REPUBLIC OF LIBERIA

MINISTRY OF COMMERCE & INDUSTRY (MoCI)

Liberia Investment, Finance & Trade Project (LIFT-P)

Insurance Plaza, 5th Street Sinkor, Monrovia, Liberia

Terms of Reference for the Development of an Online Business Registration System for the Liberia Business Registry

July, 2024

Table of Contents

TERMS AND ACRONYMS

API   -   Application Programming Interface

BRN - Business Registration Number

CBL   - Central Bank of Liberia

COTS - Commercial-off-the-Shelf

FY   -   Financial Year

GoL - Government of Liberia

ICT -   Information Communication Technology

IDA -   International Development Association

LBRS - Liberia Business Registration System

LBR -   Liberia Business Registry

LIBTELCO: Liberia Telecommunications Corporation

LIFT-P - Liberia Investment, Finance and Trade Project

LRA - Liberia Revenue Authority

MOCI - Ministry of Commerce and Industry

NIN - National Identification Number

OBRS - Online Business Registration System

SME - Small and Medium Sized Enterprise

TOR - Terms of Reference

WTO - World Trade Organization

1. PURCHASER

1.1 Project background

The Government of Liberia, through the Ministry of Commerce and Industry (MOCI) is implementing a five-year Liberia Investment, Finance and Trade (LIFT) Project (P171997) with financing from the International Development Association (IDA) of the World Bank Group ($40 million). This project was developed to support the government's strategic objectives to promote private sector development. Accordingly, the project development objective is to improve the investment climate, expand sustainable access to finance, and increase the efficiency of trade in Liberia. Achieving this objective requires technical support to government institutions including the Liberia Business Registry (LBR).

While it is true that the direct beneficiary of these consultancies is the Liberia Business Registry, the project implementation is being coordinated by the Project Implementation Unit, under a Project Steering Committee chaired by the Minister of Commerce and Industry of the Republic of Liberia, and co-chaired by the Governor of the Central Bank of Liberia (CBL).

The Liberia Business Registry was jointly established in partnership with other Government of Liberia (GOL) Ministries / Agencies involved in enterprise formalization processes. Liberian non-resident domestic corporations are governed by provisions of the Business Corporation Act of The Associations Law, title 5, of the Liberian code of laws revised

1.2 Project Description

The proposed project is an explicit contributor to the FY19-FY24 Country Partnership Framework (CPF) **Pillar I:** Strengthening Institutions and Creating an Enabling Environment for Inclusive and Sustainable Growth. Specifically, the project implements Objective 3 of the CPF, which seeks a more enabling environment for the development of Small and Medium Enterprises (SMEs).

The proposed project furthers the CPF's objective by fostering the emergence of an inclusive private sector through a more hospitable investment climate, expanded access to finance, and stronger market governance. The proposed project envisions the removal of key regulatory constraints, and will facilitate trade and expand access to finance. Specifically, the proposed project

will focus on (i) the regulatory areas where Liberia ranks low on Doing Business indicators, (ii) implementation of the Financial Sector Development Implementation Plan and National Financial Inclusion Strategy, (iii) implementation of the Insolvency and Restructuring Law adopted in 2017, and (iv) support for Liberia's implementation of commitments to the World Trade Organization (WTO), Trade Facilitation Agreement, since adoption of the long-awaited Customs Code.

The project supports a Job and Economic Transformation (JET) framework for Liberia and its two pillars on which the outcomes sit: better market functioning and improved firm capabilities. In doing so, the project targets six of the ten-building block in this framework as a complement to other parallel activities under the Liberia CPF supporting macroeconomic management, infrastructure services, employment policy, and human capital. The project takes account of the Government Recovery Program (GRP) project that seeks to support otherwise viable growth-oriented private enterprises that were adversely impacted by the effects of the pandemic. As the mechanism for firm-level support is structured, guardrails will be established to prevent adversely impacting financial discipline and commercial credit underwriting needed for a sustained recovery. At the same time, with various indicators highlighting access to finance as an issue, attention to expanding digital financial services (DFS) is needed.

In addition to its contribution to the Jobs agenda, the proposed project design supports a range of IDA priorities including Gender, Climate, Governance, Fragility, Conflict & Violence, and Maximizing Finance for Development (MFD). The project will ensure that women-oriented training and eligibility will be included in firm support and financial access component by deliberately incorporating, in the design of project activities, features that seek to address the identified gaps between men and women with respect to their participation in economic activity in the country, especially around differential constraints and performance between women-owned and men-owned firms. These include the reforms to the business environment (e.g., registration, permits, and access to finance), as well as activities to support SMEs and entrepreneurs. The project will monitor the extent to which activities are contributing toward closing gender gaps by measuring, among other things: (i) the number of women-led MSMEs with a loan through the project; and (ii) the percentage of women that are covered by the credit registry.

Finally, as a foundational project to strengthen the public sector's ability to facilitate growth of the private sector on a sustainable basis, significant efforts will be devoted to institution-building

activities in key agencies. In this light, the project's concept identifies the strengthening of institutional functioning, streamlining of business processes, and use of automation to lower costs, improve services, and remove face-to-face interactions.

Thus, the overall objective of the proposed project is to improve the investment climate, strengthen firm capabilities, expand financial access, and help formal MSMEs recover from the impact of the COVID-19.

The project is structured to have 4 components.

i.   Component I. Improved Environment for Trade, Investment and Business Entry: This component aims to support Business Environment Reforms that will focus on improvements in Liberia's regulatory environment by strengthening key institutions providing Government to Business (G2B) services covering international trade, national quality services, and business entry.

ii. Component II: Fostering Firm Capabilities to Trade and Competitiveness: This component aims to strengthen firm capabilities of SMEs including women-led businesses and strengthen Liberia's entrepreneurship ecosystem. It will do so through the provision of specialized business consulting services and training. It will also seek to strengthen capacity of Business Development Service providers.

iii. Component III. Expanding Access to Finance: This component will support MSME Access to Finance; Court Automation, and Digital Financial Inclusion, which includes the Payments Switch, Credit Registry and Agent Banking.

iv. Component IV: Project Management and M&E will finance project management activities including fiduciary responsibilities, procurement, financial management, communication, coordination, dissemination, as well as M&E and impact evaluation. CERC (Contingent Emergency Response Component: This is a provisional zero amount component to allow for rapid reallocation of loan proceeds from other project components during an emergency.

Further details are available in the Project Appraisal Document for the LIFT Project (P171997), available online on the Ministry of Commerce and Industry and World Bank's websites.

Description of the LIFT-P Assignment

Component I of the LIFT-Project focuses on improving the Liberia's Investment Climate by strengthening institutions providing Government to Business (G2B) services covering investment support, business entry and international trade.

Under Component 1.2, the Government of Liberia (GoL) seeks to streamline and strengthen the systems to help potential formal firms enter the market by minimizing the complexity involved in starting a business. To do so, the GoL envisions LBR becoming a service-oriented agency capable of immediately responding to business needs. Therefore, the project complements an IFC AS operation to support a modern business registration process. The main objective of the Sub-component C1.2 was to enable LBR to eventually function as an effective, automated One-Stop-Shop (OSS) for businesses, and to use its regulatory function to provide a robust information management system available to policy makers, lenders and creditors, and potential business partners; however, the current system will only do business registration until such a time when the reform shall have taken place and several institutions with licensing authority have come online. Importantly, the GoL is considering forms of legal, regulatory, and operational good practices found in countries like Serbia, Nigeria, and Sierra Leone, as a downstream option for institutional reform. The project will support a three-pronged Business Entry Reform program. First, following a business process reassessment, the project will upgrade the IFC supported 2011 ICT system to one that is "cloud based" and decentralized. Second, following the design of a robust system that allows businesses to register online, the project will support the GoL to establisha an electronic One Stop Shop in line with international standards that will cover the business registration, tax registration, social security registration, beneficial ownership registration, amongst others. This will include the Business Registry, the Liberia Revenue Authority, the National Social Security Corporation (NASSCORP), amongst others. The system will be built to include licenses later but not at this stage because to do so, some of the laws that established these agencies will have to be amended to allow such merger or give away some of their functions. The reforms will include identifying licenses regulating business activity and posting the information online, and process mapping and reengineering for key processes administered by the LBR and other institutions to be involved in the OSS and providing them with transactional (online processing) functionality. The

system will be built in such a way to accommodate other institutions in the future after the reform. Finally, the project will support the strengthening of the LBR, including support for preparation of related documents (law, regulations, and articles), , along with ongoing capacity building for staff; these will be based on the Business Registry Options Paper prepared by the IFC. During the design of OSS options for entrepreneurs with limited or no access to the Internet and/or online systems or in remote regions, the work will include physical portals/kiosks where users can log in.

1.3 Rationale for the New Online Business Registration System

The current procedures for registering and licensing a formal business to operate in Liberia are cumbersome,inefficient and predominantly paper-based, unlike other jurisdictions. It officially takes 18 days to have a business registered which makes Liberia only better than 54 other countries. This indicates that the procedures in Liberia are significantly slower. Anecdotal evidence based on private sector consultations reveals that in practice, six to eight weeks and considerable management attention may be expected to obtain a business registration without additional facilitation fees. The time taken is therefore a binding constraint on business activity, with burdensome procedures disproportionately affecting smaller firms. As a result of this, Liberia has one of the lowest company registrations relative to its adult population in the world.According to the World Bank entrepreneurship database,Liberia only had 73 new limited liability companies registered as of 2022 against an adult population of 2978473.

The Current business processes in the business registry are primarily paper-based. Automation does exist for business registration services through the current Liberia Business Registration System (LBRS) but the processes are still largely walk-in and paper-based. The current business registration system operates on an oracle forms based system where all business registration functions from Name Reservation to Deregistration of entities occur. The system is only accessible to LBR staff through the local area network (LAN) using a desktop web browser to a local IP address and application port number.

The LBRS is hosted in the server room within the premises of LBR and is configured based on a 3-tier server architecture i.e. Application server (also providing Active Directory services on

Windows Server 2008 R2), Database server running Oracle 11g on Redhat Enterprise 5.5, Storage Area Network device of 12TB storage capacity.

The current datacenter will be powered by the existing national grid power and a new solar system procured under the LIFT project.This solar system will ensure continuous availability of power to run the on premise data center.

The OBRS is expected to achieve the following objectives;

1. Simplify workflows to shorten application turnaround times for all its services;
2. Improve doing business, innovation, and competitiveness rankings, that will facilitate ease of investors for economic growth.
3. Take the services closer to the business community by ensuring the services can be accessed online.
4. Assurance of data accessibility and shareability allowing for accurate business information reporting and dissemination to all stakeholders requiring business information;
5. Reduce human to human interaction, cost of doing business for firms/SMEs and minimize redtape
6. Ensure complete and accurate collection, verification, and maintenance of beneficial ownership information to enhance transparency, prevent financial crimes, and comply with regulatory requirements.

1.4 Current Infrastructure in LBR (As of December 2023)

1.4.1   Desktop Computing Environment

The desktop computing environment at the LBR head office consists of 12 desktop computers and 3 laptops running a mix of Microsoft's Windows desktop operating systems versions Windows 7, Windows 8.0, and Windows 10.

