



## REQUEST FOR PROPOSALS (RFP)

RFP Number:	<b>BTF-2024-PROC-0081</b>
RFP Subject:	Development of a e-Application Management System for Bangladesh Standards and Testing Institution
Issuance Date:	04 November 2024
Pre-bid Meeting:	11 November 2024, (11.00 AM)
Offer Deadline:	18 November 2024, (5.00 PM)

Land O'Lakes Venture37 (Venture37) requests proposals from qualified *IT Firms to Develop an Application Management System to Automate the Administrative and Customer Interface Processes and Services Provided by the Bangladesh Standards and Testing Institution (BSTI)*. These services are required for the Bangladesh Trade Facilitation project (BTF), which is funded by the United States Department of Agriculture (USDA) under Cooperative Agreement No. FCC-388 2020/003-00. The goal of BTF is to make import and export of food and agricultural goods more efficient. The BSTI system will automate administration and management systems and the issuance of licenses, permits, certification marks, laboratory reports, No Objection Certificates (NOCs), and other associated services, such as payment of fees and the interfaces with other relevant Government of Bangladesh (GoB) information management systems.

IT Firms (hereinafter "Bidder" or "Bidders") are invited by Venture37 to submit offers for the services described in this RFP but are under no obligation to do so. The Bidder shall bear all costs associated with the preparation and submission of the Proposal; Venture37 will, in no case, be liable for those costs, regardless of the conduct or outcome of the solicitation.

This Request for Proposal includes the following two Sections:

- 1. Instructions to Bidders**
- 2. Statement of Work**

Submission of offers must be completed in accordance with the Instructions to Bidders and complete offers must be received by the date and time indicated.

All correspondence and/or inquiries regarding this RFP must be requested in accordance with the enclosed Instructions to Bidders.

Land O'Lakes Venture37 ([www.landolakesventure37.org](http://www.landolakesventure37.org)) is a 501(c)(3) nonprofit committed to helping communities around the world thrive through agriculture. We strengthen economies by improving local agriculture, helping agribusinesses create jobs, and linking farmers to markets. We deliver integrated solutions that help build and improve food and agriculture systems by providing solutions for more competitive markets, more resilient systems, more nutrition-secure communities, and more inclusive societies. Land O'Lakes Bangladesh implements the BTF project. BTF is funded by the U.S. Department of Agriculture Food for Progress (FY2020) program (<http://www.fas.usda.gov/programs/food-progress>).

The objective of BTF is to help Bangladesh expand cross-border trade in food and agricultural goods by addressing systemic constraints at ports; simplifying and automating import and export processes; improving the capacity of government agencies, laboratories, and warehouses; and by facilitating investment in cold storage facilities and temperature-controlled logistics.



## **SECTION 1: INSTRUCTIONS TO BIDDERS**

### **1. Introduction RFP no. BTF-2024-PROC-0081**

Venture37, acting on behalf of the USDA Bangladesh Trade Facilitation Project, hereby solicits proposals from ***IT Firms to Develop an Application Management System to Automate the Administrative and Customer Interface Processes and Services Provided by BSTI*** as described in **Section 2, Statement of Work**.

The scope of work for the selected vendor encompasses developing a comprehensive online system for BSTI to automate administration and management systems and the issuance of licenses, permits, certification marks, laboratory reports, No Objection Certificates (NOCs), and other associated services, such as payment of fees and the interfaces with other relevant GoB systems.

### **2. Eligibility to Bid**

This RFP is open to IT Firms that are legally registered to conduct business in Bangladesh and are registered members of BASIS (Bangladesh Association of Software and Information Services). Small businesses and women-owned businesses are encouraged to submit proposals.

Bidders must present relevant systems development and project implementation experience and proof of eligibility in the form of registration from the relevant government authority, VAT, and tax license as a registered business in Bangladesh. A bidder will be considered ineligible if it has been suspended, debarred, or deemed ineligible, as indicated on (1) the U.S. Government's "List of Parties Excluded from Federal Procurement and Non-procurement Programs" and/or (2) the "Specially Designated Nationals and Blocked Persons List".

