



TARABA GEOGRAPHICAL INFORMATION SYSTEM AGENCY(TAGIS) TERMS OF REFERENCE

THE DIGITAL ARCHIVE SYSTEM” FOR CERTIFICATE OF OCCPANCY



TARABA STATE OF NIGERIA

TARABA GEOGRAPHICAL INFORMATION SYSTEM AGENCY(TAGIS)

Terms of Reference

Consultancy services for “Assessment and creation of new or upgrade of the Certificate of Occupancy Digital Archive System”

A. OBJECTIVE

The objective of this consultancy is to assess the existing digital archive system used in the Taraba Geographical Information System Agency (herein after referred to as “The TAGIS”) and deliver a comprehensive report, indicating the compliance of the existing system with the requirements indicated in paragraph D of this Terms of Reference (herein after referred to as “The TOR”) and identifying any gaps in the digitization process. The consultant shall also evaluate the degree of digitalization of records and comprehensiveness (coverage) of the digital archive records, compared to paper records.

B. SCOPE OF WORK

In undertaking the assignment, the Consultant shall work in close collaboration with the TAGIS’s approved required activities for completing an assessment of the digital archive system. The specific tasks to be performed are as follows

- i. Draft a concise inception report to define the timeline, approach, processes and activities to perform the assignment.
- ii. Review existing workflows, rules and procedures of digitizing Certificate of Occupancy (herein after referred to as “The CofO”) records, their management in the digital archive system and physical paper archive. It should be noted also whether any land registration system is used for processing CofO records and how it is integrated with the digital archive system.
- iii. Identify document types and their attributes, captured in the digital archive system and compare it with the minimum requirements as outlined in paragraph D.
- iv. Review and gather the statistics of CofO paper archives in TAGIS and compare it with numbers of records available in the digital archive.
- v. Identify any gap in the existing process, which can be potentially improved through the modification of the digital archive system or process re-engineering.

- vi. Review the existing digital archive system, including its technological platform, high-level architecture, required license(s), system feature, user roles, security measure and backup policy.
- vii. Prepare a comprehensive Digital Archive Assessment Report, which shall includes all findings and recommendations. The report shall cover the following points:
 - 1. Description of the existing process of digitizing CofOs.
 - 2. Document types and attributes captured in the digital archive.
 - 3. Statistics of digital and corresponding paper records (digital archive comprehensiveness).
 - 4. Identified gaps in the digitization process.
 - 5. Technical review of the existing digital archive system (platform, architectures, features, security and backup measures)



6. Compliance with the minimum requirements as outlined in paragraph D.
 7. Reports produced from the system.
 8. Recommendations for further improvements of processes and the digital archive system.
- viii. Present the Digital Archive Assessment Report, collect comments and finalize it.

C. MINIMUM REQUIREMENTS AND CAPABILITIES OF THE DIGITAL ARCHIVE SYSTEM

The following requirements are considered as a minimum level for the digital archive system:

- i. The archive has to capture the key information related to the property and accompanying evidence.
- ii. The following key evidence and documents have to be captured:
 - a. Certificate of Occupancy (CofO).
 - b. Land parcel survey diagram / location map.
 - c. Owner's Identification.
 - d. Allocation letter, if applicable.
- iii. The following minimum fields have to be captured:
 - a. Owner type (For example, corporate entity/private individual).
 - b. Owner(s) name.
 - c. Owner(s) gender.
 - d. Ownership type (e.g., single owned; joint/co-owned between male and female).
 - e. Property unique Identification.
 - f. CofO issuance date.
 - g. CofO registration date.
 - h. CofO reference number (a certificate or document number that matches the number on the physical record).
- iv. All other documents (evidence) should be captured with a document type and document reference number and date.
- v. The minimum requirements for the documents are the following:
PDF/A format, scanning color:
grayscale 8-bit, Scanning DPI: 150DPI for good quality documents, 300DPI for poor quality documents. One multipage document (PDF) per physical document.
- vi. The archive should be organized under the property or the CofO unique number so that all the documents including CofO and additional evidence are grouped and recorded and linked (linking can be the CofO unique number).
- vii. The indexed information for each CofO has to be linked to a scan of the respective paper documents (i.e., CofO certificate, maps, plans

and other certificates associated with the property) and has to have a traceable reference to the physical records.