1.4.2   Data Centre Environment

Equipment at the server room consisted of a Microtik firewall/router that terminated a 3mbps Internet service from LIBTELCO to a communications cabinet. An HP ProCurve 2510G-48 serves as the core network switch and is directly connected the Microtik router. Two other HP ProCurve

2510G-48 network switches distribute network services via patch panels that serve all LAN access points in the building.

An all-in-one inverter/battery bank device that should provide the communications cabinet with backup power is available but not functional; in the event of a power failure, there is absolutely no internent connecticity for the LBR office.

The LBRS is hosted together with the network switches in two 42U racks protected by an APC 10Kva UPS which provides backup power for no more than 10 minutes in the event of a power loss. A desktop computer equipped with 2 external drives has been configured as a file server for internal use by LBR staff.

The table below presents the current data center hardware specifications

#	SPECIFICATION	FUNCTION
1	Microtik Router/Firewall	Internet Gateway
2	Inverter/Battery Bank	Uninterruptible Power Supply
	APC 10Kva UPS	Uninterruptible Power Supply
3	HP ProLiant 380 G6	Application Server/ Active Directory
4	HP ProLiant 380 G6	Oracle Database Server
5	Dell OptiPlex 3020, Core i3 @ 3.40GHz/4GB RAM/ 500GB HDD	File Server
6	HP ProCurve 2510G-48	Core Network Switch
7	HP ProCurve 2510G-48	Distribution Switches x 2
8	HP SAN (16 x 300GB, 1.2TB and 500GB drives)	Storage

Existing LBR Data center configuration

Internet
LIBTELCO

3MBPS

Microtik Router

Core Switch
HP Procurve 2510G-48

Distribution Switch
HP Procurve 2510G-48

Distribution Switch
HP Procurve 2510G-48

Application
Server

Database
Server

SAN

File Server

End-User

End-User

End-User

End-User
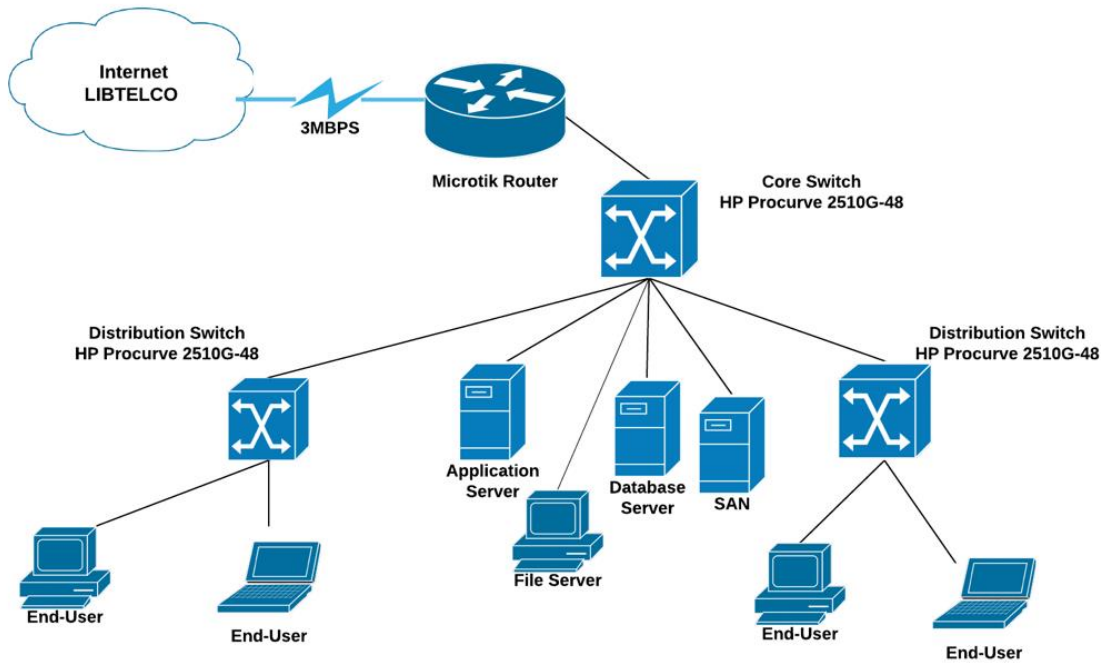
2. ABOUT THE CONSULTANCY

2.1 The objective of the assignment

- The objectives of the assignment include the following;

- Analyze the current LBR business processes and conduct Business Process Re-engineering to achieve objectives aimed at reducing the time required to complete company and business registrations, while ensuring the highest level of quality of security.

- Development of an online business registration system that is a fully-fledged online registration system that handles all processes related to the registration of businesses in Liberia. These processes include but are not limited to name reservations, company registration or incorporation, partnership registrations, renewal of company or partnership registrations, amendments, changes in particulars, re-registrations, dissolutions, mergers.In addition, the solution should have the functionality to manage beneficial ownership information right from the initial registration as well as updates.The beneficial owner information management ensures that Liberia conforms to the different internal anti-money laundering frameworks..

- Integration of the online business registration system with systems from the different agencies that form part of the registration process of an entity.These include the Liberia Revevenue Autthority,National Identification Authority,the Ministry of foreign Affairs and National Social Security and Welfare Corporation

- Installation of the prerequisite hardware and software that includes servers,storage systems,backup and recovery systems and firewall systems for securing the online business registration system and the entire LBR environment.

- Capacity building to ensure that LBR personnel are properly trained to make the best use of new systems and processes and will continue to innovate providing service improvements to its customers.

2.2 Project Stakeholders

The following entities have been duly identified as integral stakeholders in the project:

i. The International Development Association (IDA) of the World Bank Group
ii. The Ministry of Commerce and Industry (MOCI)
iii. The Liberia Business Registry (LBR)
iv. The Ministry of Finance and Development Planning
v. The Liberia Revenue Authority (LRA)
vi. The Ministry of Foreign Affairs
vii. The Central Bank of Liberia (CBL)
viii. The National Social Security Corporation (NASSCORP)
ix. Nation Identification Registry (NIR)
x. The Ministry of Justice Liberia Telecommunications Corporation (LIBTELCO)

2.3 Scope of the Assignment

The scope of the project shall include but not limited to the following;

1. Review the existing business registration processes and undertake Business Process Re-engineering to align with objectives focused on minimizing the time needed for company and partnership registrations while ensuring the highest quality standards.

2. Ensure the re-engineered processes and all services automated by the OBRS conform with the existing business formalization laws of Liberia

3. Develop a contemporary web-based Business Registration system (OBRS) that accommodates both online and some walk-in services for the LBR(emphasis will be placed on the provision of online services). Implementing complete automation of all business registration workflows. These services include but not limited to company, partnership and other forms of legal entity registration, beneficial ownership registration and management, e-notary, and digital signatures.. It should also offer services beyond registration such as updating company information, dissolving companies, change in particulars,update of beneficial ownership information.

4. Supply and installation of the prerequisite hardware needed for the smooth operation of the Online Business Registration System.

5. Supply and installation of a backup and recovery solution

6. Supply and installation of a security system (firewall and web application firewall) to fully secure the OBRS ecosystem.

7. Provide online registration module where clients are authenticated before accounts are created. This includes but not limited to verification with NIR (Liberian), Passports and provides a two-factor authentication before creation of account as well as use of the account.

8. Incorporate online payment methods (mobile money, card payments) to enable clients to make payments electronically.

9. Integrate OBRS with the relevant systems that include the the LRA's Liberia Integrated Tax Administration System (LITAS) for payment registration ,validation and tax registration, NIR's National Identification System (NIS) for ID verification for nationals,ministry of foreign affairs passport system for verification of passport information and National Social Security and Welfare Corporation for employer registration.

10. Develop APIs that facilitate the integration of OBRS with other government departments for purposes of sharing of information.

11. Develop a data update module (online self-service registration portal) for already existing businesses to provide information currently missing in the register. This module will be used to migrate existing businesses to the new OBRS platform.

12. Carry out Capacity building to ensure that LBR personnel are properly trained to make the best use of the new system and offer first-level support to users both internal and external.

13. Develop user-friendly manuals and visual instructions to simplify the understanding of the Online Business Registration System for both the public and LBR personnel

14. Furnish the developed system's source code to the LBR

15. Offer post-implementation system support for a period of 2 years starting from the date of commissioning the system

3. QUALIFICATIONS OF THE VENDOR

1. In the last five (5) years, the Bidder must have completed three (3) successful assignments, similar in scope and value involving any of the following key activities

   a. Development of business Registration system,

   b. Development of management information system

   c. Development of a registry management system

2. Have experience under Information System contracts in the role of prime supplier, management contractor, JV member, or subcontractor for at least the last 5 years prior to the application submission deadline.

3. Participation as a prime supplier, management contractor, JV1 member, sub-contractor, in at least 3 contracts within the last 5 years, each with a value of at least US$500,000, that have been successfully and substantially completed and that are similar to the proposed Information System.

4. Minimum average annual turnover of US$600,000.00 calculated as total certified payments received for contracts in progress or completed, within the last 3 years

5. The Bidder must demonstrate access to, or availability of, financial resources such as liquid assets, unencumbered real assets, lines of credit, and other financial means, other than any contractual advance payments to meet the following cash-flow requirement: Proof of availability of credit lines by way of a bank letter from a bank acknowledgeable by the Central bank of Liberia in amount not less than US$250,000.

6. The Bidder (and in the case of a joint venture all partners) must submit audited balance sheets for the past three (3) years to demonstrate, the current soundness of their financial position.

7. The bidder must be from an eligible country and all software and materials supplied must be from eligible countries. Eligible Country means the countries and territories eligible for participation in procurements financed by the World Bank as defined in the Procurement Regulations.

8. For any product or solution not manufactured by the bidder, the bidder must be authorized to supply by the manufacturer of the product or solution. The bidder must submit a valid manufacturer's Authorization Letter.

9. The bidder must have suitable qualified personnel to fill the following minimum positions.The suitable qualified personel is defined in the following table below.

Note: Attach CVs of all proposed personnel together with relevant certificates for all positions is mandatory (CV and Credentials)

#	Position	Minimum Required Number	Qualifications
1.	Project Manager	1	a) Minimum Specific Experience - 10 years b) Minimum Educational Level - MSc in IT or an advanced degree in arelevant field from a recognized university c) Minimum Qualification- A minimum of leading at least 3 projects that are similar in nature and complexity. d) African Regional experience is a plus e) Good knowledge of web application development f) Good report writing skills. g) Certification in project management (PMP, PRINCE 2, or another related certificate).
2.	System Engineers/Technical Engineer/Infrastructure Specialist	1	a) Minimum specific Experience - 6 years b) Minimum Educational Level - BSc in IT or equivalent from a recognized university c) Experience in the design, configuration, and deployment of all required hardware to support the Online BRS d) Development of Documentation for operation and maintenance of all hardware /Networking supporting the online BRS e) Experience in Technical Training of users

#	Position	Minimum Required Number	Qualifications
3.	Solution Architect /Programmer	4	a) Minimum Educational Level - BSc in IT or equivalent from a recognized university b) Bachelor's degree in information technology or equivalent from a recognized university with a specialization in Web application development c) At least 6 years' experience in multitier web applications development with: i. Ability to write and edit technical documentation. ii. Knowledge of modern programming languages like Java, Python, dot net, c#, HTML/CSS, etc iii. Creative problem-solving skills d) Strong organizational skills e) Ability to work and thrive in a fast-paced environment. f) Hands-on experience with network
4.	Quality Assurance Engineer:	1	a) Minimum Specific Experience - 6 years b) Minimum Educational Level - BSc in IT or equivalent from a recognized university
5.	Business Analyst /Functional Analyst	1	a) Minimum Specific Experience - 6 years b) Minimum Educational Level - BSc in IT or equivalent from

#	Position	Minimum Required Number	Qualifications
			a recognized university c) Training in business analysis
6.	Legal Consultant	1	a) At least a Bachelor's Degree in law or related field; b) At least five (5) years' experience in practice in Liberia c) Should demonstrate a track record, experience, and expertise in legal and regulatory issues related to business registration
	Change management Specialist	1	a) Graduate or post graduate degree in Human Resources Management or Education b) Documented experience managing at least one large system-related change management and training effort. c) Ability to speak, read, and write English fluently d) Minimum of 7 years of relevant experience

4. BUSINESS FUNCTIONAL AND NON-FUNCTIONAL REQUIREMENTS

Business requirements identify the need that must be addressed by the online business registration system. The bidder must note that all requirements whether mandatory or optional shall be responded to.