### **3. Contract Details**

- **Type of Contract:** As a result of this RFP, Venture37 anticipates awarding one Fixed Price, deliverables-based contract to the selected IT Firm. This contract will not include advance payments.
- **Performance Period:** On/before December 2024 to on/about June 2026. The exact Performance Period will be negotiated with the Bidder and be effective upon signing the contract.
- **Preparation of Offer:** Bidders are expected to examine the Statement of Work in Section 2 and all instructions contained in this RFP. Failure to do so shall be at the Bidder's risk. The proposal prepared by the Bidder and all correspondence related to the offer exchanged by the Bidder and Venture37 shall be in English.

### **4. Contents of Offer**

The Bidder shall prepare one complete written Offer, which must be written in English language and **should not exceed 40 pages**, containing a **Technical Proposal**, the required **Supporting Documents**, and a **Financial Proposal**. Only complete offers will be accepted and evaluated; incomplete offers will be eliminated. Submitted bids are required to consist of the following documents:



## A. Technical Proposal

**Statement of Corporate Capabilities.** Provide professional background (i) to demonstrate qualifications to complete the work, (ii) to establish eligibility; and (iii) to show evidence of prior performance. Offer must include:

- Written presentation describing work and completion of three (3) relevant projects with demonstrating the full software development lifecycle (SDLC).
- Provide client references for the projects.
- Highlight any projects covering digitalization or automation of a government services, processes or functions and define the design, development, implementation, and maintenance support performed.

**Proposed Methodology and Approach.** Description of the proposed approach to the assignment, systems development or technical methodology, and proposed work plan responding to the **Statement of Work (refer to Section 2)**.

- The Methodology and Approach should demonstrate an understanding of the scope of the work.
- The Methodology and Approach should include a plan for sustainability and handover procedures.

**Proposed Team.** Describe the composition, qualifications, and competence of the key personnel and staff related to the assignment. Key staff should meet the criteria stipulated below.

- **Lead Developer (2)** – Minimum 7+ years of experience with proven experience in completing at least two (2) projects of similar type and complexity, preferably government projects. Extensive knowledge in data processing, hardware platforms, and enterprise software application. Proven experience in database design in SQL /MySQL/Background in web- based software development. Knowledge about software languages like PHP. Laravel framework, Python, or Apex. It is expected that the Lead Developer will manage the project.
- **UI/UX Specialist (3)** – At least 4+ years of experience in leading graphics design and web development.
- **Support Engineer (2)** - Minimum of 4+ years of experience in handling the relevant field. Should have ITIL Certification. Having experience in giving support in government/ semi-government/private projects.
- **Web Developer's (Full Stack, 5 persons)** – Minimum 4+ years of experience in the relevant field and having experience in developing a minimum of two software systems with a similar level of intricacies, preferably web application development.
- **Database Administrator** – Having 7 years' Experience in managing, monitoring, and maintaining the database in government Organizations/semi-government/private projects.

**Supporting Documentation.** Please include the following supporting information and documents with your Technical Proposal:

- Trade license, BIN (business identification number), TIN (tax identification number), and VAT registration.
- BASIS membership certificate.
- Client references and contact details for three (3) customers including contact names, e-mail addresses, and telephone numbers of people who can be contacted regarding the Bidder's prior performance for similar work.



## B. Financial Proposal

The Financial Proposal must include a **Price Offer**, broken down according to each deliverable indicated in the table below:

Sl. No.	Deliverable
1.	A detailed work plan of Software Development Life Cycle (SDLC) including technical and functional specifications.
2.	System Requirement Analysis.
3.	A fully operational automation system development including digital payment system and interfacing with the relevant agencies.
4.	A User Manual and user training sessions.
5.	UAT from stakeholder/relevant agencies
6.	Go Live
7.	Handover of proper documentation, database with source code
8.	Develop Quality (QA) mechanisms to audit all software testing activities and processes within (SQTC) under BASIS ICT Division's center and submission the report.
9.	Technical support required for a period of 1 Year
10.	Final Source Code Handover: full source code and database including all developed libraries
	<b>PRICE OFFER - Total Fixed Price</b>

Price Offer should be inclusive of applicable VAT and AIT. Bidder should clearly state any assumptions about taxation.

