast, poor data preservation leads to delays, inefficiencies, and increased costs due to duplication of efforts.

vii. **Compliance with Regulatory Standards:** Preserved data helps managers ensure compliance with local and international regulations, such as Nigeria's Data Protection Regulation (NDPR). It enables them to retain required records for statutory periods, respond to data access requests, and maintain data confidentiality and security (NITDA, 2019).

Existing Data Preservation Practices in Public Institutions in Rivers State

In Rivers State, as in many other regions of Nigeria, data preservation within public institutions remains an evolving challenge. While there is a growing recognition of the importance of data management in enhancing public sector performance, practices surrounding data preservation in many institutions still face significant obstacles, including inadequate infrastructure, inconsistent implementation, and limited capacity building. However, some public institutions in Rivers State have adopted certain practices aimed at ensuring better data management and preservation. Below are the existing data preservation practices observed in the public sector of Rivers State.

i. Manual Record Keeping

Despite the global shift toward digitalization, many public institutions in Rivers State still rely heavily on manual record-keeping methods. This practice often involves storing physical documents, files, and reports in cabinets or warehouses. While these records are essential for documenting past decisions and actions, the reliance on physical storage presents several limitations:

- **Risk of Loss or Damage**: Physical records are vulnerable to environmental factors, such as fire, flooding, or pest infestations, all of which have been concerns in some government offices (Olatokun & Ayanbode, 2009).
- **Space Constraints**: Manual records require significant physical space for storage, making it difficult to manage large volumes of documents, particularly in ministries with extensive archives.
- **Time Inefficiency**: Searching for and retrieving information from paper-based systems is time-consuming, and there is often duplication of records.

ii. Ad-Hoc Digitization Efforts

In some institutions, there have been efforts to digitize paper-based records as a way of improving efficiency and accessibility. This is often done on an ad-hoc basis, where certain departments digitize critical documents or reports, such as budgets, financial statements, or procurement records. These records are then stored in local databases or shared folders on institutional servers.

While this digitization effort helps reduce the reliance on paper and makes information more accessible to managers and staff, the process is often not standardized. As a result:

- **Lack of Consistency**: Digitization efforts vary from one institution to another, and even within institutions, resulting in inconsistent practices and difficulty in managing electronic records.
- **Limited Access**: The digitized records are often stored on isolated servers or departmental drives, making it difficult for other departments to access or share critical data (Bassiliades et al., 2015).

iii. Use of Basic Software for Data Management

Some public institutions in Rivers State use basic office software such as Microsoft Excel and Word for maintaining records. These applications are often used to track financial transactions, manage personnel records, or store operational data. However, this practice has several limitations:

- **Lack of Scalability**: As data volumes grow, Excel spreadsheets become difficult to manage and prone to errors. This can lead to data inconsistencies and loss of valuable information.
- **Limited Security**: The lack of specialized record management software means that data is often stored in an unsecured environment, exposing sensitive information to risks of unauthorized access or loss.
- **Absence of Backup Systems**: In many cases, data stored in basic software does not have automated backup systems, making it more prone to accidental loss or corruption (Conway, 2010).

iv. Cloud-Based Storage Solutions (Emerging Trend)

A growing trend in some ministries and public agencies in Rivers State is the adoption of cloud-based storage solutions. These platforms provide secure storage, backup, and data retrieval services through the internet. Cloud services such as Google Drive, Microsoft OneDrive, and local Nigerian cloud providers are increasingly being used to store both financial and administrative data.
While this practice offers several advantages:

- **Remote Access**: Cloud storage enables remote access to data, facilitating collaboration among public sector employees, particularly in the context of decentralization.
- **Enhanced Security**: Most cloud services come with encryption and backup features that reduce the risk of data loss due to server malfunctions or local disasters (Alhassan, Sammon, & Daly, 2016).

However, the adoption of cloud services is still limited, as many institutions lack the required infrastructure, internet connectivity, or technical skills to manage cloud-based solutions effectively. There is also hesitation around data privacy and compliance with national data protection regulations, which have not been fully implemented in many parts of Nigeria (NITDA, 2019).

v. Record Management Systems (RMS)

A few public institutions in Rivers State have adopted specialized Record Management Systems (RMS) or Electronic Document and Records Management Systems (EDRMS). These systems are designed to automate the storage, retrieval, and management of digital records. They allow public sector managers to organize, search, and retrieve data efficiently, making record management more systematic and less error-prone.
The use of RMS or EDRMS offers several benefits:

- **Improved Efficiency**: Data can be quickly retrieved, reducing the time spent on manual searches.
- **Better Security and Access Control**: These systems come with built-in security measures, such as access restrictions and audit trails, which help protect sensitive information (Bassiliades et al., 2015).
- **Compliance with Regulations**: RMS help ensure compliance with regulations governing record retention and management, which is particularly important for public sector institutions under scrutiny for transparency and accountability.