- viii. The archive has to be indexed and searchable through key alphanumeric data. Minimum searchable field requirements are as per the data fields mentioned above. Searching by other document types would be an additional advantage.
- ix. The archive should allow for statistical reports on the overall number of CofOs, CofOs by gender, ownership type, and issuance and registration dates. The reports shall allow generating the summary statistics and by periods (e.g., monthly, quarterly, and yearly).
- x. It is an advantage if the digital archive is a multiuser system, accessible over the network and with different roles and permissions. The use of open-source platforms and tools is highly advisable.
- xi. The Agency shall possess all ownership rights to the system and avoid licenses fee or have a perpetual license in the case of a commercial solution.



D. DELIVERABLES

- i. Inception report.
- ii. Digital Archive Assessment Report.
- iii. Presentation.

E. LINE MANAGEMENT

The Consultant shall report directly to the Project Manager, TAGIS. The Consultant shall closely collaborate with the staff of the TAGIS to elicit system requirements and introduce the system.

F. QUALIFICATION AND SKILLS

- i. Masters or similar degree in Computer Science/Information Technologies, Land Administration or a related field (e.g. Geographic Information Engineering, Engineering, Public Policy and like).
- ii. Demonstrated knowledge of digital records management technologies and their application in land administration.
- iii. Understanding of networks, databases and other IT technologies.
- iv. The experience of drafting digital land records and archive management strategies is an advantage.
- v. International experience of similar assignments in three different countries. African countries experience is an advantage.
- vi. Proficient English and excellent technical writing skills. Ability to write clear, correct, and technical English.

G. INPUTS BY THE CLIENT

The TAGIS will provide the Consultant with all available information and materials, relevant to the existing digital archive system and paper archives. The Client will provide access to the paper archive for their review and assessment.

The Client will assist in arranging required meetings and delegate a focal person for demonstrating the digital archive system and working with the Consultant. If required, the Client will provide an adequate office space, located at the TAGIS premises.

H. REPORTING REQUIREMENTS

All reports shall be shared with the management of TAGIS. Reports shall be delivered in electronic form and hard copies for the final versions. Comments, provided by the Client to be discussed at virtual and physical

meetings. Required report amendments to be incorporated not later than one week after receiving these comments.

SYSTEM FUNCTIONAL TECHNICAL AND REPORTING SPECIFICATIONS

-Digitization Workflow and Maintenance Plan for Taraba State CofO Archive

1. Project Preparation and Planning

Lead: Head of ICT, E-Governance, and TAGIS Planning Committee

Outputs: System Requirements Document, Approved Budget, Procurement Plan

- i. Conduct a baseline assessment of current CofO management systems and physical archive condition.
- ii. Identify all relevant documents (CofOs, survey diagrams, owner IDs, allocation letters).
- iii. Design the digitization and change management roadmap, incorporating ICT infrastructure, workflows, quality control, and maintenance procedures.
- iv. Prepare and validate Terms of Reference, procurement plan, and cost estimate.

2. Infrastructure Deployment and System Configuration

Lead: Development Team / IT Consultant

Outputs: Deployed System, Configured Servers, Test Environment

- I. Procure and install required hardware and software (scanners, servers, UPS, networking gear).
- II. Set up the digital archive platform (on-premises with cloud failover).
- III. Configure system modules, workflow routes, access control, API permissions, and security features (firewalls, encryption).

3. Document Preparation and Sorting

Lead: Land Information Services (LIS), Clerical and ICT Support Staff

Outputs: Organized Folders with Indexing Checklist

- i. Review each folder to ensure it contains all critical records: CofO, survey map, owner ID, allocation letter (if applicable).
- ii. Repair or repackage aged/worn documents.
- iii. Use standardized index tags to label documents based on metadata requirements.