Bidders should also provide an explanation of the firm's pricing methodology, and any further required supporting materials relevant to the Price Offer. Price Offers will be evaluated based on the competitive evaluation of financial proposals, cost realism, price reasonableness, and value to USDA.

### 5. Offer Validity Period

Offers shall remain valid for a minimum of sixty (60) days after the offer deadline. An offer valid for a shorter period shall be rejected as non-responsive. Bidders shall clearly indicate their offer's validity period within the proposal documents.

### 6. Offer Deadline and Submission of Bids

All offers must be submitted to Venture37 by the Offer Deadline, 18 November 2024, 5:00 pm (17:00), Dhaka. Please submit electronic proposals by email to:

**Recardo Saurav Antor Halder, Program Operations Coordinator at**  
[rhalder@landolakes.com](mailto:rhalder@landolakes.com)

The RFP Number, BTF-2024-PROC-0081, should be referenced in the subject line. It is the Bidder's sole responsibility to ensure that offers are received by Venture37 on or before the Offer Deadline. Offers received after the deadline for submission shall be rejected. It is recommended that no email exceeds the size of **10 MB**, inclusive of attachments.



## 7. Pre-bid Meeting

For queries and clarifications about the scope of the service, Land O Lakes Venture37 will arrange a pre-bid meeting on 11 November 2024, at 11.00 am, at Land O Lakes Venture37 office premise:

**Concord Bilkis Tower, 3<sup>rd</sup> Floor, 40/6 Madani Avenue, Gulshan-2, Dhaka-1212**

Bidders willing to join the pre-bid meeting are requested to contact and confirm participation to Recardo Saurav Antor Halder, Program Operations Coordinator, at [rhalder@landolakes.com](mailto:rhalder@landolakes.com), at least **one day** before the scheduled date.

## 8. Amendment of Bidding Documents

Venture37 may at its discretion and for any reason, modify bidding documents by amendment. All prospective Bidders that have received bidding documents will be notified of the amendment by e-mail and such amendments will be binding on them.

## 9. Modification of Offers

Any Bidder has the right to withdraw, modify, or correct its offer after it has been delivered to Venture37, provided the request for such a withdrawal, modification, or correction together with full details of such modification or correction is received by Venture37 at the submission point of contact above before the deadline. Venture37 may ask any Bidder for a clarification of its offer or conduct negotiations with the Bidders; nevertheless, no Bidder will be permitted to make any other material modification to its offer after the deadline unless the RFP has been amended or the deadline extended. Clarifications which do not change material aspects of the offer may be accepted at Venture37's discretion.

## 10. Evaluation of Offers and Criteria for Award

### A. Evaluation Criteria

Venture37 will evaluate all qualifying and compliant Offers based upon the following evaluation criteria for Technical Proposal.

1. **Corporate Capabilities.** Firm's capability and experience specifically related to the assignment. Presentation of at least three (3) relevant projects. Review of three (3) client references (30%).
2. **Proposed System Design and Approach.** Adequacy of the proposed work plan and methodology in responding to the Statement of Work (40%).
3. **Proposed Team.** Composition, qualifications, and competence of the key staff related to the assignment (30%).
4. **Price.** Venture37 will conduct a competitive evaluation of Financial Proposals considering cost realism, price reasonableness, and value to USDA. After evaluating and ranking Technical Proposals, Venture37 will shortlist five (5) top scoring Technical Proposals and evaluate Price Offers of these shortlisted bidders only. Twenty (20) points will be allocated to the evaluation score proportionately to the lowest price offer received.

### B. Award of Contract

Venture37 will award the contract to that Bidder whose offer is deemed acceptable, and which offers the best value to Venture37 and USDA based upon evaluation of the Technical Proposal and Price



Offer according to the evaluation criteria.