4.1 Business Requirements

Requirement ID	Description	Priority
BR-1	The system shall be a web-based platform enabling users, including the general public, business representatives, different government bodies(ministries,agencies etc) and LBR staff, to access and appropriately manage information about entities such as limited liability companies, not-for-profit corporations, partnerships, limited partnerships, trusts, foundations, foreign corporations, business corporations sole proprietorships registered or incorporated in Liberia across their entire lifecycle.	Mandatory

BR-2	The system should include at the minimum the following services;
	  i. Name reservation
	  ii. Company or partnership registration
	  iii. Company or partnership renewal
	  iv. Changes in company information (.ie address,directors etc)
	  v. Re-registrations
	  vi. Dissolutions
	  vii. Mergers
	  viii. Beneficial Ownership information registration and updates
		Mandatory

BR-3	The system should have the following portals for the different categories of users ;
	  i. Client Portal (General public and different government bodies)
	  ii. Back office portal (LBR staff)
	  iii. Administrative or configuration portal (System administrators)
		Mandatory

BR-4	The system should facilitate both in-person and online delivery of services. Emphasis should be on the online channel of service delivery.	Mandatory
BR-5	The system shall provide the ability for users (The general public) to create accounts in the system for purposes of accessing the different services offered by LBR like company incorporation,name search,change in particulars among others	Mandatory
BR-6	On account creation for the public, the system should capture at the minimum the following information; ● First name ● Middle name ● Last name ● Date of birth ● Gender ● Email ● Phone number ● Nationality ● National Identification Number (NIN) for nationals and passport numbers for foreigners.	Mandatory
BR-7	The system shall provide a mechanism for account creation for back office users(LBR staff) by the administrators.	Mandatory
BR-8	The system shall provide a mechanism to validate email and phone number as part of the account creation process.	Mandatory
BR-9	The system shall have the capability to support online submissions of applications and uploading of supporting documents through the portal. The preferred format for supporting documents is PDF.	Mandatory
BR-10	The system shall provide a mechanism to define the acceptable attachment size(supporting documents) and enforce it.	Mandatory
BR-11	The system shall provide for automatic verification and clearance of entity names(name reservation) and allow applicants to immediately proceed with the entity registration.	Mandatory
BR-12	The system shall provide for a dedicated option to verify the availability, clear and reserve the company name for a period	Mandatory

	specified in the law (120 days), if the applicants only want to reserve the company name now and register the company later.	
BR-13	The system shall provide for mechanisms to apply for a transfer of a name reservation to another party	Mandatory
BR-14	The system shall provide for mechanisms to detect entities undergoing registration and mark those names as unavailable for reservation during the entity name check process	Mandatory
BR-15	The system shall provide for mechanisms to automatically release reserved names that have not completed the process of submission for entity registration after a configuration amount of time	Mandatory
BR-16	The system should include online payment of services through different channels like money mobile and card payments (Visa, MasterCard etc.)	Mandatory
BR-17	The system must offer functionality to oversee information associated with the following categories of business entities: ● limited liability companies ● not for profit corporations ● partnerships ● limited partnerships ● Trusts ● Foundations ● Foreign corporations ● Business corporations ● Sole proprietorships	Mandatory
BR-18	The solution shall provide the ability for applicants to provide supporting documentation as required per filing.	Mandatory
BR-19	The solution shall provide the ability to manage the dissolution process through the filing of the articles of dissolution and any other supporting documentation	Mandatory
BR-20	The solution should provide the ability to cancel a certificate of formation upon dissolution of an entity	Mandatory
BR-21	The solution should provide the ability to manage the processes associated with change of particulars for an entity after the initial	Mandatory

	registration process.These include but not limited to	
	- Change of address - Change in shareholders - Change of directors	
BR-22	The solution shall provide for the ability to automatically distribute fillings to LBR staff for processing through a first-in and first-out (FIFO) basis.	Mandatory
BR-23	The solution shall provide the ability for authorized staff to randomly select filings for review, audit, or assign to another staff member for action	Mandatory
BR-24	The solution shall generate a Business registration number (BRN) for each entity upon registration.	Mandatory
BR-25	The solution should provide the ability to lookup (or verify) information about individuals who are nationals(registered agents, incorporators, shareholders, company secretaries, beneficial owners, etc.) based on their national identification number (NIN) and passport number through services provided by National Identification Registry (NIR) and Ministry of Foreign Affairs	Mandatory
BR-26	LBR shall have full control of its data.	Mandatory
BR-27	LBR shall be able to manage and configure the solution.	Mandatory
BR-28	The solution shall provide for mechanisms of collecting beneficial ownership information during the registration of a business	Mandatory
BR-29	The solution shall integrate with LRA for purposes of payment registration ,payment validation and tax registration	Mandatory
BR-30	The solution shall integrate with the NIR for purposes of national identification number validation	Mandatory
BR-31	The solution shall integrate with the Ministry of Foreign Affairs passport system to validate passport details for Liberian nationals	Mandatory
BR-32	The solution shall integrate with National Social Security and Welfare Corporation(NASSCORP) for purposes of employer registration	Mandatory
BR-33	The solution shall provide APIs through an integration layer that	Mandatory

	facilitates data exchange between LBR with other agencies including the private sector. The endpoints/methods to be developed will be determined during the requirements gathering phase of the project.	
BR-34	The solution shall provide for mechanisms of generating documents automatically like articles of association using predefined templates.	Mandatory
BR-35	The System shall provide for mechanism of electronically signing documents	Mandatory
BR-36	The solution shall provide for the ability to generate alerts notifications via the system, (e.g., acknowledgment of application submission, change in application status ie approvals, inqueries, change of members, reminders for key tasks or activities, etc.).	Mandatory
BR-37	Support different type of notifications like email and SMS	Mandatory
BR-38	Capability to facilitate advanced search functionalities, such as searching by entity number, application number, entity name, and member name.	Mandatory
BR-39	The solution should be able to flag companies/entities with issues that need further attention. This action should render processing of any filing related to such an entity impossible. Reasons for flaging can include but not limited to the following; • Court order • Non compliance with renewal	Mandatory
BR-40	The solution should be able to generate different types of reports(both static and dynamic) e.g . operational ,management and statistical reports.The different forms of reports will be agreed upon during the requirements gathering phase of the project.	Mandatory

4.2 Functional Requirements

The Functional requirements specify the essential capabilities and functionalities that OBRS must possess to meet the business needs and objectives of the LBR. These requirements outline what the system should do and how it should perform to support the desired operations.

Requirement ID	Description	Priority
FR-1	The solution must, at a minimum, collect the information as prescribed in the relevant law, act, or regulation for each of the filings.	Mandatory
FR-2	Unless otherwise stated during the requirements gathering phase, all submissions/filings must be reviewed by LBR staff.	Mandatory
FR-3	To support in-person and online submission of filings, the solution shall support the acceptance of electronic documents in the form of PDF.	Mandatory
FR-4	The solution shall provide the ability to send notifications to applicants through email, and SMS in regards to any filling.	Mandatory
FR-5	The solution should provide mechanisms of generating an application tracking number upon submission.	Mandatory
FR-6	During the review of a filling, the solution must provide the ability for LBR staff to identify issues (including missing or incorrect attachments or uploads) for correction by the applicant. The solution should therefore have functionality that allows the LBR to return the filling to the applicant while highlighting the issues to be resolved.	Mandatory
FR-7	The solution must provide the ability for the applicant to correct issues identified by LBR staff and to re-submit for review.	Mandatory
FR-8	The solution shall provide users with the ability to check on the status of processing for any filing either through the dashboard or tracking mechanisms within the OBRS.	Mandatory
FR-9	The solution shall include a mechanism to provide help and guidance to users.	Mandatory
FR-10	The user interface components, including online forms, reports, and certificates, must be available exclusively in English.	Mandatory

Requirement ID	Description	Priority
FR-11	Unless specified differently, the solution must limit data entry to the ISO-8859-1 character set.	Mandatory
FR-12	The solution shall maintain an audit log for all actions conducted within it. This log should encompass, at the very least, details such as the user responsible for the change, the timestamp of the modification, and the user's corresponding IP address.	Mandatory
FR-13	The solution shall provide for mechanism to keep a snapshot of a filling making it possible to view the application details as they were at a certain point in time	Mandatory
FR-14	The solution must enable staff to access an entity's history, allowing them to view the status and composition (such as board members, members, shareholders, etc.) of the entity as it stood on a specified date.	Mandatory
FR-15	During the process of filling, the solution should offer the applicants the capability to save draft filings.	Mandatory
FR-16	The solution should allow applicants to resume or continue a filing based on a previously saved draft.	Mandatory
FR-17	The solution shall provide for mechanism to retain draft copies of a filing for a customizable duration. It's suggested to keep these drafts for 1 day(24hours), although this duration can be adjusted as needed.	Mandatory
FR-18	The solution shall alert applicants at customizable intervals regarding the pending expiration of a draft filing. Users should receive notifications indicating the number of days/hours remaining before the draft expires, with the intervals being adjustable based on configuration settings.	Mandatory
FR-19	The solution shall provide the ability to notify a user or entity representative, after a configurable amount of time, when a draft filing, or a filing returned for correction, has not been completed.	Mandatory
FR-20	The solution should provide the ability to allow users effortlessly subscribe for notifications whenever alterations take place within a	Optional

Requirement ID	Description	Priority
	company or partnership.	
FR-21	The solution should encompass standard field checks such as validating data types, enforcing minimum and maximum values, and defining minimum and maximum lengths. Additionally, it should incorporate intricate cross-field validations, like ensuring the accuracy of share distribution among shareholders, calculating the total share capital, and validating capital calculations.	Mandatory
FR-22	The solution must incorporate a mechanism to document user consent, whenever necessary, to access and/or record their personal information.	Optional
FR-23	The solution shall incorporate mechanism to prompt a user to acknowledge the terms and conditions governing access of entity information	Mandatory
FR-24	Upon logging into the system, users should be presented with a dashboard showcasing pertinent information. This dashboard should include a list of their linked businesses, details about draft or finalized filings, as well as any alerts or notifications relevant to them.	Mandatory
FR-25	The solution must incorporate a mechanism that prevents filling of any documents if the entity is not in good standing with LBR i.e. not renewed its license	Mandatory
FR-26	The solution shall provide a public search (by entity name, or business Registration Number (BRN)) function that provides users with a list of matching entities, and the ability to view basic details (e.g. status, type, date of registration, etc.) of that entity. The public search shall include requested names undergoing the registration process,approved reserved names but not expired reserved names.	Mandatory
FR-27	The solution shall provide the ability for users who wish to reserve a name for the maximium allowed number number of days by law to apply for a name reservation.Therequest includes the following information: proposed entity name, entity type, legal suffix (i.e.	Mandatory