However, these systems are not yet widespread in Rivers State. Their adoption remains limited due to factors such as high initial setup costs, inadequate training, and insufficient technical support (Ogbole, Arawomo, & Omoregie, 2020).

vi. Paperless Initiative (Limited Implementation)

A limited but emerging practice in Rivers State's public sector is the "paperless" initiative, where digital technologies are leveraged to replace paper-based communication, filing, and documentation. This approach is seen as a cost-saving measure and is intended to streamline processes and reduce the environmental impact of paper usage.
Though still in its nascent stages, the paperless initiative has the potential to reduce paper clutter, improve data retrieval times, and ensure that records are safely backed up. However, its full implementation is hindered by:

- **Insufficient Training**: Staff members often lack the technical expertise to transition to digital platforms effectively.
- **Infrastructure Deficits**: Many public institutions lack the necessary technological infrastructure (computers, internet, software) to support a fully paperless system (Yusof et al., 2012).

Challenges Faced by Managers in Preserving and Accessing Data for Administrative Functions

Managers in the public sector of Rivers State, Nigeria, face several significant challenges in preserving and accessing data for their administrative functions. These challenges hinder the efficient management of public resources, slow down decision-making processes, and impact the overall effectiveness of public sector operations. The following are the key challenges:

i. Inadequate Infrastructure

One of the primary challenges faced by managers is the lack of adequate technological infrastructure to store, preserve, and retrieve data. Many public sector offices in Rivers State lack modern computers, servers, or cloud-based systems for effective data storage and management. Instead, many departments continue to rely on outdated or obsolete equipment that cannot support sophisticated data preservation systems (Adebayo & Adeleke, 2018).

- **Limited Access to Digital Tools**: In many instances, managers do not have access to the necessary software or tools that can facilitate efficient data preservation and retrieval. Without reliable technology, even the most basic tasks of organizing and storing data become cumbersome.
- **Inadequate Internet Connectivity**: Poor or unreliable internet connectivity further exacerbates the problem, especially for institutions that attempt to use cloud-based systems for data storage and access.

ii. Lack of Data Preservation Policies

In many public institutions in Rivers State, there is a lack of formalized data preservation policies or frameworks. Without clear, consistent guidelines on how data should be managed, stored, and preserved, managers often resort to ad-hoc methods, leading to inconsistencies and inefficiencies.

- **No Standardization**: There is no uniformity in data preservation practices across departments or agencies, which leads to fragmented record-keeping systems and makes it difficult for managers to access relevant data from different sources (Arowolo & Adebayo, 2014).
- **Inadequate Regulatory Compliance**: Public sector managers often struggle to comply with national regulations and international standards concerning data preservation, such as Nigeria's Data Protection Regulation (NDPR), due to the absence of formal guidelines.

iii. Limited Staff Training and Capacity Building

Many public sector employees, including managers, lack the necessary skills to manage data effectively. This is particularly true in relation to the use of modern digital tools, database management systems, and data preservation strategies.

- **Low Technological Proficiency**: Many public sector managers and staff members have limited understanding of digital data management tools, which hampers their ability to implement proper data preservation strategies. Additionally, inadequate training on how to use advanced record management systems or databases leaves employees ill-equipped to preserve or retrieve critical data (Okoye & Obi, 2019).
- **Lack of Data Literacy**: There is also a general lack of data literacy, where many managers do not understand the full implications of data preservation for their functions, such as how poor data management can lead to loss of information, inefficient decision-making, and policy implementation failures.

iv. Data Fragmentation and Silos

In many public institutions in Rivers State, data is stored in multiple, disconnected systems or departmental silos. This fragmentation makes it difficult for managers to access and aggregate data from different sources, hindering their ability to make well-informed decisions.

- **Uncoordinated Record-Keeping**: Departments often maintain their own separate systems for record-keeping, and these systems are not integrated or coordinated. As a result, managers may have to search through multiple systems, files, or physical storage locations to find the information they need.
- **Data Duplication and Inconsistencies**: Without a centralized system or standardized data management protocols, there is often duplication of data across different departments, leading to inconsistencies, errors, and confusion (Bassiliades et al., 2015).

v. Security Concerns and Data Privacy

In the digital age, concerns about data security and privacy are paramount. Managers in Rivers State face significant challenges in ensuring that sensitive and confidential data is protected from unauthorized access, theft, or cyberattacks.