Venture37 shall award the contract to the highest scoring Bidder after taking into consideration that the offer meets the eligibility requirements and assessment of the technical specifications and requirements which includes Corporate Capabilities, Proposed Methodology and Approach, the Proposed Team combined with the competitive comparison of Price Offers.

Venture37 reserves the right to not award a contract as a result of this RFP.

### **C. Compliance with Terms and Conditions of RFP**

In order for an Offer to be deemed acceptable, it must comply with all the terms and conditions of the RFP without material modification. A material modification is one which affects the price, quality of performance, availability of personnel, and ability to deliver the required specifications, or which limits in anyway any responsibilities, duties, or liabilities of the bidders or any rights of Venture37. In addition, the successful bidder must be determined to be responsible. A responsible bidder is one who has the technical expertise, management capability, workload capacity, and financial resources to perform the work.

#### **11. Right to Accept Any Offer or More than One Offer, and to Reject Any or All Offers**

Venture37 will reject any offer that it deems nonresponsive. Further, Venture37 reserves the right to waive any minor errors in any offer received if it is in Venture37's best interests to do so, to reject the offer of any Bidder if, in Venture37's judgment, the Bidder is not fully qualified to provide the services as specified in the contract, or to reject all bids.

#### **12. Notification of Award**

If required after evaluation of the Technical and Financial Proposals of all Bidders and based on at Venture37's determination and convenience, Venture37 may make a shortlist of firms who will be asked to present their understanding of the task and proposed methodology to the Venture37 selection committee. After the completion of the overall evaluation and before the expiration of the period of offer validity, Venture37 will notify the successful Bidder in writing that its Offer has been accepted. Venture37 may negotiate with the successful Bidder on any details and terms of the contract which do not materially change the scope or specifications of the goods or services to be provided.

Upon the successful Bidder acknowledging receipt of the Notification of Award, Venture37 will promptly notify each unsuccessful Bidder that their bids were rejected. If, after notification of award, a Bidder wishes to ascertain the grounds on which its offer was not selected, it should address its request to Venture37 in writing.

#### **13. Acceptance of Privacy Policy and Terms and Conditions**

By submitting an Offer to Venture37, Bidder consents to and provides Venture37 with permission to process the Bidder's business and personal data specifically for the performance of, and purposes identified in, this solicitation document and in compliance with Venture37's legal obligations under applicable United States and European Union laws, data protection and regulations, and any other applicable legal requirements. The Bidder may withdraw their consent at any time by contacting Ricardo Saurav Antor Halder, Program Operations Coordinator, at [rhalder@landolakes.com](mailto:rhalder@landolakes.com). If consent is withdrawn, Venture37 reserves the right to either accept or reject the offer.



## SECTION 2: Statement of Work

### 1. Background

Land O'Lakes Venture37 implements the Bangladesh Trade Facilitation project (BTF), which is funded by the United States Department of Agriculture, Foreign Agricultural Service, Food for Progress FY2020 (USDA). The project will expand regional and international trade in agricultural goods by addressing systemic constraints to agricultural trade at Bangladeshi ports; simplifying and automating import and export processes; improving the capacity of government agencies, laboratories, and warehouses; and by fostering private and public investment in cold storage facilities and temperature-controlled logistics. BTF has entered into MoUs with nine Government of Bangladesh (GoB) agencies that provide services related international trade and that regulate import and export of agricultural goods and food items. BTF provides technical and technological assistance and support to these counterpart agencies including the Bangladesh Standards and Testing Institution (BSTI), to automate service delivery and to integrate information management systems with relevant national and international agencies.

BSTI plays a crucial role in ensuring product quality and safety across various industries in Bangladesh. Established to promote standardization, quality assurance, and compliance with national and international standards, BSTI is responsible for the certification and testing of a wide range of products, including food, textiles, electronics, and construction materials.