4. Scanning and Digitization

Lead: Data Entry Operators, ICT Technicians

Outputs: High-Resolution, Multipage PDFs with Metadata

- Scan documents using flatbed scanners at:
 - i. 150 DPI for good quality documents*
 - ii. -300 DPI for poor quality documents*
- iii. Save scans as multipage grayscale PDF files.
- iv. Assign metadata: owner name, gender, ownership type, property ID, CofO ref number, issuance/registration dates, etc.

-5. Data Entry and Indexing

***Lead:** Land Record Managers and Metadata Entry Team*

Outputs: Fully Indexed Digital CofO Records

- i. Enter metadata into the system following the indexing checklist.
- ii. Link digital records to their respective scanned images.
- iii. Assign automated unique identifier numbers.
- iv. Conduct internal verification for completeness and consistency.

6. Storage, Backup, and Disaster Recovery

****Lead:** Database Administrator, Data Center Manager

****Outputs:** Secure Archive with Redundant Backup**

- Implement daily backups to cloud failover and onsite storage.
- Run periodic data integrity checks and security audits.
- Maintain audit logs and change histories.

7. Real-Time Archive Management

Lead: System Admins, Records Officers, ICT Support

Outputs: Live Document Retrieval, Access Reports

- i. Enforce access control policies based on role and department.
- ii. Provide real-time document retrieval with search filters and traceable references.
- iii. Enable summary reporting features:
- iv. Number of CofOs processed
- v. CofO stats by gender, date, ownership type
- vi. Monthly, quarterly, annual trends

8. Maintenance and Ongoing Operations

Lead: TAGIS IT Unit and Digital Archive Team

****Outputs:** Stable, Updated Archive Platform

- i. Carry out regular system updates and patches.
- ii. Conduct bi-annual staff refresher training.
- iii. Monitor metadata accuracy and address scanned document issues.
- iv. Integrate new CofOs into the system promptly and follow same digitization workflow.

Key Evidence and Document Capture Requirements

The following table outlines the documents required for capture under the Digital Archive for Certificates of Occupancy (CofOs) in Taraba State.

These documents are essential for verification, legal traceability, and compliance with national and subnational land administration standards.

Document Type	Description / Purpose	Mandatory for Capture
Certificate of Occupancy	Principal legal record establishing land rights	YES
Survey Diagram	Location Map	
Owner's Identification	Validates the identity of the	YES

	landholder (e.g., NIN, passport, voter ID)	
Allocation Letter (if any)	Government- issued evidence of land	Yes (if applicable)
Supporting Legal Documents	Any other record that substantiates the authenticity or transaction history	OPTIONAL

Technical Specifications for Document Capture

- Format: Multipage PDF per file
- Scanning Mode : Grayscale, 8-bit
- Resolution: 150 DPI minimum; *300 DPI for poor-quality documents*
- Linkage: Indexed metadata must be linked to scanned images and carry a unique traceable reference code to the physical archive

Metadata Linkage and Physical Traceability

To ensure complete accountability, each indexed digital record in the Certificate of Occupancy (CofO) digital archive shall:

- i. Be directly and verifiably linked to its corresponding scanned image(s);
- ii. Include a system-generated *unique reference number* that connects the digital record to the original physical file stored in the archive;
- iii. Enable two-way traceability for audit, review, or legal verification, allowing users to locate the physical version based on metadata, and vice versa.
- iv. All metadata must adhere to an approved indexing schema, capturing mandatory fields such as document type, owner name, property ID, CofO registration number, issuance date, and owner gender.

Analytical and Statistical Reporting Capabilities

The digital archive system shall support the generation of dynamic, parameterized reports, with filters based on key attributes. At a minimum, the system must be able to:

- i. Generate a report on the total number of CofOs registered;
- ii. Provide data on CofOs disaggregated by gender, using the metadata field captured during indexing;
- iii. Generate timelines showing CofOs by registration date, filterable by day, month, and year;
- iv. Compile summary statistics predefined reporting periods, including:
 - Monthly
 - Quarterly
 - Yearly

The reporting engine should support export in multiple formats (PDF, CSV, Excel) and be accessible to designated administrative users and stakeholders via role-based access.