- **Cybersecurity Weaknesses**: Many public institutions lack robust cybersecurity frameworks, leaving their data vulnerable to breaches or theft. Managers face difficulties in safeguarding data from internal and external threats, especially when data is stored digitally without adequate encryption, access controls, or backup systems.
- **Lack of Data Privacy Compliance**: The failure to fully comply with data protection regulations, such as Nigeria's NDPR, further exacerbates the risks of data mismanagement and legal liabilities. Inadequate knowledge of privacy laws among public sector managers contributes to weak data protection practices (NITDA, 2019).

vi. Resource Constraints

Another major challenge facing managers is the limited financial and human resources available to implement and maintain proper data preservation systems. Due to budgetary constraints, public institutions often prioritize other administrative functions, leaving data preservation initiatives underfunded and unsupported.

- **Insufficient Budget Allocation**: In many cases, public institutions in Rivers State do not allocate enough funding for technological upgrades, staff training, or data preservation tools. Without adequate resources, managers are unable to invest in modern data management solutions or improve existing systems.
- **Overburdened Staff**: Public sector employees, including managers, are often tasked with multiple roles and responsibilities, which leaves them with limited time and capacity to focus on efficient data preservation and management (Olatokun & Ayanbode, 2009).

vii. Data Loss and Inaccessibility

Public sector managers often face the risk of data loss, whether due to physical damage (e.g., fires or floods) or technical issues (e.g., system crashes or corruption). When data is lost or corrupted, it becomes difficult for managers to fulfill their administrative functions, leading to inefficiencies in service delivery and decision-making.

- **Lack of Backup Systems**: Many institutions do not have reliable backup systems in place to ensure that data is securely duplicated and can be restored in case of an emergency. This leaves critical data vulnerable to loss (Conway, 2010).
- **Inefficient Retrieval Processes**: Even when data is preserved, retrieval can be slow or cumbersome, especially when proper indexing systems or metadata tagging are not implemented.

viii. Political and Institutional Instability

Frequent changes in political leadership and institutional restructuring in Rivers State have led to a lack of continuity in data management practices. This instability often results in the loss of

institutional knowledge, as new officials or managers may not prioritize data preservation or may fail to understand the importance of existing data systems.

- **Policy Inconsistencies**: Changes in government leadership often lead to shifts in priorities, and data preservation may not be seen as a critical function. As a result, managers face difficulty in implementing long-term data management strategies that can withstand changes in leadership (Okoye & Obi, 2019).

The Extent of Digital Tools and Technologies Employed in Data Preservation within Public Sector Organizations

The use of digital tools and technologies in data preservation within public sector organizations, particularly in Rivers State, Nigeria, has been evolving but remains inconsistent. While some organizations have embraced digitalization, many still face challenges in fully adopting and integrating digital tools into their data preservation practices. The extent of digital technology adoption in data preservation in the public sector is influenced by factors such as infrastructure availability, policy support, resource allocation, and staff training.

Adoption of Electronic Document Management Systems (EDMS): In recent years, some public sector organizations have begun to adopt Electronic Document Management Systems (EDMS) to better preserve and manage data. These systems allow for the electronic storage, retrieval, and archiving of digital records. EDMS platforms are designed to streamline document storage and make data retrieval faster and more efficient compared to traditional paper-based systems.

- **Extent of Adoption**: The adoption of EDMS in Nigerian public institutions is still in its early stages, with only a few government agencies using these systems to manage official records. In Rivers State, while some ministries have attempted to implement EDMS, challenges such as inadequate infrastructure, high costs of setup, and limited technical expertise have hindered broader adoption (Bassiliades et al., 2015).
- **Challenges**: Although there are positive signs of adoption, the implementation of EDMS has been fragmented, and many organizations still struggle to manage the large volumes of data they generate (Adebayo & Adeleke, 2018). Moreover, these systems are often not integrated across different departments, leading to inefficiencies in data access and collaboration.

Use of Cloud-Based Storage Solutions: Cloud computing offers an efficient solution for data preservation by enabling public sector organizations to store and access data remotely. Cloud-based storage allows for better data security, disaster recovery, and scalability compared to traditional on-site storage solutions.