In recent years, the demand for efficient and transparent processes in the certification and testing procedures have significantly increased. Stakeholders, including manufacturers, importers, and consumers, require timely access to information and services related to product standards and certifications. To address these needs, BSTI will deploy an ***Application Management System to Automate Administrative and Customer Interface Processes and Services.***

The system aims to streamline the application process for product testing and certification by providing a digital platform that facilitates online submissions, tracking, and management of applications. This system is designed to enhance user experience, reduce processing time, and improve overall service delivery. By leveraging technology, BSTI seeks to ensure greater transparency and accountability in its operations, ultimately fostering trust in the standards and testing framework.

The implementation of the system aligns with the government's vision of digital transformation in public services, contributing to a more efficient regulatory environment that supports economic growth and enhances consumer protection. Through this initiative, BSTI aspires to become a model institution in adopting innovative solutions that cater to the evolving needs of stakeholders while upholding the highest standards of quality and safety.

### 2. Objective

The objective is to develop and deploy a comprehensive automated system for BSTI. The IT Firm will develop the system based on the information and data provided by the BSTI. The IT Firm will recommend process simplifications and reduce redundant steps or approvals wherever noticed. The IT Firm will develop, operationalize, implement, and maintain a user-friendly, interactive, web-based service management system for users of the portal.



### 3. Specific Objectives

#### **Digitization of Licenses and Approvals:**

- Digitize various categories of licenses across different wings of BSTI.
- Automate the CM clearance certificate, lab test reports, and registration approvals.
- Streamline the issuance of certificates and re-certificates.

#### **Administrative Digitization:**

- Digitize administrative workflows, including HR management, budget allocation, and income/expenditure tracking for BSTI offices.

#### **E-commerce Solution:**

- Implement a simple (standard) e-commerce platform with online payment capabilities.
- Integrate a payment gateway for secure and efficient transactions.

#### **Enhanced Security:**

- Ensure system security is robust with enhanced measures to protect data and processes.

#### **Centralized System for Licensing and Administrative Services:**

- Develop a unified system for managing licenses, registrations, certificates, and administrative services across all BSTI offices nationwide.

#### **Efficient and Transparent Reporting:**

- Enable fast, real-time, system-generated reports that are transparent and error-free, reducing manual reporting efforts.

#### **Workload Reduction:**

- Reduce the workload for BSTI officials by identifying redundancies in approvals or procedures and by automating routine tasks and minimizing manual report preparation.

#### **Capacity Building and Technology Transfer:**

- Transfer technology to BSTI and enhance the capacity of its ICT personnel.

#### **Remote Application Processing:**

- Allow BSTI authorities to process applications remotely, eliminating the need for physical presence in the office.

### 4. Scope of Work for this Assignment Includes but is not Limited To

The following IT/ITES services from the bidder firm will be required and the relevant activities shall be implemented under the guidance and supervision of BSTI and BTF. The IT Firm will consult and inform and validate critical decisions with BSTI's and BTF's designated focal points at every stage of system development and delivery. All the stages of services shall be provided under an overall framework.

The tasks to be carried out are as follows, but not limited to:

#### **4.1. Design and Develop a Specialized Central System for Digitization of Services and Administration, including issuances of Certificates, Registration, Lab Reports.**

- a) Detail Requirement Analysis for the specialized and customized System.
- b) Develop Detail Software Specifications (SRS). Requirement analysis should have to be comprehensive.
- c) Database Design and Development for the systems. Identify appropriate software engineering process and comply the Software Development Life Cycle (SDLC).
- d) UI/UX Design for the systems.
- e) Design and Develop Software Security System.
- f) Develop fully functional integrated system software according to the approved specifications, which will be inter-accessible between databases. The software will be operated by all concerned offices of BSTI and from anywhere in Bangladesh.