Document Handling Workflow and Stage-to-Stage Transition Plan

To ensure a secure, transparent, and auditable digitization of CofOs, the following sequential workflow must be observed. Each stage is designed to maintain integrity of records and clarify responsibilities among implementing teams.

1. Intake and Inventory Stage

Responsibility: Land Information Services (LIS) Department

- Physical CofO files are received from archive storage with tracking sheet.
- Each file is registered into a *Document Control Logbook*, assigned a *batch number* and *unique identifier*.
- Staff verifies the file contains all required documents (CofO, map, ID, allocation letter) before forwarding

→ *Passes to Sorting and Preparation Team with checklist signed.

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2. Sorting and Document Preparation Stage

Responsibility: Clerical & ICT Support

- Documents are flattened, cleaned, staples or clips removed.
- Worn pages are taped or digitization-ready copies are created.

- Any missing documents or incomplete records are flagged for return to LIS.
- ***Passes to Scanning Team with preparation checklist attached.***

3. Scanning and Image Capture Stage

Responsibility: Scanning Officers

- Documents are scanned using flatbed scanners at required resolution (150–300 DPI).
- Each file is saved as a grayscale multipage PDF with a filename that matches its unique ID.
- Scanning team logs file completion and timestamps.

→ ***Passes to Indexing Team with image verification slip.**

4. Metadata Entry and Indexing Stage

****Responsibility:**** Metadata Entry Operators

- Relevant data fields (owner name, gender, date, document type, location, ID number, etc.) are keyed into the archive system.
- Digital file is linked to its metadata using the unique identifier.
- Quality control check ensures match between scanned image and indexed data.

→ ***Passes to Quality Assurance for batch spot-checking.**

5. Quality Assurance (QA) Stage

Responsibility: QA Lead Officer

- 10%–15% of records per batch are reviewed for image clarity, completeness, metadata correctness.
- Any flagged entries are returned to previous stage for correction.
- If cleared, the batch is approved for upload.

→ ***Passes to Archive Upload & Backup Team.**

6. Upload and Archival Stage*

****Responsibility:**** Archive Administrator

- Finalized batches are uploaded to the Electronic Document Management System (EDMS).
- Each record is archived in the database and tagged as "Verified."

- Daily backup to cloud storage and secure internal server is triggered.
- *System generates access keys and access role logs for audit readiness.*

7. Physical File Return and Traceability Logging

****Responsibility:** Records Management Officer

- The physical file, tagged with its digital reference ID, is returned to its original storage shelf.
- A *Physical-Digital Link Log* is updated for future retrieval.
- Master inventory list is updated to reflect digitization status.

Land Parcel Survey Diagram / Location Map

As part of the standardized verification protocol for the digital archive of Certificates of Occupancy (CofOs), the system shall mandate the digitization and archival of the ****land parcel survey diagram or location map**** for each CofOs record. This document is essential for establishing the geographical boundaries and spatial identification of land parcels associated with each certificate.

Accordingly, the digital archive shall:

- Include a scanned copy of the original land survey diagram or, where applicable, the most recent ****location map**** generated by a licensed surveyor or certified planning authority;
- Link the diagram/map directly to the digital CofO file through a unique identifier in the metadata;
- Ensure the file is captured in a high-resolution, grayscale multipage PDF format consistent with document standards adopted under this TOR;
- Assign the appropriate metadata fields: parcel number, coordinates (if available), scale, and date of survey.

Owner's Identification as Mandatory Evidence

To ensure the legal authenticity and traceability of land title records in Taraba State, the digital archive shall include a scanned copy of the ****owner's valid means of identification**** as a mandatory document for each Certificate of Occupancy (CofO) file.

- Capture a clearly legible, scanned copy of at least one government-issued ID belonging to the named landholder. Acceptable forms include:

- National Identification Number (NIN) card
- Permanent Voter's Card (PVC)
- Driver's License
- International Passport
- Link the scanned ID directly to the digital CofO record through the unique system-generated identifier.
- Store the ID in accordance with Nigeria's data privacy and identity protection standards.