Requirement ID	Description	Priority
	limited, inc, incorporated, etc.), and description of business activities based on ISIC classification, the purpose (new,change of name,or conversion).The reservation is automatically approved by the system	
FR-28	The solution shall use the International Standard Industrial Classification (ISIC) 4 for classifying business activities.	Mandatory
FR-29	The solution shall provide automated validation of submitted name reservation requests to ensure that the: a) Legal suffix and entity type are valid (as appropriate); b) Name does not include restricted words as guided by the law; c) Name complies with name restrictions by entity type (e.g., Names with the word "Foundation" must be registered as foundations); and,	Mandatory
FR-30	The solution shall provide a mechanism for LBR to populate details of offensive or abusive words.	Mandatory
FR-31	The solution shall provide for mechanisms that allow a name to be reserved for a customization period upon approval of the name reservation request. It should be noted that the current default duration is 120 days.	Mandatory
FR-32	The solution must send confirmation of name reservation to the trequester through email and SMS.	Mandatory
FR-33	During the initial reservation period, the solution shall allow requestors to apply for an extension of the expiration period for a reserved (approved) name. This extension duration can be configured and currently stands at 120 days, resulting in a total reservation period of 240 days upon approval of the extension.	Mandatory
FR-34	The solution shall provide for the ability for an applicant to request a transfer of a reserved name to another applicant.	Mandatory

Requirement ID	Description	Priority
FR-35	The solution shall provide for the ability to cancel a reserved name by the applicant or transferee	Mandatory
FR-36	The solution should provide mechanisms that allow LBR staff to track the history of a name reservation application.	Mandatory
FR-37	The solution should offer the capability to notify a requester regarding a reserved name nearing its expiration if it hasn't been utilized in a registration. These notifications should be customizable, allowing alerts to be sent at configurable times (e.g., 7 days, 1 day) before the expiration and at the time of name reservation expiry.	Mandatory
FR-38	The solution should be able to generate a name reservation certificate upon approval of a name reservation application	Mandatory
FR-39	The solution should accept a combined name reservation request and registration of an entity.Once reviewed and approved,the partnership or company will be registered.	Mandatory
FR-40	The solution shall support the incorporation of the following entity types: ● Limited Liability Companies ● Not for Profit Corporations ● Partnerships ● Limited Partnerships ● Trusts ● Foundations ● Foreign Corporations ● Business Corporations ● Sole Proprietorships	Mandatory
FR-41	The solution shall calculate the fee for incorporation based on the prescribed fees in the law.	Mandatory
FR-42	The solution shall provide the ability for shareholders to be any of	Mandatory

Requirement ID	Description	Priority

	the following (natural persons or legal persons):
	
	● Individuals (natural persons)
	    ○ Liberian citizens identified by their national identification number (NIN)
	    ○ Foreigners identified by their passport, and a copy of their passport's bio page
	● Companies identified by theirbusiness registration number and name	

FR-43	In the event the shareholder is an entity registered in Liberia, the solution must validate the business registration number and auto-populate the other information like entity name, and date of registration among others	Mandatory
FR-44	The solution must require the identification of companies, registered agent (i.e., physical) address, and mailing address.	Mandatory
FR-45	The solution must support the ability to generate articles of incorporation and any other forms generated during the incorporation process.	Mandatory
FR-46	Upon successful completion of incorporation, the solution shall notify the applicant (registered agent), incorporators, members, and shareholders through email and SMS	Mandatory
FR-47	The system should provide functionality to automatically generate a unique business registration number (BRN) upon registration of a business.	Mandatory
FR-48	The system should provide functionality to automatically generate a electronic certificate of incorporation upon registration of a business and email to the applicant	Mandatory
FR-49	The system should provide functionality to automatically create a system account for the entity for purposes of management of	Mandatory

Requirement ID	Description	Priority
	information related to the entity and any other transaction like change in particulars	
FR-50	The solution should support the registration of partnerships and limited partnership	Mandatory
FR-51	Upon successful completion of registration of partnerships,the solution shall notify the applicant and all partners or owners (natural persons or corporate bodies), and provide a business registration number (BRN).	Mandatory
FR-52	Upon successful completion of a registration of a foreign company, the solution shall notify the applicant and all local representatives, provide a business registration number(BRN), and provide access to the following documents: ● Electronic Certificate of Registration	Mandatory
FR-53	For Foreign Companies, the solution must collect all information as prescribed in the law or regulation, including a copy of incorporation documents from the entity's home jurisdiction.	Mandatory
FR-54	The solution shall provide the ability for authorized entity representatives to request the following changes through the change in a particular process: ● Name ● Partners ● Directors (or Local Representatives) ● Shareholders/Members ● Share Structures/Types ● Restrictions on Share Transfers ● Restrictions on Business ● Registered Office ● Address	Mandatory

Requirement ID	Description	Priority
	● Company Secretary	
FR-55	The solution shall support change in particulars by; ● Providing the entity the ability to submit requests, including any supporting documentation and approvals; ● Require the system to perform data and business rule validations; ● Provide LBR staff with the ability to send back the application for correction. ● On approval, commit the changes to the registry, and produce any necessary documents, letters, and/or certificates resulting from the change.	Mandatory
FR-56	The solution shall support the attachment of the following documents in support of any change of particular filling. Articles of amendment, Tax clearance certificate among others.	Mandatory
FR-57	For all change in particular filings, the solution must enforce that the entity is in good standing before a change can be requested.	Mandatory
FR-58	To finalize a company name change, the solution must provide an authorized entity representative with the ability to choose a name that they, or another company representative, have reserved for the company, business, or partnership.	Mandatory
FR-59	To execute a change in partners, the solution should enable an authorized entity representative to add, modify, or remove partners in an existing partnership, and identify new ones as applicable.	Mandatory
FR-60	To finalize a change in directors, the solution must grant an authorized entity representative the capability to add, modify, or remove directors in an existing company.	Mandatory
FR-61	To complete a change of local representatives, the solution shall provide an authorized entity representative with the ability to add, edit or delete local representatives for an existing foreign company.	Mandatory
FR-62	To complete a change of shareholders, the solution shall provide an authorized entity representative with the ability to add, edit or delete	Mandatory

Requirement ID	Description	Priority
	shareholders and re-allocate (i.e., transfer) shares amongst the shareholders.	
FR-63	To complete a change of share structures and/or classes, the solution shall provide an authorized entity representative with the ability to identify the share class(es), share allocation, and share capital.	Mandatory
FR-64	On any update of shares or shareholders, the solution must automatically validate that the total number of shares is equal to the share allocations.	Mandatory
FR-65	The solution should provide for the ability to capture and maintain Beneficial Owners information of an entity	Mandatory
FR-66	The solution should provide for the ability to update beneficial ownership information of an entity.	Mandatory
FR-67	The solution shall have the ability to verify beneficial ownership information(identification information) ensuring that beneficial ownership information is accurate and up-to-date	Mandatory
FR-68	The solution should have a separate section within the OBRS back office that provides access to beneficial ownership information for the different entities registered..	Mandatory
FR-69	The solution must keep a full audit log for all changes made to Beneficial Ownership information for an entity.	Mandatory
FR-70	The solution must incorporate the capability to merge two or more entities as stipulated in the applicable law or regulation.	Mandatory
FR-71	The solution should provide the ability for an entity representative, granted access to all entities involved, to: i. Identify the entities participating in the merger or consolidation; ii. Determine the name for the new (or going-forward) company (if changing from one of the existing companies); iii. Identify the directors of the new (or going-forward) company based on the existing directors of all involved companies;	Mandatory

Requirement ID	Description	Priority
	iv. Add, remove, and edit directors; v. Identify the shareholders of the new (or going-forward) company based on the existing shareholders of all involved companies; vi. Add, remove, and edit shareholders; vii. Identify the articles of association of the new (or going-forward) company; and, viii. Provide agreement or articles of association from the companies concurring to the merge or consolidation.	
FR-72	Upon the successful merger or consolidation of company, the solution must: i. Retain the existing company's unique business registration number if preserving one of the original company names or generate a new business registration number if a new company is born ii. Designate the merged or consolidated companies as merged; iii. Establish a link between the merged companies and the new (or going-forward) company; iv. Notify all directors and shareholders of all involved companies about the change; and, v. Generate a Certificate of Merger.	Mandatory
FR-73	The solution shall support the re-registration of existing entities both local and foreign.	Mandatory
FR-74	Upon successful re-registration, the system must generate a electronic certificate of registration	Mandatory
FR-75	The solution should provide for the capability for the dissolution of entities either voluntarily or through a court order.	Mandatory
FR-76	The solution should provide for the ability to include the necessary documents in the dissolution filing. These documents include but are not limited too; i. Certificate from debt court	Mandatory

Requirement ID	Description	Priority
	ii. Tax clearance certificate iii. Audited books of accounts	
FR-77	The solution shall ensure all fees and fines for an entity not in good standing with LBR are paid before the dissolution of the entity.	Mandatory
FR-78	The solution shall provide ad hoc, operational, and analytical reporting capabilities.	Mandatory
FR-79	The solution shall provide the ability to automatically public reports to the LBR website	Mandatory
FR-80	The solution shall provide the following reports at a minimum,this reports will both be static and dynamic in nature: 1. Total number of filings by reporting period by filing type 2. Total number of new entities created by reporting period by business type 3. Total number of entities by business type and status 4. Total number of entities dissolved 5. Gender disaggregated reports e.g total number of directors by gender, total number of shareholders by gender, categories of entities owned by genda e.t.c 6. Total number of filings or applications awaiting review/approval 7. Total number of filings or applications sent for correction However, specific details on reports will be elaborated further during the requirements gathering and scoping phase of implementation.	Mandatory
FR-81	The solution shall provide the ability for staff to filter and sort operational reports.	Mandatory
FR-82	The solution shall provide the ability to identify and report on key performance indicators and service metrics.	Mandatory
FR-83	The solution should provide a management dashboard that consolidates key performance indicators and service metrics.	Mandatory
FR-84	The solution should provide for the ability for reports to be	Mandatory