- **Extent of Adoption**: The adoption of cloud-based storage in public institutions in Rivers State is still at a nascent stage. Some organizations have embraced platforms such as Google Drive, Microsoft OneDrive, or locally available Nigerian cloud services to store documents and data. However, the overall adoption rate remains low due to concerns about data security, lack of adequate internet infrastructure, and the cost of cloud services (Alhassan, Sammon, & Daly, 2016).
- **Benefits and Barriers**: Cloud storage offers advantages in terms of remote access, collaboration, and data backup, but many public sector organizations are reluctant to fully embrace it due to concerns about data privacy, regulatory compliance, and the technical challenges associated with managing cloud-based systems (NITDA, 2019).

Integration of Data Preservation Tools in Government Systems: Some public institutions in Rivers State have integrated digital tools into their core operations, such as financial management systems, human resources information systems, and e-government portals. These tools help in the preservation of data related to finances, personnel records, procurement, and other administrative functions.

- **Extent of Adoption**: The use of digital tools such as Integrated Financial Management Information Systems (IFMIS) and e-government portals has been increasing in public institutions, though they are not universally implemented. Ministries responsible for budgeting, tax collection, and social services have seen some level of integration of these systems into their operations (Conway, 2010).
- **Challenges in Integration**: Despite some successful cases, many public sector organizations still lack the necessary infrastructure and staff training to implement and maintain these integrated systems effectively. The absence of standardized protocols and system interoperability remains a significant barrier to the widespread use of these digital tools (Ogbole, Arawomo, & Omoregie, 2020).

Barriers to Full Digitalization of Data Preservation: Despite the availability of digital tools and technologies, several barriers hinder the full-scale implementation of data preservation technologies in the public sector of Rivers State:

- **Inadequate Infrastructure**: The lack of reliable internet access, electricity, and modern computing facilities in many public institutions makes it difficult to adopt digital preservation technologies effectively (Olatokun & Ayanbode, 2009).
- **Financial Constraints**: Many public sector organizations face budgetary constraints that limit their ability to invest in the required technology for digital data preservation. This issue is compounded by the high cost of implementing and maintaining such technologies (Arowolo & Adebayo, 2014).
- **Lack of Technical Expertise**: A shortage of skilled personnel who are capable of managing and utilizing digital data preservation tools remains a significant challenge. Many managers and staff members lack the necessary technical training to adopt and maintain these systems effectively (Yusof et al., 2012).
- **Resistance to Change**: In some cases, employees and managers may resist the adoption of digital tools due to a lack of familiarity with new technologies, or fear of disruption to established workflows. This resistance to change can slow down the digitalization process (Ogbole et al., 2020).

Government Initiatives and Policy Support: To promote the use of digital technologies for data preservation in the public sector, the Nigerian government has introduced several initiatives aimed at improving e-governance and the use of information and communication technology (ICT) in public administration. The Nigerian government has recognized the importance of data preservation in enhancing governance and accountability.

- **National ICT Policy**: The National Information Technology Development Agency (NITDA) has launched several initiatives to promote the use of digital tools in government, including the development of e-government policies and the National Data Protection Regulation (NDPR), which is designed to ensure secure data management and privacy (NITDA, 2019).
- **Challenges in Implementation**: While these initiatives are commendable, the implementation of national policies at the state level, including Rivers State, has been slow. Public sector organizations often face challenges in adapting national policies to their local contexts, especially when it comes to allocating adequate resources and training staff (Alhassan et al., 2016).**:**

Strategies to Improve Data Preservation and Enhance Managerial Efficiency in the Public Sector

Improving data preservation practices in public sector organizations is critical to enhancing managerial efficiency. Effective data preservation ensures that managers have access to accurate, up-to-date, and reliable information, which aids in decision-making, accountability, and performance. To achieve this, several strategies can be implemented at the organizational, technological, and policy levels. These strategies aim to overcome the existing barriers to effective data management and to align public sector institutions with best practices in data preservation.

Investment in Modern Technological Infrastructure: One of the fundamental strategies for improving data preservation is to invest in modern technological infrastructure. This includes upgrading computer systems, servers, databases, and cloud services. Reliable infrastructure is essential for ensuring the secure storage, backup, and retrieval of data, which are critical for the preservation of public sector records.

- **Cloud Computing**: Embracing cloud computing as a data storage solution offers scalability, accessibility, and security. Cloud-based systems can provide off-site backups, which protect against data loss due to natural disasters or system failures (Alhassan, Sammon, & Daly, 2016).
- **Integrated Management Systems**: Implementing integrated data management systems (such as Enterprise Resource Planning systems) can enable better coordination between departments and create a central repository for public sector data. This ensures that data from different departments is standardized, easily accessible, and preserved effectively (Yusof & Ismail, 2012).

Investing in such infrastructure ensures that public institutions can handle large volumes of data and provide managers with real-time access to accurate information.