Each digitized ID must be associated with metadata fields such as owner name, gender, document type, and ID number, and referenced in the searchable index to facilitate identity verification, demographic reporting, and dispute resolution.

Inclusion of Allocation Letter (If Applicable) as Key Evidence

the system must:

- Capture a clear, scanned copy of the original allocation letter issued by an authorized state entity as part of the land granting process;
- Link this document to its corresponding CofO record using the system's ****unique identifier code****, ensuring traceability;
- Store the scanned file in grayscale, in a multipage PDF format alongside all other associated documentation for that record;
- Capture relevant metadata fields including the allocation reference number, date of issuance, issuing authority, and ***recipient name***.

The allocation letter—while not applicable in all cases—serves as a critical legal and administrative foundation in the land titling process. Its inclusion enhances both the evidentiary completeness and auditability of the digital archive.

Mandatory Naming Convention for All Digitized Evidence

To promote consistency, traceability, and ease of retrieval within the digital archive of Certificates of Occupancy (CofOs), the system shall mandate that all evidence and supporting documents be captured using a standardized and descriptive document naming format.

Accordingly:

- Every scanned document—whether mandatory or supplementary—must be saved with a **file name** that clearly identifies:
 - The document type (e.g., ID Card, Allocation Letter)

- The CofO reference number or batch ID
- The document holder's name or initials (where appropriate)
- Examples of compliant file names include:
 - `Taraba\_CofO\_Ref10293\_IDCard\_Johnkaigama.pdf`
 - `Taraba\_CofO\_Ref90021\_AllocationLetter\_Batch8.pdf`
- All file names must be ****linked to the indexing metadata**** stored in the system's searchable database.
- Naming consistency must be enforced at the point of document upload and monitored during metadata quality reviews.

This provision ensures audit-readiness, supports automated reporting and classification, and aligns with best practices
 Strengthening and Standardizing the Digital Archive of Certificates of Occupancy (CofOs) and Supporting Documents Document Reference Number (DRN)

In line with SABER DLR 1.1.2 and associated verification protocol standards, the Consultant shall upgrade and operationalize the digital archive system for Certificates of Occupancy (CofOs) to ensure full digitization, traceability, and efficient retrieval of all property registration documentation.

This shall include:

- Scanning, indexing, and archiving of CofOs and ***all related documents***, such as application forms, fee receipts, survey plans, approval letters, correspondences, and maps.
- Assigning a unique Document Reference Number (DRN) to each archived item, ensuring alignment with the DRN logic approved by the Taraba State Geographic Information Service (TAGIS) and the Program Coordination Unit (PCU).

Each DRN must be:

- Unique and traceable
- Linked to the relevant property, file, or application
- Embedded within both the metadata of the digital file and the search index

Recommended DRN Format: **** `TS-CofO-[Year]-[DocumentTypeCode]-[SerialNumber]`**

Example: `TS-CofO-2023-FEERECPT-0024`

(*TS = Taraba State, DocumentTypeCode examples include APPFORM, SURVPLAN, FEERECPT, etc.*)

The Consultant shall also ensure the upgraded system:

- Is searchable by DRN, applicant name, file number, or location
- Enables remote access by authorized MDA users for verification purposes
- Supports periodic IVA audits in line with the SABER performance framework

All tasks under this section shall be completed in collaboration with TAGIS and in compliance with the Verification Protocol 2.0 (May 2023 edition).

SYSTEM SPECIFICATIONS: ENHANCED DIGITAL ARCHIVE FOR COFOS

1. Metadata Requirements

The system must be able to tag and display key metadata fields for every document, including but not limited to:

- Document Reference Number (DRN)
- Document Title
- Document Type (e.g., Application Form, Survey Plan, Fee Receipt, Approval Letter)
- Date of Document (submission, issuance, or receipt)
- Property Reference (Plot No./File No./Cofo No.)
- Associated MDA or Unit
- Applicant Name

2. DRN Capture and Management

- A unique DRN shall be autogenerated or assigned manually based on a standardized format.
- Format Example: `TS-CofO-2023-[DocTypeCode]-[Serial]`
 - *DocTypeCode options*: `APPFORM`, `SURVPLAN`, `FEERECPT`, `APPRVL`, `CORRSPND`
 - Example: `TS-CofO-2023-APPFORM-0001`
- DRNs must be embedded in both the document metadata and system search index.