Requirement ID	Description	Priority
	previewed, printed and saved.	
FR-85	The solution should provide for the ability to run each report at predefined frequency, e.g. to run monthly, overnight or on request.	Mandatory
FR-86	The solution shall provide the ability for administrators to manage fees, rate tables, and calculations related to filings and other transactions.	Mandatory
FR-87	Unless otherwise specified, the solution shall require payment at the time of submission of the service request.	Mandatory
FR-88	The solution shall assume that any filing or applications can be zero cost, or have a fee associated with it.	Mandatory
FR-89	The solution shall have the ability to calculate or lookup fees based on data provided (i.e. late payment penalties for renewals).	Mandatory
FR-90	The solution shall have the ability to charge multiple fees for a single transaction.	Mandatory
FR-91	The solution is required to have financial management capabilities for reporting on revenue, reconciling revenue sources, and other related functions.	Mandatory
FR-92	The solution shall integrate with the LRA for payment registration,payment validation and tax registration,NIR for national identification verification,ministry of foreign affairs for passport verification and National Social Security and Welfare Corporation for employer registration.	Mandatory
FR-93	The solution shall provide the ability for an administrator to add and remove registry staff access to the system.	Mandatory
FR-94	The solution shall provide the ability for an administrator to revoke access of an entity representative.	Mandatory
FR-95	The solution shall provide the ability for an entity to grant access to it's profile(view entity details) to partners,director,shareholder,local representative upon request.	Mandatory
FR-96	The solution shall provide the ability for an entity to revoke access	Mandatory

Requirement ID	Description	Priority
	to it's profile	
FR-97	The solution shall provide the ability for partners, directors or shareholders, or an administrator, to be able to revoke the access of individuals who were previously granted access by a partner, director, local representative, or shareholder.	Mandatory
FR-98	The solution shall provide a mechanism for users (public) to register for access to the solution.	Mandatory
FR-99	The solution shall provide standard mechanisms for staff and entity representatives to maintain their account information, change their password, and recover a lost password (i.e., "forgot my password").	Mandatory
FR-100	The solution shall require an email address and mobile phone number for all users.	Mandatory
FR-101	The solution must utilize role-based access management, or a similar system, to regulate user access to functionality.	Mandatory
FR-102	The solution must incorporate mechanisms to ensure the separation of duties among staff members, such as preventing registry staff from simultaneously serving as initial reviewers and final approvers.	Mandatory
FR-103	The solution must provide for multi-factor authentication	Mandatory
FR-104	The solution must allow an administrator to grant and revoke access to the system for registry staff members.	Mandatory
FR-105	The solution shall provide the ability for an administrator to revoke access of an entity representative.	Mandatory
FR-106	The solution shall provide the ability to define and configure task queues to manage processing of filings by staff based on area of responsibility.	Mandatory
FR-107	To avoid queue jumping, the solution must incorporate mechanisms that guarantee tasks are processed in adherence to a first-in, first-processed principle.	Mandatory
FR-108	The solution shall provide the ability for an administrator to select, view, and assign any queued or in-progress task.	Mandatory
FR-109	The solution should provide the ability for an administrator to	Optional

Requirement ID	Description	Priority
	configure workflows.	
FR-110	The solution should provide the ability for LBR staff to flag filings or an entity for follow-up (i.e., review or audit).	Optional
FR-111	The solution should provide the ability for LBR staff to escalate fillings to their supervisors for action	Mandatory

4.3 Non-Functional Requirements

Requirement ID	Description	Priority
NFR-1	The solution shall integrate with LRA's payment solution to facilitate online and in-person payment for LBR services.	Mandatory
NFR-2	The solution shall integrate with LRA's payment solution to facilitate tax registration for entities	Mandatory
NFR-3	To streamline the verification of Liberian citizen information, the solution shall integrate with the National Identification Registry and the Ministry of Foreign Affairs to validate national identification and passport details.	Mandatory
NFR-4	The solution shall integrate with the National Social Security Corporation to facilitate registration of employers	Mandatory
NFR-5	The solution shall have application programming interfaces (APIs) that will facilitate seamless integration of the OBRS with other third party systems from the government ministries or authorities.	Mandatory
NFR-6	The APIs shall support both SOAP and REST formats.	Mandatory
NFR-7	The solution should provide for an API management mechanism that allows the administrators to manage access to the different API methods based on the integration needs of the integrating entity.it should at the minimum allow the administrators to define what data to be returned for each different entity requesting for it	Mandatory
NFR-8	The solution must adhere to W3C's HTML standards	Mandatory

NFR-9	The solution must support deployment in a high-availability environment.	Mandatory
NFR-10	The solution should be able to operate in a virtualized environment.	Mandatory
NFR-11	The solution shall employ mechanisms to load balance and scale to meet transaction volumes.	Mandatory
NFR-12	The solution must enable users to attach PDF documents as well as images in JPEG, PNG, and TIFF formats.	Mandatory
NFR-13	The solution must secure all data during transmission using encryption mechanisms like HTTPS, TLS, or equivalent methods.	Mandatory
NFR-14	The solution must mandate the utilization of encryption protocols like HTTPS, TLS, or equivalent measures.	Mandatory
NFR-15	The solution may encrypt data at rest.	Optional
NFR-16	The solution should possess the ability to operate across widely used web browsers (e.g., Google Chrome, Mozilla Firefox, Microsoft Edge, and Apple Safari) and prevalent operating systems (e.g., Microsoft Windows, Mac OS X, Linux, Apple iOS, Android).	Mandatory
NFR-17	The solution might provide either all or specific functionalities (such as public search) in a format compatible with smartphones running on iOS and Android platforms.	Optional
NFR-18	The user interface of the solution must be constructed using "responsive design" principles to ensure compatibility across various modern devices such as desktops, tablets, and mobile phones, accommodating different screen resolutions.	Mandatory
NFR-19	The solution shall comply with the following acts: ● Title 5 Associations law ● Title 5 associations law as amended ● Inter-ministerial regulations ● General Business Law ● Freedom of Information Act ● Liberia Telecommunications Law ● National Information and Communications Technology Policy of 2019	Mandatory
NFR-20	The system must allow the Administrator to export system logs on	Mandatory

	various formats for further offline analysis.	
NFR-21	The system must facilitate the archival of documents from the OBRS System to a separate repository and must be accessible.	Mandatory
NFR-22	The system must have the capability for the System Administrator to define, manage, and maintain user access privileges and information security classification that may be applied to users, modules, and system functions.	Mandatory
NFR-23	Capability to minimize the risk of unauthorized access to the system by employing suitable system authentication and security processes. At a minimum, the software shall incorporate the following authentication measures: User ID, Password, and Two-factor authentication	Mandatory
NFR-24	The solution must have the capability to support a configurable minimum password length parameter, which can be set by authorized system administrators. The minimum allowable value for this parameter is eight (8).	Mandatory
NFR-25	The solution must have the capability to support a configurable maximum term of password validity, which requires users to change their passwords after a predefined period. The length of time for this maximum term can be set by authorized system administrators.	Mandatory
NFR-26	The solution should enable administrators to configure the maximum number of authentication attempts permitted for accessing the online business registration system. Upon reaching this limit, the user ID should either be automatically blocked or temporarily suspended. In the case of temporary suspension, a predetermined waiting period may be established before the user ID can be reactivated. Both the allowable number of attempts and the duration of the waiting period can be adjusted by authorized system administrators.	Desired

NFR-27	The solution shall prevent multiple login sessions for the same user	Mandatory
NFR-28	Capability for the System Administrators to disable and reactivate user profiles.	Mandatory
NFR-29	The system must have the capability to maintain an audit trail of events, capturing: • The executed function. • The relevant objects affected by the function. • The user initiating the function. • The date and time of the function's execution.	Mandatory
NFR-30	The system shall possess the capability to automatically track and record events without requiring manual intervention once the audit facility has been activated.	Mandatory
NFR-31	The system must guarantee that audit trail data remains unalterable and cannot be modified or deleted by any user.	Mandatory
NFR-32	Furnish LBR will the source code and all relevant documentation to aid in future developments and enhancement	Mandatory

5. TECHNICAL REQUIREMENTS

5.1 General Specification

1. Language Support: All information technologies must provide support for the English language.

2. Date Data Handling: All information technologies must accurately display, calculate, and transmit date data, including, but not limited to, 21st-century date information.

3. Voltage and Frequency Requirements: All active (powered) equipment must function within a voltage range and frequency of 230v +/- 10v, 50Hz +/- 2Hz. Additionally, all active equipment must come with power plugs adhering to the standard in Liberia

4. Operating Environments: Unless explicitly specified otherwise, all equipment must be capable of functioning in environments with temperatures ranging from 5 to 45 degrees Celsius, relative humidity between 20% and 80%, and dust density ranging from 0 to 40 grams per cubic meter.

5. Noise Levels: Unless otherwise specified, all equipment must operate at noise levels not exceeding 55 decibels.

6. Electromagnetic Emission Standards: All electronic equipment emitting electromagnetic energy must hold certification meeting US FCC class B or EN 55022 and EN 50082-1 standards, or equivalent emission standards.
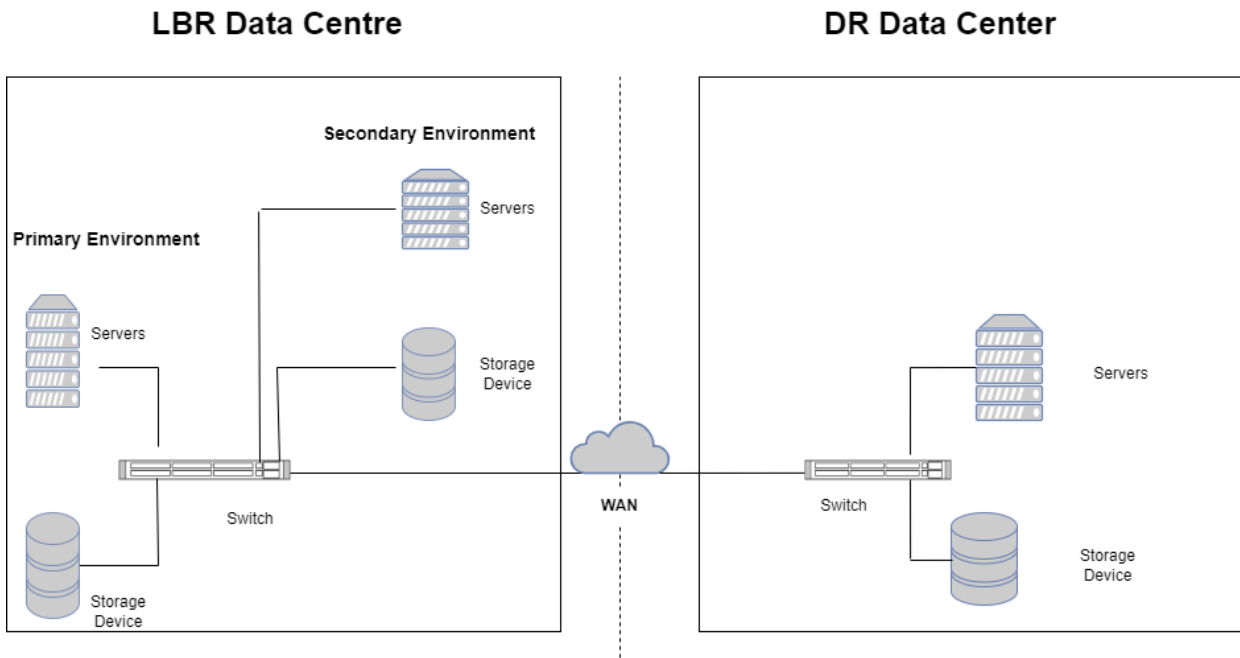
5.2 Software Specifications

The bidder is required to furnish all necessary software to operate their proposed solution. This software includes but is not limited to operating systems, and database management systems among others. This software should be available for all the proposed environments i.e. development, test, production, and disaster recovery sites.