Standardization of Data Management Practices: Standardizing data management practices across public sector organizations can significantly enhance the quality of data preservation. This involves creating uniform procedures for data entry, storage, retrieval, and disposal, which reduces data fragmentation and ensures consistency across departments.

Data Standards and Protocols: The establishment of clear data standards and protocols helps ensure that data is collected, stored, and managed consistently. Public institutions should adhere to international standards for data quality and preservation, such as ISO 15489, which sets guidelines for records management (Conway, 2010).

- **Data Classification**: Data should be classified according to its level of sensitivity and importance. This classification will help determine how data is stored, who can access it, and how it is disposed of once it is no longer needed (Ogbole, Arawomo, & Omoregie, 2020). Clear data classification protocols are critical for ensuring the integrity and security of data.

Staff Training and Capacity Building: Investing in staff training and capacity building is essential to ensure that public sector employees, including managers, are capable of using data preservation tools and following proper data management procedures. Well-trained staff are more likely to adopt digital tools and perform data management tasks efficiently.

- **Training Programs**: Regular training programs on digital data management tools, such as document management software, databases, and cloud systems, should be organized for public sector employees (Okoye & Obi, 2019). This will enhance their technical skills and data literacy, enabling them to preserve and manage data more effectively.
- **Data Governance Education**: Managers should be educated on the importance of data governance and its relationship to organizational performance. This includes understanding data protection regulations, privacy issues, and the ethical handling of public sector data (Yusof & Ismail, 2012).

Adoption of Data Backup and Disaster Recovery Systems: One of the most critical strategies for ensuring the preservation of data is the implementation of robust backup and disaster recovery systems. These systems ensure that in the event of data corruption, system failure, or disasters, data can be restored quickly and accurately.

- **Regular Backup Schedules**: Public sector organizations should implement regular data backup schedules to ensure that all critical data is backed up in real-time or at least daily. This minimizes the risk of data loss and ensures that managers can access the most recent data (Bassiliades et al., 2015).
- **Disaster Recovery Plans**: A disaster recovery plan should be established, outlining procedures for recovering data from both physical and digital disasters. This includes having

backup copies stored in secure off-site locations, either physically or via cloud-based storage services (Alhassan et al., 2016).

Improvement of Data Security and Privacy Measures: Improving data security and privacy is crucial for ensuring that sensitive public sector data is protected from unauthorized access, theft, or loss. With increasing concerns over data breaches and cyberattacks, strengthening security measures should be a priority.

- **Encryption and Access Control**: Data should be encrypted during storage and transmission to prevent unauthorized access. Implementing access controls, such as role-based access management, ensures that only authorized personnel can access specific data (Adebayo & Adeleke, 2018).
- **Compliance with Data Protection Regulations**: Public institutions must comply with national data protection regulations, such as Nigeria's National Data Protection Regulation (NDPR), to ensure that they handle data securely and in compliance with legal standards. This includes regular audits and assessments of data security practices (NITDA, 2019).

Promoting E-Government and Digital Transformation: E-government initiatives play a critical role in enhancing the digitalization of public sector operations. The promotion of e-government tools facilitates digital records management, data sharing, and online services, thereby improving data preservation and managerial efficiency.

- **E-Government Platforms**: Implementing e-government platforms that enable the online submission of forms, applications, and records can significantly improve data preservation practices. These platforms allow for the digital storage of documents and provide managers with easy access to real-time information (Conway, 2010).
- **Public Sector Digital Transformation**: Governments should prioritize the digital transformation of public sector institutions by investing in modern IT infrastructure, developing integrated systems, and fostering a digital culture among public servants (Ogbole et al., 2020).

Strengthening Policy and Legal Frameworks: A supportive policy and legal framework is essential for ensuring that public sector organizations comply with data preservation best practices. Establishing clear policies that mandate the adoption of digital tools and proper data management techniques will help improve data preservation across the public sector.

- **Regulatory Frameworks**: Governments should implement and enforce comprehensive regulations on data preservation, including setting standards for data storage, retention, and destruction. This ensures that public sector organizations adhere to best practices in data management (NITDA, 2019).
- **Clear Guidelines**: Clear data governance guidelines should be developed to ensure consistent data management practices across all public institutions. These guidelines should address data ownership, security, retention, and disposal policies (Olatokun & Ayanbode, 2009).

Empirical Findings on the Relationship Between Data Preservation and Managerial Efficiency

A study by Ogbole, Arawomo, and Omoregie (2020) found that effective data preservation practices significantly enhance the decision-making capabilities of managers in public sector organizations. The study, which focused on Nigerian government agencies, revealed that managers who had access to well-preserved and accurate data made quicker, more informed decisions, leading to better outcomes in resource allocation, planning, and policy formulation. In contrast, organizations with poor data preservation practices often faced delays in decision-making, inaccuracies in reports, and inefficiencies in managing resources.