3. Document Date Capture*

- Every document uploaded into the system must be associated with a date field (format: DD/MM/YYYY).
- The system must validate that a date has been entered before final submission.
- Dates must be filterable/searchable across the archive.

4. Search and Retrieval Capabilities

- Advanced search function supporting queries by:
 - DRN
 - Applicant Name
 - Date Range
 - Document Type
 - Property Reference
 - MDA
- Results should be sortable and exportable (CSV/PDF).

5. Access Controls & User Roles

- Different user tiers: Administrator, Archive Manager, Verifier/IVA, Public Viewer (optional).
- Role-based permissions for viewing, editing, uploading, and deleting documents.
- Audit logs must capture document uploads, edits, and access history.

6. Integration and Interoperability

- System must be interoperable with TAGIS database and land information systems.
- Capability for future integration via APIs with external platforms such as e-GIS, tax payment portals, or SIFMIS dashboards.

7. Backup and Storage

- Daily automated backups with redundancy across multiple secure servers or cloud storage.
- Archival system must guarantee document retention for at least 10 years.

8. User Interface and Accessibility

- Web-based interface accessible via modern browsers.
- Mobile-responsive design preferred.
- Interface should support metadata tagging and uploading through drag-and-drop or form-fill.

9. Reporting Dashboard

- Admin-level dashboard showing upload activity, compliance metrics (e.g., % of documents with DRNs, % with missing dates), and search trends.

-TECHNICAL SPECIFICATION DOCUMENT

For Enhanced Digital Archive System for Certificates of Occupancy (CofOs)

1. Objective

To design, develop, and deploy a robust digital archive platform that allows for the secure storage, referencing, retrieval, and auditing of all land registration documents — including CofOs and related documents — each tagged with a unique Document Reference Number (DRN) and date metadata

2. Functional Requirements

The system must support the following core functions:

-Document Upload & Archiving:

Upload scanned copies or digital versions of CofOs, applications, survey plans, payment receipts, legal correspondences, approvals, and maps.

- Metadata Capture:

For every document, the system must capture:

- Document Reference Number (DRN)
- Document Title and Type

- Date of issuance/submission (mandatory field)
- Property Identifier (e.g., Plot/File/CofO number)
- Linked applicant and MDA
- Officer-in-charge (optional)

-Document Referencing Logic:

The DRN must follow a format such as:

`TS-CofO-[Year]-[DocTypeCode]-[Serial]`

Example: `TS-CofO-2025-FEERECPT-0107`

-Indexing & Search:

Users must be able to search using any metadata field: DRN, applicant name, date range, file number, etc. The system should support advanced filtering and sorting.

Audit Trail & Access Logs:

Track every action (upload, edit, delete, view) by user account and timestamp. Logs must be tamper-proof and exportable.

Role-Based Access Control (RBAC):

Define and manage roles such as Archive Admin, MDA Officer, IVA Access, Viewer. Each role must be assigned access permissions.

Report Generation:

Generate real-time reports on:

- Number of documents uploaded by type and date
- Compliance metrics: % documents with DRN and dates
- Upload trends per MDAReporting

REPORTING REQUIREMENTS FOR DIGITAL ARCHIVE OF COFOS

Requirements Specification for an enhanced digital archive and reporting dashboard focused on Certificates of Occupancy (CofOs), designed to support current needs and scalable for future data and decision use:

1. Core Objectives of Reporting

- Enable real-time visibility into land administration processes.
- Support internal audits through verifiable performance metrics.
- Facilitate gender equity and inclusive land ownership monitoring.
- Enable trend analysis and data-driven policy decisions at MDA and executive levels.
- Align with any future donor or programmatic frameworks.