5.3 Hardware Specifications

As part of the process to improve/upgrade the overall ICT infrastructure of LBR, this consultancy includes the purchase of different hardware components that will be utilized by the proposed Online Business Registration system. These components will form the overall envisioned infrastructure setup that includes a Primary, Secondary, and Disaster Recovery site.

5.3.1   High-Level Conceptual Architecture

The high-level, conceptual design illustrated in the figure below and expounded upon in this section is grounded on the proposed configuration for the data center at LBR. This setup is designed to ensure business continuity in the event of a data center failure.

LBR Data Centre — Primary Environment: Servers, Switch, Storage Device; Secondary Environment: Servers, Storage Device. **DR Data Center** — Servers, Switch, Storage Device. Connected via WAN.

As depicted, the high-level conceptual architecture includes three different environments each serving a distinct purpose.

i.   Primary Site. The primary site is the central location where the main server infrastructure resides and will be based at the LBR. It hosts the primary production environment and handles day-to-day operations and serves end-users and clients in normal operating conditions.

ii. Secondary Site. The secondary site serves as a backup or failover location for the primary site and it will also be located within the LBR. It replicates data, applications, and services from the primary site in real-time or near-real-time. In the event of a failure or outage at the primary site, the secondary site takes over operations seamlessly to ensure business continuity. It may also serve as a staging environment for testing updates, patches, or new configurations before deploying them to the primary site.

iii.

iv. DR (Disaster Recovery) Site. The DR site is a separate, geographically distant location designed to provide redundancy and resilience in the face of catastrophic events. Its proposed site is Liberia Telecommunications Corporation (LIBTELCO). The DR site will host backups of critical data, applications, and services, ensuring their availability in case of a major disaster or infrastructure failure at the primary and secondary sites.

In summary, the primary site will serve as the primary operational hub, the secondary site will act as a backup and failover location, and the DR site will provide an additional layer of resilience and protection against severe disruptions.

Table below provides a summary of the hardware components to be supplied

#	Equipment Description	Quantity
1.	Servers complete with virtualization software	6
2.	Storage Devices	3
3.	Backup and recovery solution	1
4.	Fiber channel Switches	4
5.	Firewall	1
6.	Web application firewall (WAF)	1

5.3.2   Server Specification.

1	Node Quantity:	6 Servers, each with below specs.
3	Processor(s):	Qty.2 x Intel® Xeon® Gold 6442Y 2.6G, 24C/48T, 16GT/s, 60M Cache, Turbo, HT (225W) DDR5-4800, 32 cores per socket
4	Memory:	Qty. 16 x 64 GB RDIMMs
5	Hard Drive(s):	Qty. 6 x 1800GB 10K SAS ISE 12Gbps or better BOSS-N1 controller card + with 2 M.2 480GB (RAID 1)
6	SAS Card	PERC H755 SAS
7	Connectivity:	2 x 25GbE SFP + 2 x 10GbE + 4 x 1GbE
8	HBA	2 port 32 Gbps FC
9	Power Supply	Dual, Hot-plug, Power Supply Fault Tolerant Redundant (1+1), 1400W, Mixed Mode, NAF
9	Remote access controll	remote access control with enterprise license
9	Accessories	Rack Rail + Cable Management Arm + Half Length, Low Profile, 3 x16 Slots Riser + Trusted Platform Module 2.0 V3 enabled + 2 x RS PRO IEC C14 Plug to IEC C15 Socket Power Cord, 1m.
10	Hypervisor	VMware vSphere 8 Enterprise Plus Installed and Licensed for all cores per processor for 3 years with Enterprise support
11	Warranty & Support:	3 Year Support for hardware and software.

5.3.3 Storage Device and related equipment

1	Storage System	3 x Dell EMC Unity XT 480 system or equivalent each with the following specifications below;
2	Storage Drives	a. HDDs: 41 x 1.8TB 10 K SAS b. FAST Cache: 9 x 400GB SSDs c. Expansion shelf: 1 x Unity 2U -25 x 2.5 DAE
3	Connectivity Ports	a. FC : 8 x 32Gbps with 8 x 15M OM4 FC Cables b. iSCSI/Ethernet : 8 x 10GbE with 8 x 10m Cat 6a cables
4	Storage Software	a. All Protocols b. FAST Cache c. Replication d. QoS e. Thin Provisioning f. Local Copies g. Cloud Tiering h. Antivirus, Proactive Assist, Central management, Multi-Tenancy, VASA/vVols, etc i. RP Basic, Storage M&R, AppSync Basic
5	Rack	a. Vendor customized Rack for Storage being supplied, 42U Rack Units Height. b. Rack must have PDUs installed on the rear side by side c. Must have Front single door and hind half doors side by side, With Manufacturer brands at front door c. Each PDU comes with 5m Electric wire terminated with Industrial socket at the other end
6	Support	a. Support: 3 Years Partner L2-L3 support b. Supply to install and configure Storage and integrate it with the fiber channel switches and LAN.
6 x Recover point Appliance or equivalent		
1	RPA	a. FC : 4 x 32Gbps with 4 x 15M OM4 FC Cables b. Ethernet : 4 x 10GbE with 4 x 10m Cat 6a cables c. Dual, Hot-plug, Power Supply Fault Tolerant Redundant (1+1), 1400W + 2 x RS PRO IEC C14 Plug to IEC C15 Socket Power Cord, 1m. d. Disks 6 x 1800GB e. License of EX type that supports connection to multiple Storage systems to a single RPA Cluster.
2	Support	a. Support: 3 Years Partner L2-L3 support b. Supply to install and configure RPAs and integrate them with the fiber channel switches and LAN in a clustered set-up of 2 RPA per storage.
4 x Fiber Channel Switches ()		

1	Connectrix DS-6610B-L Switch or equivalent	4 x FC SAN (Connectrix DS-6610B-I) Switches each with the following specifications: a. Total Ports per SAN Switch: 24 b. Active Ports: 24 x 16 Gbps FC (Must include FC Transceivers) c. Cables: 24 x LC/LC OM4 – 8 meters d. Support: Manufacturer warranty for all Hardware and Software components 36 months on top of the base warranty with NBD SLA e. Install and commission working switches

5.4 Back up and Recovery solution

The objective of this backup and recovery solution is to ensure data from the primary site is replicated to the secondary site and the disaster recovery site.in the event of a disaster, failover to either the secondary or the DR site should be possible. The solution should provide a robust, scalable, and efficient backup and recovery system that meets the LBR's data protection and business continuity needs. The successful bidder is expected to supply and set up the solution.Should also train the LBR technical staff on the management of the solution

Requirement no	Description	Comment
1.	Backup and replication solution in a single product	Mandatory
2.	GUI-based Centralized management that allows for configuration, system health, backup monitoring, and manage all activity.	Mandatory
3.	Provide the capability to manage the data protection environment within a single management interface.	Mandatory
4.	Ability to provide virtual compatibility to recreate IT infrastructure on Command.	Mandatory
5.	Ability to perform data reduction with global deduplication combined with compression.	Mandatory
6.	The ability to configure retention policies	Mandatory
7.	The solution must replicate data from the primary site to the secondary site in near real-time or with minimal latency.	Mandatory
8.	It should support various types of data, including	Mandatory

	databases, files, applications, and virtual machines.	
9.	Data replication should occur asynchronously to minimize impact on primary site performance.	Mandatory
10.	The solution must be compatible with the proposed hardware and storage solutions	Mandatory
11.	The solution must facilitate seamless failover functionality to the Disaster Recovery (DR) site in the event of a disaster or significant outage at the primary site.	Mandatory
12.	The solution must have functionality that allows for the primary site to be repaired using the last known good backup from DR	Mandatory
13.	It should support both planned failovers (during maintenance activities) and unplanned failovers (during emergencies).	Mandatory
14.	The solution should offer configurable RPO and RTO settings to align with business requirements.	Mandatory
15.	Ensure that replicated data maintains consistency and integrity between the primary and secondary sites.	Mandatory
16.	Implement mechanisms such as checksums, data validation, and error correction to detect and mitigate data corruption during replication.	Mandatory
17.	Provide comprehensive monitoring capabilities to track replication status, system health, and performance metrics.	Mandatory
18.	Alert administrators in real-time about any issues, failures, or deviations from predefined thresholds.	Mandatory
19.	Implement robust security measures to protect data during replication and failover processes.	Mandatory
20.	Ensure data encryption both in transit and at rest to prevent unauthorized access or interception.	Mandatory

21.	Support role-based access control (RBAC) to restrict administrative privileges and access to sensitive functions	Mandatory
22.	The solution should be compatible with a wide range of hardware, operating systems, databases, and applications commonly used within the organization.	Mandatory
23.	Provide a user-friendly interface or dashboard for configuring, monitoring, and managing the back and recovery solution.	Mandatory
24.	The solution should facilitate regular testing and validation of disaster recovery procedures to ensure their effectiveness and reliability.	Mandatory
25.	Provide tools or utilities for conducting simulated failover drills and recovery tests without impacting production systems.	Mandatory
26.	Provide technical training to the LBR technical team on configuration,setup and administration of the solution	Mandatory

5.5 Security Requirements

5.5.1   Firewall

1.	Quantity	1 PC	
2.	Features	i.	Capable of full visibility into users,devices and applications
		ii.	Support up to 100 users(endpoints)
		iii.	Capable of blocking DNS requests against malicious domains
		iv.	Intrusion prevention capability
		v.	Malware protection
		vi.	Application control
		vii.	Web filtering
		viii.	Web and video caching

		ix. Antispam
		x. VPN (IPsec and SSL)
		xi. SSL inspection
3.	Hardware specifications	16x GE SFP, 16x GE RJ45, 2x GE RJ45 MGMT/HA ports,960 GB SSD, 2 power supplies onboard
4.	Support	3 Year enhanced support including all necessary security subscriptions services and firmware upgrades, 24x7 supportIncluded • Original media kits and manuals • Unlimited phone and email support
5.	Warranty	Three (3) Years software warranty against media defect
6.	Racking Mount Sliding Rails	Included
7.	Training	Indepth Administrator training in the setup, configuration,administration

5.5.2   Web application firewall

Requirement	Description
High availability and fault tolerance	The Solution must have the ability to be be configured in an N+1 redundant system configuration. This redundant system architecture should provide both synchronization of multiple devices configuration data and high availability at user-defined levels of granularity. This must include targeted failover of specific failover group to specific device if the device trust
	The Solution must be able to perform application-level health check of the backend servers.
	The Solution must be able to load balance to the back-end servers (round robin, least connection, fastest response).
	The Solution must be able to support caching and compression in a single platform.

Requirement	Description
	The Solution must be able to be implemented and installed on separate application delivery controller (ADC) hardware platforms.
	The WAF solution must allow traffic pass through when the services fail.
	The Solution must be able to support VLAN configuration through built in switch.
	The Solution must be able to perform TCP/IP optimization.
	The Solution must be able to perform packet filtering.
	The Solution must support active-active (AA) configuration
Data Encryption	The Solution must support SSL Mirroring to enable seamless SSL failover
	The Solution must support TLS1.0, TLS1.1, TLS1.2 and TLS1.3
	The Solution must support elliptic curve cryptography (ECC) acceleration in hardware.
	The Solution must support 384-bit prime modulus elliptic curve.
	The Solution must support Camellia Ciphers Suites.
	The Solution must support HTTP Strict Transport Security Support (HSTS) which is recommended by the SSL Labs

6. TRAINING AND CAPACITY BUILDING

The training and capacity-building initiative aims to ensure that LBR staff and other stakeholders are proficient in autonomously using and managing the OBRS upon its delivery. The bidder is required to include in their proposal a response outlining the approach (**Training Plan**) they will employ to achieve this objective.