Similarly, Adebayo and Adeleke (2018) found that data preservation, particularly through the use of digital tools like cloud storage and secure databases, improved the speed and accuracy of managerial decisions. Public sector managers in organizations with integrated data management systems reported greater confidence in their decision-making processes, as they could rely on up-to-date and accurate information. This, in turn, enhanced their efficiency in executing their functions.

Empirical research by Mowla and Azim (2016) highlighted that data preservation practices positively correlate with overall organizational performance, particularly in public sector organizations. The study conducted in Bangladesh public offices showed that the implementation of secure data storage and preservation systems led to a reduction in data errors, faster retrieval times, and increased collaboration among departments. As a result, managers could allocate resources more effectively, streamline operations, and improve service delivery to citizens. The researchers concluded that organizations with robust data management systems exhibited better performance in terms of service quality and operational efficiency.

In another study, Sharma and Soni (2018) examined public sector agencies in India and found that the implementation of modern data preservation techniques, such as electronic records management systems, led to improved operational efficiency. The study showed that when managers had access to reliable and preserved data, they could make well-informed decisions, minimize errors in execution, and enhance their organizational outcomes. The researchers further noted that public institutions with poor data preservation practices struggled with inefficiencies, including delays in service delivery and ineffective use of resources.

The relationship between data preservation and managerial accountability is explored in the work of Mhlanga and Vivas (2020), who focused on the role of data management in public sector governance. Their findings indicated that effective data preservation enhances managerial accountability by providing a reliable audit trail for decision-making processes. Public sector managers who used digital data preservation tools were more transparent in their operations and could easily justify their decisions to stakeholders. The study also revealed that when data was poorly preserved, managers struggled to provide evidence of their decisions, leading to a lack of accountability and decreased trust in the management process.

Moreover, Mhlanga and Vivas (2020) argued that public sector organizations with strong data preservation systems were better able to track the allocation of resources and ensure that funds were used efficiently. This, in turn, contributed to greater transparency and improved public trust in government operations.

A study by Adeyemi and Aluko (2017) examined the role of digital tools in enhancing managerial efficiency in Nigerian public sector organizations. The study revealed that the use of modern data preservation tools, such as cloud-based storage, big data analytics, and data encryption systems, significantly improved the efficiency of managers. Managers in organizations that adopted these tools were able to access real-time data, perform data-driven analyses, and collaborate with other departments more effectively. This led to better decision-making, more accurate planning, and greater overall efficiency in their managerial functions.

The study further highlighted that digital tools not only preserved data but also facilitated the automation of routine managerial tasks, such as report generation and resource tracking. This automation allowed managers to focus on more strategic aspects of their roles, leading to improved overall efficiency.

Despite the benefits of data preservation, several studies have also identified challenges in public sector organizations that hinder the full realization of these benefits. According to Chukwu (2019), many public sector organizations in Nigeria face challenges such as inadequate technological infrastructure, lack of skilled personnel, and insufficient funding for data management systems. These challenges result in poor data preservation practices, which in turn negatively affect managerial efficiency. Managers in such organizations often experience delays in accessing critical data, leading to slower decision-making and inefficiencies in operations.

Similarly, Oladipo (2015) identified that data loss, poor data security, and inconsistent data backup practices are significant challenges in Nigerian public sector organizations. These issues make it difficult for managers to trust the data they use for decision-making, which can reduce their efficiency in managing public resources and implementing policies.

The positive impact of data preservation on public service delivery is highlighted in a study by Sulaimon, Olatunde, and Adebayo (2020), which explored the role of data management in improving the efficiency of public service delivery in Nigerian local government offices. The study found that local government managers who utilized electronic data preservation systems were able to streamline service delivery processes, reduce paperwork, and improve responsiveness to citizens' needs. Data preservation allowed for quicker response times and more accurate service delivery, directly enhancing the efficiency of managerial functions in these organizations.

Sulaimon et al. (2020) concluded that the integration of digital data management systems in public sector organizations not only improved managerial efficiency but also resulted in better service outcomes for the public. By reducing the time spent on manual data handling and improving data accessibility, managers were able to focus more on strategic decision-making and improving public services.