2. Mandatory Statistical Reports

These shall be system-generated or exportable from the central archive on demand:

a. Volume and Trends

- Total Number of CoFOs Issued – *per year, month, MDA*
- CoFOs Issued by Local Government Area (LGA)
- Year-on-Year Comparison of CoFO issuance
- Average Time from Application to Issuance (in days)

b. Ownership Demographics

- CoFOs by Gender of Owner: *Male / Female / Joint / Organization / Unknown*
- CoFOs by Ownership Type:
 - Individual
 - Joint Ownership (Spouse, Family)
 - Corporate Body
 - Government Institution
 - Cooperative Society

c. Land Characteristics

- Average Land Size (sqm or hectares)
- Most common land use types (Residential, Commercial, Agricultural, Mixed)
- Land Tenure Classification (Freehold, Leasehold, Customary)

d. Registration Timeline

- Applications by Date Submitted
- Issuance by Date of Approval
- CoFOs Archived by Month/Quarter
- Backlog Reports – *Applications beyond service timeline thresholds*

e. Quality Control Metrics

- % of CoFOs with valid Document Reference Numbers (DRNs)
- % of Documents with Date Metadata Captured
- Number of CofO entries missing one or more key fields (e.g., location or owner)

3. Summary Reports (High-Level Aggregates)

For monthly, quarterly, and annual presentations:

- Executive Summary: Total CofOs Issued, Average Processing Time, Top 3 LGAs
- Gender Distribution Snapshot
- Ownership Type Breakdown Pie Chart
- Trendline of Application-to-Issuance Duration
- Report Export Formats: PDF, Excel, CSV, JSON

5. Custom Filters and Dashboard Views

End-users must be able to generate reports filtered by:

- Year, Month, Quarter
- LGA or Ward
- Gender, Ownership Type
- MDA Officer/Department Involved
- Land Use or Area (urban/rural)

-3. Non-Functional Requirements

- Platform Architecture:

- Web-based application with browser access and optional offline upload queue.
- Responsive design for tablets and mobile.
- Must support API integration with TAGIS, SIFMIIS dashboard, and potential e-GIS platforms.

-Security:

- All data must be encrypted in transit (SSL) and at rest.
- Role-based authentication with strong password and optional 2FA.
- Regular vulnerability testing and patching.

- Data Backup and Recovery:

- Daily automated backups with weekly integrity checks.
- Recovery Point Objective (RPO): ≤ 24 hours
- Recovery Time Objective (RTO): ≤ 6 hours

- Storage & Retention:

- Minimum retention duration: 10 years
- Cloud storage (preferably with geo-redundancy) or secure on-premises archive

- Scalability & Performance:

- Must handle 50,000+ document records with $< 2s$ response time for queries.

- Compliance Standards:

Align with ISO 15489 (Records Management) and Nigeria's NDPR regulations.

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4. Deliverables

- Functional Software Application (Web-based)

- Technical & User Manuals
- DRN Assignment Guidelines & Metadata Taxonomy
- Deployment & UAT Report
- Training for TAGIS staff
- Post-Deployment Support (minimum 6 months)



APPENDIXES



Appendix 1: Digitization Stages/Workflow

The digital archive system will be built with a MERN Stack application that will be housed in an on-premise server with a failover repository in an online dedicated server. The server will be thoroughly encrypted, and the necessary Cisco (or equivalent) firewall put in place. The archive will be indexed and searchable through key alpha-numeric data and a unique identifier number. Detailed below are the stages, relevant desks and processes to be engaged during the digitalization process and database maintenance.

STAGE	RESPONSIBLE	TASK(S)	DELIVERABLE	TIMELINE	
Project Design/ Planning	Executive Secretary (TAGIS), Project Manager and IT Team Lead	sorting, arrangement, and preparation for scanning	Officers in Land Transaction Department (TAGIS)	• Review existing CoFO process and document system to inform the design and business process for proposed digital archive.	• Cost plans and develop a possible budget for project execution.
				• Develop digitization plan in consultation with relevant stakeholders/M DAs. The plan will cover all requirements including business process engineering, ICT infrastructure, change management, maintenance, etc.	• Assignment of operational space for digitalization
Assignment of operational space	Executive Secretary (TAGIS)			operation and data/server room	
Deployment, configuration, and installation of the digitalization system	Project Manager and the Consultant			• Procurement, deployment, and installation of all software and hardware	
Document	Land				