- g) Install Systems to the provided server under specific sub-domain/IP. Sub Domain/ IP and hosting will be provided by BSTI.
- h) It is mandatory to follow the Application Standard (Standard ID: A.R.M. SDLC.001, A.R.M.SDLC.002, A.R.M.SDLC.003) of Bangladesh National Digital Architecture (BNDI). To see and follow the <https://bnda.gov.bd/standards>.
- i) It is mandatory to use BNDI (<https://bnda.gov.bd/standards>) recommended latest version of DBMS (Standard ID: DAT.DM.001).
- j) Strictly follow BNDI Security Standards (Standards ID: SEC.STD.001, SEC.STD.002, SEC.STD.003, and SEC.STD.004).
- k) Integrate suggested payment gateway for application fee collection.

## 4.2. Logical Processes of All Services Segregated by Different Wings but Not Limited To

### 4.2.1. Admin Control/Dashboard

The Admin Control/Dashboard will oversee the following functionalities:

#### a) Products Info and Service Fee Management

- Maintain a database of all product categories and services offered by BSTI.
- Set and update service fees for each product/service, including licenses, certificates, and registrations.

#### b) Create and Configure Users and User Types with Privileges

- Admins can create new users, assign user types (e.g., standard user, manager, admin), and define access privileges for each role.
- Configure user permissions for services such as issuing certificates, approving applications, generating reports, and financial transactions.

#### c) Log File, Alert Log File, and Trace File Management

- Monitor system activity through log files to track errors, security breaches, or unusual behaviors.
- Maintain an alert log to notify admins of critical system events, such as failed transactions or unauthorized access attempts.
- Manage trace files to aid in system diagnostics and performance monitoring.

#### d) Report Generation

- Generate reports based on predefined criteria or as per user privileges (e.g., license status, revenue reports, application status, and service delivery times).
- Ensure that report access is controlled by user roles and privileges to maintain data confidentiality.

### 4.2.2. Customer Portal

The Customer Portal will facilitate the following services:

#### a) User Registration

- Allow new customers to register through the portal by providing essential details, creating a secure account, and gaining access to the system's services.

**b) Complete Profile Uploading and Document Submission**

- Registered users can upload personal and business profiles, including general documents such as identification, business certificates, and product details required by BSTI.

**c) Apply for New Service or Renew Existing Service**

- Customers can submit applications for new licenses, certificates, or renewals directly through the portal.
- The system will guide users in selecting the appropriate service type and entering required information for BSTI review.

**d) Pay Fee on Primary Approval of Application**

- Once the application passes the initial review, the customer will be prompted to pay the associated service fee.
- Integrate a secure online payment system for seamless transaction processing.

**e) Classification and Resubmission of Applications Based on Status**

- The system will classify applications based on their current status (e.g., rejected, suspended, cancelled, amended).
- Customers will have the option to review the rejection reasons and resubmit modified applications.

**f) Access License/Certificate/Registration Online**

- Once approved by BSTI, users can download or access their licenses, certificates, and registrations through the portal.
- Real-time report generation will be available, allowing customers to track their application status and compliance records.

**4.2.3. Wing – Certification of Marks (CM)**

- CM License-Scope Product Issue
- CM License-Scope Product Renewal
- CM License-Mandatory Product Issue
- CM License- Mandatory Product Renewal
- CM Clearance Certificate Issue
- Brand, Size, Flavor, Type and Variant Inclusion with CM License
- Halal Certificate Issue
- Halal Certificate Renewal

**➤ CM License Scope Product Issue/Renewal Process:**

1. Customer will apply for license with an application fee and initial questionnaire
2. The Director will receive the application and forward it to DD with remarks (if any). Then DD will forward the application to AD with remarks (if any) and AD will forward the application to Inspector with remarks (if any). The inspector will review the application. If there is any shortfall it will be sent back to the customer to rectify, and the customer will resend it to the inspector.
3. Inspector will make man day calculation (System generated as per format)