Study	Context/Location	Findings	Impact on Managerial Efficiency
Ogbole, Arawomo, & Omoregie (2020)	Nigerian government agencies	Data preservation improves decision-making speed and accuracy.	Enhanced decision-making efficiency by enabling quick, informed decisions.
Adebayo & Adeleke (2018)	Nigerian public sector	Use of cloud storage and secure databases improves decision-making.	Increased managerial confidence in decisions, leading to better resource management.
Mowla & Azim (2016)	Bangladesh public sector	Effective data management reduces errors, increases collaboration, and enhances performance.	Improved organizational performance through accurate data access and interdepartmental collaboration.
Sharma & Soni (2018)	Indian public sector	Adoption of electronic records management systems boosts operational efficiency.	Faster service delivery, better resource allocation, and fewer errors in operations.
Mhlanga & Vivas (2020)	General public sector governance	Well-preserved data enhances transparency and accountability.	Increased managerial accountability and transparency in resource use.
Adeyemi & Aluko (2017)	Nigerian public sector organizations	Digital tools like cloud storage and data analytics improve efficiency.	More efficient managers able to focus on strategic tasks due to automated processes.
Chukwu (2019)	Nigerian public sector organizations	Poor infrastructure, lack of skilled personnel, and insufficient funding affect data preservation.	Reduced managerial efficiency due to delayed access to data and poor decision-making.
Oladipo (2015)	Nigerian public sector	Data loss, inconsistent backups, and weak data security undermine data trust.	Managers face inefficiencies due to inaccurate or inaccessible data, leading to suboptimal decisions.
Sulaimon, Olatunde, & Adebayo (2020)	Nigerian local government offices	Digital data management systems streamline service delivery processes.	Faster response times, better resource allocation, and improved public service outcomes.

METHODOLOGY

This study employed a **descriptive research design** that focuses on understanding the relationship between data preservation practices and managerial efficiency in the public sector. The descriptive design is appropriate as it allows the researcher to observe, describe, and interpret the current state of data preservation practices and managerial functions in public sector organizations, without manipulating the variables. The research waas cross-sectional in nature, meaning data was collected at one point in time, enabling the researcher to capture a snapshot of the prevailing data preservation practices and the corresponding efficiency levels in the public sector.The target population for this study includes managers and administrative staff working in public sector institutions across Rivers State, Nigeria. These institutions include government ministries, agencies, and local government offices, where managerial functions such as decision-making, planning, and resource allocation are critical for achieving public service goals.

The **sample size** was selected using a **stratified random sampling technique** to ensure representation from various levels of management within different public institutions. The strata were based on the hierarchical levels of management, including senior, middle, and lower management. A **sample size of 150 respondents** was targeted, including approximately 50 respondents from each management level (senior, middle, and lower). This sample size is sufficient to ensure the reliability and validity of the findings and allows for adequate representation across different public sector organizations. The primary data was collected through a **structured questionnaire** and **semi-structured interviews**. These instruments allow the researcher to gather both quantitative and qualitative data. **Secondary Data**: Secondary data was gathered from reports, official documents, and publications from relevant government agencies, including policies and guidelines related to data management and preservation practices in the public sector. The collected data was analyzed using both **quantitative** and **qualitative** methods to provide a comprehensive understanding of the relationship between data preservation practices and managerial efficiency in the public sector. The data from the structured questionnaires was analyzed using **descriptive statistics** to summarize and describe the main features of the data. **Inferential statistics**, such as **regression analysis**, was used to test hypotheses regarding the impact of data preservation practices on managerial efficiency. This help establish the strength and direction of the relationship between data preservation and managerial effectiveness. The semi-structured interview responses were analyzed using **thematic analysis**. The researcher identifies recurring themes and patterns from the interview transcripts, categorizing the data into relevant themes related to the challenges, practices, and impacts of data preservation on managerial efficiency. NVivo was used to assist in coding and organizing the interview data.

Result and Discussion

A total of 150 questionnaires were distributed to the respondents. All 150 were duly filled and returned, representing a 91% response rate. All responses were measured on a five-level rating, ranging from "strongly disagree to strongly agree".

Table 2: Result of the Effect of Data Preservation **on** Efficiency of Managers' Functions

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.915[a]	.838	.837	.930

a. Predictors: (Constant), Data Preservation

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.525	.665		.790	.431
	Data Preservation	.987	.036	.915	27.646	.000

a. Dependent Variable: Efficiency of Managers' Functions

With reference to table 2, R square value of .838, indicated that 83% of the variation in Efficiency of Managers' Functions can be explicated by data preservation. In other words, 83% changes in efficiency of managers' functions, can be explained by this element. Adjusted R square value of .837 infers that 83.7% of the variation in efficiency of managers' functions, can be explained by data preservation., which is a normal size effect according to Cohen's (1988) classifications for multiple regression.