required for the digitalization system.		Baseline assessment and system improvement report.	1 Month	
- Configuration of the system including business process integration, access control definition, data security parameters. - Document review and sorting, ensuring folders contain all relevant information including Certificate of Occupancy (CofO), Land parcel survey diagram / location map, Owner's ID, and Allocation letter (if applicable). This include repairing worn-out/age-weakened documents/folders. - Arrange documents with index tags using indexing checklist.		Approved digitalization plan		
		Approved ToR and Procurement Plan		
		Approved project budget		
		Assigned operational space	1	Month
		Digitalization system – digital archive application, hardware, etc.	2	Months
Scanning And Digitization	Data entry operators, ICT technicians	Reviewed and sorted CofO documents/folders by index checklist	2- 3 Months for clearing backlog while subsequent documentation is reviewed and sorted upon processing.	
		- High-resolution scanning of documents reviewed and sorted by index checklist. Scanning is based on the following requirement. - Format: PDF - scanning color: Grayscale 8-bit	Documents scanned for data entry.	2- 3 Months for clearing backlog while subsequent documentation is digitalized

Data Entry	Data Entry Operators, Land Record Managers	- Scanning DPI: 150DPI for good quality documents, 300DPI for poor quality documents, - One multipage document (PDF) per physical document. - Meta data assignment	• Day-to-day administration of EDMS application as well as periodic updates and monitoring of applications and records on the backend	Digitalized CoF O records according to indexing and meta data checklist as well as unique identifiers
Storage and Management	IT Specialist, Database Administrator, Data Center Manager	• Indexing, feeding metadata and all needed to the document management system. Searchable fields will include Owner type (For example, corporate entity/private individual); Owner(s) name; Owner(s) gender; Ownership type (e.g., single owned; joint/co-owned between man and woman); Property unique ID; Cofo issuance date; Cofo registration date; Cofo reference number (a certificate or document number that matches the number on the physical record)		
Document management	Land Bureau Records Managers, IT Support, DB admin	• Automated unique identifiers are assigned, ensuring the indexed information for each Cofo will be linked to a scan of the respective paper documents • Implement backup and disaster recovery measures including periodic system, data and information security audits • Preservation and maintenance of physical archives • Configure access controls (including API) and permissions for document retrieval protocols to support data sharing.	• Robust data storage and security • Access controls and APIs assigned • Optimal and updated EDMS	

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Appendix 2: Snapshot of the Database Schema

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
☐	1 parcel_id 	int(20)			No	None		AUTO_INCREMENT	 Change  Drop  More
☐	2 location_state	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	3 location_city_or_town	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	4 location_lga	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	5 location_parcel_number	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	6 location_streetname	varchar(255)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	7 type_property_occupancy_type	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	8 location_ward	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	9 parcel_main_use	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	10 parcel_main_use_others	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	11 parcel_title_type	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	12 parcel_title_type_others	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	13 parcellenced	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	14 parcel_have_swimming_pool	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	15 parcel_have_generator	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	16 parcel_area	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	17 parcel_main_water_supply	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	18 parcel_main_electricity_supply	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	19 parcel_waste_disposal_system	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	20 parcel_main_sewage	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	21 image	varchar(255)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	22 owner_type	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	23 owner_name	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	24 parcellegalentityname	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	25 parcel_owner_nin	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	26 parcel_owner_tin	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	27 owner_gender	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	28 parcel_owner_marital	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	29 parcel_owner_phone_home	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	30 parcel_owner_phone_mobile	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	31 parcel_owner_email	varchar(255)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	32 owner_parcel_number	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	33 owner_street_name	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	34 owner_ward	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	35 owner_lga	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	36 owner_state	varchar(155)	utf8mb4_general_ci		No	None			 Change  Drop  More
☐	37 created_on	datetime			No	current_timestamp()			 Change  Drop  More

The table above depict the snapshot of the database schema.

Appendix 3: Digital Archiving System