6.1 Training Requirements

1. The bidder is required to provide all training and required training material for LBR personnel. The table below provides a summary of the different groups of users that will be trained by the vendor.

S/N	Group	Number of personnel
1.	General Users	50
1.	LBR technical staff(System administrators)	6
1.	LBR trainer of Trainers	5

2. The training program and materials from the bidder must incorporate training courses tailored for the identified user groups, along with on-the-job training sessions for system administrators. i.e. specific job functions (business staff and technical staff) and the functionality of the solution (business registration and supplied hardware).
3. The bidder's training for business staff should focus on utilizing the solution and equipping staff to perform daily tasks associated with business registration.
4. The bidder's training for technical staff must empower them to execute all functions related to the administration and maintenance of the solution and related hardware. This includes providing support to users of the solution and managing all associated hardware and software.
5. The bidder's training for technical staff must cover, at the very least, the following aspects: solution management, solution maintenance and monitoring, data analysis, data security, and backup and solution recovery processes.
6. The technical training should adopt a boot camp style approach.The targeted umber of personnel for the specialized traing is six (6)
7. The bidder is obligated to furnish comprehensive training materials in digital format.

8. The bidder is responsible for creating a training program and materials encompassing all necessary tasks for the efficient management of the system. The developed content shall be submitted to the Client for approval.

9. The bidder is required to furnish a training plan that aligns with the project implementation schedule. Coordination between the training sessions and the implementation of the proposed system is crucial to ensure there are no significant delays between commissioning and user training.

10. The bidder is required to conduct all training sessions and supply all training materials in the English language.

11. All expenses associated with training, including training materials and capacity-building activities (comprising every element within the training and capacity-building section), must be included in the proposal, and the supplier should provide them without any additional charges.

6.2 Capacity Building

The capacity building will encompass a minimum of one workshop for LBR and different stakeholders involved in the business formalization process in Liberia. The supplier is required to put forth a capacity-building plan and agree it with the LBR. This proposed capacity-building plan **MUST** be included in the bidder's technical response.

1. The capacity-building plan must incorporate, at a minimum, one workshop focusing on the impact of the new solution on business registration processes and project outcomes. The planned number of participants for each session should not exceed **30.**

7. TECHNICAL SUPPORT

The bidder is obligated to offer maintenance and support services to LBR post-implementation for a period of 2 years, as detailed in the support and maintenance plan within the contract. Throughout the warranty period stipulated in the contract, the bidder will furnish Maintenance Services to LBR in accordance with the specified terms and conditions. The bidder **MUST** include in their technical response a proposed support plan.

7.1 Supports and Services

The bidder will provide LBR at no additional cost beyond Reimbursable Expenses, Support, and Services (post-implementation), which are essential for maintaining and supporting the system and its associated hardware. This includes ensuring compliance, and in the event of non-compliance, the bidder

will be responsible for repairing or replacing the system. LBR is expected to notify the bidder in general terms upon detecting any non-compliance. Subsequently, both the Bidder and LBR will jointly evaluate whether any malfunction or non-compliance is attributable to the Software, Third Party Software, or the System.

7.2 Bidder General Responsibilities

The Bidder is responsible for the following support and services:

1. Telephone Assistance. The Bidder shall provide support center coverage regarding suspected failures of the Solution thereto to substantially conform to the Specifications ("Problems") between 8:00 a.m. to 5:00 p.m. Liberian time ("Principle Period") Monday through Friday. For severity 1 issues, as defined below, an emergency phone number will be available during weekends and Bidder holidays.

2. Problem Correction. The Bidder shall attempt to correct all documented Problems reported to the Bidder by LBR that have an impact on business operations and cause the Solution to not conform to Functional Specifications. LBR shall provide the Bidder with a detailed description of any Problems, accompanied by examples thereof, if applicable.

7.3 Service Level Terms

The Bidder will work for the prompt resolution of problems and will respond to LBR as per the target service level and turnaround set below by using a dedicated contact telephone number or e-mail address for each support call. Maximum turnaround time of response will be based on levels of severity as defined in

The bidders shall provide a comprehensive SLA including penalties. The final penalties shall be adjusted and agreed upon at contract negotiation.

#	Severity Level	Description	Response Time
	1	Severity Level 1 refers to a critical issue that has a severe impact on the functionality of the software or the related hardware. This level indicates a problem or a defect that renders the software unusable or significantly disrupts its core functionalities. The	Acknowledge within one hour; respond within two hours. Severity 1 calls will be addressed 24/7. The bidder commits to making reasonable efforts to provide a fix, workaround, or patch for Severity 1 issues within

#	Severity Level	Description	Response Time
		severity level 1 issues are considered urgent and demand immediate attention and resolution. These issues may lead to system crashes, data loss, or other critical failures, causing a substantial hindrance to the regular operation of the software or hardware. Resolving severity level 1 incidents is typically prioritized as a top priority to ensure the system's stability and functionality.	2 hours after confirming that the cause of the reported problem
	2	Severity Level 2 signifies a significant issue affecting the software or related hardware that may not completely halt its operation but has a substantial impact on its performance or functionality. This level of severity suggests a problem that is urgent but not critical, allowing the software or related hardware to still be operational with limitations. Severity Level 2 issues may cause inconvenience to users or result in decreased system efficiency. While not as critical as Severity Level 1, these issues require prompt attention to prevent further complications and to maintain the overall integrity and functionality of the software or hardware. Resolving Severity Level 2 incidents is typically prioritized after Severity Level 1 but remains a priority to ensure the system's optimal performance.	Acknowledge within two hours; respond within one business day. Severity 2 calls will be addressed during LBR's regular business hours. The bidder will make efforts to provide a fix, workaround, or patch for Severity 2 within one business day.

#	Severity Level	Description	Response Time
	3	Severity Level 3 denotes a moderate issue affecting the software or related hardware that has a noticeable but not critical impact on its performance. This level indicates a problem that may cause inconvenience to users but does not significantly hinder the overall functionality of the system. Severity Level 3 issues are typically considered non-urgent, and the software or hardware can still operate reasonably well with minimal disruption. Resolving Severity Level 3 incidents is generally prioritized after more critical issues (Severity Levels 1 and 2) have been addressed. While these issues need attention, they are often manageable and do not require immediate resolution.	Acknowledge within 24 hours; respond within 20 business days. Severity 3 calls will be addressed during LBR's regular business hours. The bidder will make efforts to provide a fix, workaround, or patch for Severity 3 within 20 business days and incorporate Severity 3 fixes in the next upcoming release of the product.
	4	Severity Level 4 refers to a minor issue affecting the software or related hardware. This level indicates a problem that has minimal impact on the performance or functionality of the system. Severity Level 4 issues are typically considered low-priority and have limited consequences on the overall operation of the software or hardware. These issues may represent cosmetic or minor functionality concerns that do not significantly disrupt the user experience. Resolving Severity Level 4 incidents is	Acknowledge within 24 hours; response will be determined at the discretion of the Bidder Software. Severity 4 calls will be addressed on a case-by-case basis.

#	Severity Level	Description	Response Time
		generally deferred until more critical issues (Severity Levels 1-3) have been addressed. While these issues may need attention, they are considered lower in urgency and priority.	

Note: "Release" pertains to a fix, patch, or any other minor improvement, enhancement, modification, or expansion of the Software and/or System. These are typically commercially distributed by the Bidder as part of the M&S Services, and the Bidder generally does not impose a separate charge for these updates.

8. TESTING AND QUALITY ASSURANCE REQUIREMENTS

Ensuring the robustness and reliability of the developed OBRS is paramount and the bidder **MUST** therefore include a comprehensive testing and quality assurance plan in its technical bid response. This plan will serve as a critical component in assuring the seamless functionality and reliability of the developed system, aligning with the project's overall objectives.

LBR will execute the subsequent high-level testing approach as a prerequisite for accepting and formally signing off on the system.

   i.   **Usability Testing.** LBR will test the navigation between screens, user-friendliness, and workflows of each screen. If deficiencies are identified during this testing phase, the interface may be redesigned based on feedback from LBR.

   ii. **Functional Testing.** LBR will perform a comprehensive end-to-end functional testing cycle. Throughout this testing phase, actual processes and all essential services offered by OBRS will be examined against the business requirements, ensuring that the solution aligns with the specifications outlined in the RFP, user requirements document, and system design document.

   iii. **Acceptance Testing.** LBR will perform a comprehensive end-to-end functional and quality of service test, encompassing security, performance, and robustness, prior to any system sign-off. Additionally, LBR may request a third-party system audit before the acceptance test to address all security and other defects identified by an external consultant. The bidder is obligated to

rectify all issues highlighted by the third-party system audit consultant before accepting the final delivery.

iv. **Pre-commissioning Tests**. After the initial setup, integration, and system test, the Bidder, with support from the LBR, is obligated to carry out these tests to ensure that the system functions as intended and meets the specified requirements. If no major issues are identified during this phase, the bidder will be issued installation certificate(s)

v. **Operational Acceptance Tests**. LBR, with the assistance of the Bidder, will perform the tests as specified in the Bidder's test strategies and plans outlined in its test and quality assurance plan. These tests will be conducted on the Solution following installation to ascertain whether the Solution fulfills all the requirements mandated for Operational Acceptance.

In achieving Operational Acceptance, all mandatory functionality must be implemented and operational under normal conditions without encountering Severity 1 defects (Critical, where users are unable to complete mandatory functionality, or data corruption is occurring) for a continuous period of two (2) weeks.

Additionally, the Bidder must offer on-site support during and immediately following operational implementation (i.e., go-live). The Bidder is required to have a minimum of two resources on-site for a duration of at least six (6) months after go-live.

9. IMPLEMENTATION SCHEDULE

The project's scope of work is divided into four key distinct phases. The breakdown of phases is outlined below, along with a description of each. The sequence of phases is intended to be sequential, while tasks within each phase can be carried out either simultaneously or in any order.

Phase 1 Preparation. This phase will entail the initial tasks that include project inception, user requirements gathering, solution design, hardware purchaseamong others.

Phase 2 System Implementation Hardware installation, development/configuration, integration with third-party systems, solution installation and commissioning, testing, training, and production installation of the Online Business Registration System.

Phase 3 Deployment/Commissioning. Deployment of the solution to production environment,pre-commissioning tests, commissioning, training

Phase 4 Maintenance and Support. 24 month period of maintenance and supporImplementation Schedule Table

The table describes the phases (and sub-phases), and associated deliverables and milestone dates.