Based on the table, data preservation. has unstandardized beta coefficient value of .987 with a significant value of .000 (lower than 0.05). data preservation. do predict significant variance in efficiency of managers' functions. This means that one unit increase in data preservation can predicts .987 increase in efficiency of managers' functions. This result tally to those of Ogbole, Arawomo, and Omoregie (2020) found that effective data preservation practices significantly enhance the decision-making capabilities of managers in public sector organizations. Adebayo and Adeleke (2018) found that data preservation, particularly through the use of digital tools like cloud storage and secure databases, improved the speed and accuracy of managerial decisions. Mowla and Azim (2016) highlighted that data preservation practices positively correlate with overall organizational performance, particularly in public sector organizations.

Conclusion and Recommendations

This study has explored the critical relationship between data preservation practices and the efficiency of managerial functions in public sector organizations in Rivers State, Nigeria. It has highlighted the significance of robust data preservation systems in enhancing the effectiveness and efficiency of managers in public institutions. From the literature review and theoretical framework, it is evident that data preservation practices, including the use of digital tools, data security measures, and regular backups, play a pivotal role in supporting the managerial functions of planning, decision-making, and resource allocation.

The study also acknowledges the challenges faced by managers in the public sector, including inadequate technological infrastructure, insufficient training, and the lack of a unified data management policy. Despite these challenges, data preservation, when properly implemented, has the potential to streamline operations, enhance decision-making accuracy, reduce operational costs, and increase overall productivity in public institutions. Public managers, who are often tasked with making decisions that affect large numbers of people, must rely on accurate, up-to-date data to ensure that their decisions are well-informed and effective.

In conclusion, while there are clear benefits to adopting data preservation practices, the study has also identified significant gaps in the adoption and utilization of these practices in the public sector of Rivers State. This indicates a need for targeted interventions to improve data management systems and enhance managerial efficiency.

Based on the findings of this study, the following recommendations are proposed to improve data preservation practices and, consequently, enhance the efficiency of managerial functions in public sector organizations in Rivers State:

1. **Investment in Technology and Infrastructure**: Public sector organizations should invest in modern digital tools and technologies for data preservation. This includes the adoption of cloud storage systems, secure databases, and automated backup systems.

Ensuring that public institutions have access to reliable technological infrastructure will enhance data security, reduce the risk of data loss, and facilitate easy access to information for decision-making.

2. **Regular Staff Training on Data Management**: Managers and staff in public sector institutions should undergo continuous training on best practices in data management and preservation. Training programs should focus on data security, the use of digital tools, and the importance of regular backups. Well-trained staff are more likely to understand the significance of data preservation and be proactive in ensuring that data is accurately maintained and readily accessible when needed.
3. **Development of Comprehensive Data Management Policies**: Public sector organizations should develop and implement clear, comprehensive data management policies. These policies should outline standard operating procedures for data collection, storage, security, and backup. Establishing formal guidelines will help ensure consistency in data management across different departments and improve overall organizational efficiency.
4. **Promotion of a Data-Driven Culture**: There is a need to cultivate a culture of data-driven decision-making in public sector organizations. Managers should be encouraged to base their decisions on reliable, up-to-date data rather than intuition or anecdotal evidence. Encouraging the use of data analytics and reporting tools can help managers make more informed decisions that positively impact organizational performance.
5. **Enhance Interdepartmental Collaboration**: Data preservation is often fragmented across different departments in public sector organizations. To enhance efficiency, managers should foster greater collaboration and information sharing between departments. This can be facilitated by creating centralized data repositories where relevant information is easily accessible to all stakeholders involved in decision-making.
6. **Strengthen Data Security and Privacy Measures**: Given the sensitive nature of data handled by public institutions, it is crucial to implement robust security protocols to protect data from unauthorized access and cyber threats. Public sector organizations should prioritize cybersecurity measures such as encryption, multi-factor authentication, and regular security audits to safeguard their data assets.
7. **Monitoring and Evaluation of Data Preservation Practices**: Public sector organizations should establish monitoring and evaluation mechanisms to assess the effectiveness of their data preservation practices regularly. This will help identify any gaps or weaknesses in the existing systems and provide an opportunity for timely improvements. A feedback loop will ensure that the data preservation systems evolve in line with technological advancements and organizational needs.
8. **Collaboration with External Experts**: Public sector organizations in Rivers State can benefit from collaborating with external experts and consultants who specialize in data management. These experts can offer guidance on best practices, provide training, and assist with the implementation of advanced data management solutions.

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