	Phase	Description	Deliverable(s)	Milestone Completion Date
1	**Phase 1 Preparation**	**Project inception, detailed user requirements gathering, solution design, hardware purchase, study tour**		**Within 3 months following the award of the contract.**
1.1	Project Inception	Outline the project scope, define roles and responsibilities, set up communication channels, conduct initial risk assessments, and establish the overall project plan	1. Inception Report 2. Final Project Implementation plan and schedule	
1.2	Business Registry Detailed Technical Requirements and Specifications	Collect detailed business and technical requirements and specifications for the Online business registration System	1. User Requirement documents	
1.3	Online Business Registration System Technical Design	Detailed technical design for the Online business registration	1. Online Business Registration System and Technical Design Document (System	

Phase		Description	Deliverable(s)	Milestone Completion Date
			Design Document)	
1.4	API Layer Technical Design	Detailed technical design for the API Layer registry.	1. API Layer Technical Design Document	
1.5	Hardware Purchase	Purchase of hardware (servers, storage boxes)		
2	**Phase 2 System Implementation**	**Development/configuration, solution installation and commissioning, testing, training, and production installation of the business registry solution.**		**Within 10 months after contract award**
2.1	Develop/configure OBRS	Develop or configure the online business registration system.		
2.2	Hardware supply and installation	Supply and install the hardware based on the agreed architecture in the solution design document (Primary site, secondary, and disaster recovery site)		
2.3	Solution installation	Installation of OBRS within LBR's development and testing environments.		

	Phase	Description	Deliverable(s)	Milestone Completion Date
2.4	Testing	Perform all tests as stipulated in the implementation plan	1. Test Plan 2. Test Scripts 3. Test Report	
3	**Phase 3 Deployment/Commissioning**	**Deployment of the solution to production environment, pre-commissioning tests, commissioning, training**		**Within 12 months after contract award**
3.1	Production installation	Installation and commissioning of the OBRS in the production environment.	1. OBRS User Guide 2. OBRS Technical Operations Guide 3. API Layer Technical Operations Guide	
3.2	Training	Conduct training of LBR staff for the OBRS and related hardware Training to include both business and technical staff.	1. Final Training Plan and Materials 2. Training Report	

	Phase	Description	Deliverable(s)	Milestone Completion Date
4	Phase 4 Maintenance and Support	Two years of post-implementation maintenance and support for the solution.	Maintenance and Support Contract	24 months after implementation and acceptance of business registry and integration business registration solution
4.1	Post-implementation support & and maintenance	Post-implementation support & and maintenance	Service level agreement	

Summary of Milestones Table

The table provides a summary of the milestones for this project and its related completion date.

	Phase / Task	Description	Milestone Completion Date
1	Phase 1 Project Inception	Project inception, detailed user requirements gathering, solution design, hardware purchase, study tour	3 months following contract award
2	Phase 2 System Implementation	Development/configuration, solution installation and commissioning, testing, training, and production installation of the business registry solution.	Within 10 months after contract award
3	Phase 3	Deployment of the solution to production	Within 12 months

Phase / Task	Description	Milestone Completion Date
Deployment/Commissioning	environment, pre-commissioning tests, commissioning, training	after contract award
4 Phase 4 Maintenance and Support	Post-implementation maintenance and support for the solution for 24 months.It includes among others issue resolution and bug fixes, system enhancement and updates, user support and training,documentation and knowledge transfer,security and compliance checks	24 months after implementation and acceptance of business registry and integration business registration solution

10. FORMAT OF TECHNICAL BID

10.1 Description of Information Technologies, Materials, Other Goods, and Services

The Bidder MUST furnish comprehensive descriptions of the crucial technical, performance, or any other pertinent characteristics of all key Information Technologies, Materials, and other Goods and Services included in the bid. This should encompass details such as version, release, and model numbers. Failure to provide adequate and clear details poses the risk of having bids declared non-responsive.

To facilitate the bid evaluation process, the detailed descriptions should be structured and cross-referenced in a manner consistent with the Bidder's item-by-item commentary on the Technical Requirements. All information provided through cross-reference must, at a minimum, incorporate clear titles and corresponding page numbers for clarity and ease of evaluation.

10.2 Item-by-Item Commentary on the Technical Requirements (Business, Functional and Non-functional)

The Bidder is required to furnish a detailed commentary on each item of the Purchaser's Technical Requirements. This commentary should illustrate the comprehensive alignment of the overall design of the System and the individual Information Technologies, Goods, and Services with the specified requirements, showcasing the substantial responsiveness of the bid to the outlined criteria.

10.3   Preliminary Project Plan

The Bidder is required to develop a Preliminary Project Plan, encompassing details such as methods, human and material resources, and proposed strategies for the design, management, coordination, and execution of all responsibilities, contingent upon being awarded the Contract. This plan should also outline the estimated duration and completion date for each major activity. Additionally, the Preliminary Project Plan must address the specific topics and points of emphasis highlighted in the scope of work.

Furthermore, the plan should articulate the Bidder's assessment of the major responsibilities of the Purchaser and any other relevant third parties involved in the supply and installation of the System. It should also delineate the Bidder's proposed approaches for coordinating activities among all parties involved, aiming to prevent delays or interference in the project's execution.

10.4   Confirmation of Responsibility for Integration and Interoperability of Information Technologies

The Bidder is required to provide written confirmation that, in the event of being awarded the Contract, they will assume responsibility for the successful integration and interoperability of all the proposed Information Technologies incorporated in the System, as outlined in greater detail in the Bidding Document.

11.   RESPONSE REQUIREMENTS

Note to Bidders: It is imperative that, for each Technical Requirement, the Bidder comprehensively outlines how their Technical Bid addresses each specific Requirement. Additionally, the Bidder must include cross-references to pertinent supporting information, if available in the bid. These cross-references should indicate the relevant document(s), page number(s), and paragraph(s). Responses in the form of one or two words (e.g., "Yes," "No," "Will comply," etc.) are typically insufficient to confirm technical responsiveness to Technical Requirements.

11.1   Executive Summary

Provide an overview of your company profile, highlighting the key features of your proposal.

11.2   Understanding of the Requirements

Summarize your comprehension of the assignment and the solution prerequisites outlined in the RFP. Articulate this understanding using your own language, avoiding mere repetition of the requirements stated in this document.

11.3   Risks, Challenges, and Issues

Drawing from your understanding of LBR's objectives, your familiarity with LBR, and your background in implementing similar solutions, outline potential risks to the project and propose corresponding mitigation strategies for each identified risk.

11.4   Mandatory Eligibility Criteria

To qualify for this assignment, a Bidder is required to satisfy all the mandatory eligibility criteria outlined below. LBR retains the right to authenticate any information provided in a Bidder's response or to seek supplementary details post-proposal submission. Incomplete or insufficient responses, non-responses, or misrepresentation in addressing any questions will impact the evaluation process.

Business, Functional, and Non-Functional Requirements

1. Describe your proposed solution's architecture and how it aligns with the goals of this project.

2. Describe your approach to addressing user experience and usability.

3. Describe how your solution provides the ability to integrate with other systems, and how it would accommodate integration with other systems in the future.

4. Describe how your solution provides the ability to offer online payments through methods like mobile money, card payments, and over-the-counter payments.

5. Describe the mechanisms that your solution provides to cater to digital or electronic signatures. Please note that there is currently no platform that caters to that.

6. Describe how your solution supports the management of beneficial ownership information for new and already existing entities.

7. Describe how your solution separates access to the different categories of users i.e. public, business registration teams, and technical teams.

For each requirement, you are required to specify the capability of your proposed solution using the defined capability codes outlined in the table below.

	Capability Code	Description
OOTB	Out of the box	The solution will fulfill the requirement without requiring any configuration, enhancement, or customization.
CONF	Configuration	The solution will meet the requirement by adjusting the standard configuration parameters of the product.
ENH	Enhancement	The solution will address the requirement by enhancing the core product, and these enhancements will seamlessly integrate into future releases of the product without additional risk or cost to the client.
DEV	Custom Development	The solution will be a custom-developed solution and will receive support through warranty, as well as maintenance and support.
CUST	Customization	The solution will address the requirement by making modifications and/or extensions to the core product, resulting in a version tailored to the client. However, there is a potential risk that these modifications and/or extensions could be challenging and/or costly to incorporate into future releases of the product.
UNSUP	Un-Supported	The Solution will not support the requirement.

11.5   Implementation Approach and Preliminary Project Plan

1. Outline your overarching strategy and methodology to tackle the requirements, along with the transfer of knowledge and operations to LBR staff. Incorporate any significant methodologies, tools, techniques, hardware, and software, highlighting their appropriateness for this project.

2. Outline your project management strategy for overseeing schedule, scope, and resources, as well as gauging project performance. Elaborate on how the proponent will collaborate with the Project team and LBR staff to attain LBR's objectives.

3. Bidders must provide a broad overview of the planned activities, encompassing sequencing, dependencies, and an estimated timeline for each phase or activity. This should also include the anticipated duration spent at the LBR's premises in Liberia.

4. The Bidder must describe the project implementation team structure, their technical qualifications, and roles and responsibilities in the project.

5. Explain your Quality Assurance methods and practices how they will be implemented in the context of this project.

6. Describe your strategy for transferring knowledge to LBR staff concerning the solution architecture, implementation, and ongoing support and maintenance.

7. Describe the curriculum/scenario training team, training approach and course syllabi, to enable LBR staff trainers to provide training and develop/augment the curriculum both on end-user training and technical training on the system.

8. Detail how you intend to optimally leverage LBR internal resources to meet the RFP requirements, specifying roles, responsibilities, and anticipated durations and effort.

9. Explain your approach to delivering warranty and post-warranty support (Maintenance and Support).

11.6 Data Migration

While LBR has suggested the creation of a data update module to facilitate the data migration process, bidders must offer a broad overview of their data migration approach, methodology, tools, and the extent of involvement required from LBR staff if data migration becomes necessary.

11.7 Added Value

'Added value' is the realization of additional benefits beyond the inherent worth of a good or service. Describe the aspect(s) of your proposal believed to result in notable added value for this project and/or LBR as a whole.

11.8 Recurrent Costs

Identify the types of recurring costs associated with your proposed solution.

11.9 Confirmation of Responsibility for Integration and Interoperability of Information Technologies

The bidder is required to provide a written confirmation that, upon being awarded the contract, it will assume responsibility for the successful integration and interoperability of all the proposed Information Technologies encompassed in the System, as outlined in the Bidding Document.

12. PROJECT DOCUMENTATION REQUIREMENTS

This section outlines the documentation requirements essential for the successful execution and documentation of the project.

1. The Bidder is required to furnish detailed information regarding their project documentation strategy as an integral component of their implementation methodology and approach.
2. The management of all project documentation, encompassing both digital and physical copies, must adhere to a structured control system implemented through a Project Library. The vendor is responsible for providing all pertinent documentation, and the documentation will be deemed final following approval by LBR's Project Steering Committee Team.
3. Documentation must be provided at all phases of the implementation.
4. All project documents must be submitted in English language.

The following project documentation, among others, must be provided:

i. Project Initiation Document
ii. Project Implementation Plan
iii. User requirement document (including AS is and To be business processes)
iv. System Design Documents
v. API Specification Document
vi. API Design Document
vii. Weekly, and monthly reports
viii. System interface and/or 3rd Party documentation
ix. Overall Solution Architecture and Design document
x. Data Conversion and Migration Strategy document
xi. User Acceptance Test Plan
xii. User Acceptance Test scripts
xiii. Training and capacity building plan
xiv. Training Report
xv. Quality assurance Plan
xvi. User guides or manuals
xvii. API user manual

xviii.   Change Management Plan

xix.   Pre-commissioning Plan