4. The inspector will make a primary visit and prepare the primary inspection report. If there is any observation, feedback will be sent to the customer; after getting the feedback the customer will respond with evidence.
5. Inspector will set formal inspection date, visit for formal inspection and prepare formal inspection report and collect sample to send to AD, AD will send the samples to lab for testing
6. If lab require, it can send back for resampling
7. Lab will generate test report and send to AD
8. AD will compile test reports and inspection reports and if the report passes, AD will create an evaluation report and will send it to DD.
9. DD will verify the evaluation report and make a check list. If that approves, it will be send to Dir. (CM) for approval
10. Once Dir. (CM) approve, it will be ready for certification committee
11. If the certification committee approves then AD will create a payment request, which will go to the customer. When customer pays the license fee, the system will generate License.
12. The certification committee can approve conditionally. In this case a notification will go to the customer to rectify the conditions. The customer will rectify the conditions and send it to the system.
13. AD will be notified about the rectified conditions, and he will send the inspector to verify, if that is verified, AD will request to send for payment. If the payment is complete, the customer will get the license.
14. The certification committee can also send for re-inspection, in that case, the full process from inspection will take place.
15. If the certification committee rejects the application, the customer will receive the rejection letter.
16. If the Test report does not pass, AD will prepare a refuse letter and send it to DD for verification. After verification DD will send it to Dir. (CM) for approval. Once Dir. (CM) will approve, customer will receive a refuse letter

➤ **CM License Mandatory Product Issue/Renewal Process:**

1. Customer will apply for license with an application fee and initial questionnaire
2. Director will receive the application and forward it to DD with remarks (if any). Then DD will forward the application to AD with remarks (if any) and AD will forward the application to Inspector with remarks (if any). Inspector will review the application. If there is any shortfall it will be sent back to the customer to rectify, and customer will resend to inspector.
3. Inspector will set/reschedule initial inspection date
4. After the initial inspection, the inspector will prepare a report and send it to AD. If there is any feedback AD will send this to the customer to respond with evidence and if that is satisfied the inspector will set/reschedule for re-inspection.

5. There is a scope to collect sample after the initial inspection and send it to the lab
6. After the re-inspection, inspector will collect sample and prepare report and send to AD and AD will send it to lab
7. If required, the lab can request for resampling.
8. After that, the lab will prepare test report and deliver to AD.
9. AD will compile test reports and inspection reports and if the report passes, AD will create an evaluation report and will send it to DD.
10. DD will verify the evaluation report and make a check list. If that approves, it will be send to Dir. (CM) for approval
11. Once Dir. (CM) approve, it will be ready for certification committee
12. If the certification committee approves then AD will create a payment request, which will go to the customer. When customer pays the license fee, the system will generate License.
13. The director can approve conditionally. In this case a notification will go to the customer to rectify the issue. The customer will rectify the issue and send it to the system.
14. AD will be notified about the issue, and he will send the inspector to verify, if that is verified, AD will request to send for payment. If the payment is complete, the customer will get the license.
15. The director can also send for re-inspection, in that case, the full process will take place.
16. If the certification committee rejects the application, the customer will receive the rejection letter.
17. If the Test report does not pass, AD will prepare a refuse letter and send it to DD for verification. After verification DD will send it to Dir. (CM) for approval. Once Dir. (CM) will approve, customer will receive a refuse letter

➤ **Halal Certificate Issue/Renewal Process:**

1. Customer will apply for certificate with initial questionnaire
2. Director will receive the application and forward it to DD with remarks (if any). Then DD will forward the application to AD with remarks (if any) and AD will forward the application to Inspector with remarks (if any). Inspector will review the application. If there is any shortfall it will be sent back to the customer to rectify, and customer will resend to inspector.
3. The inspector will schedule stage 1 audit, make the audit, and prepare the audit report. If there is any observation feedback, the customer will respond with evidence.
4. If the evidence is satisfied by the AD, then Inspector will set stage 2 audit date, prepare report and collect sample to send to AD, AD will send it to lab
5. If the lab requires, it can send back for resampling
6. Lab will generate test report and send to AD
7. AD will compile test reports and inspection reports and if the report passes, AD will create technical report and will send it to DD.
8. DD will verify the technical report and make a check list. If that approves, it will be send to Dir. (CM) for approval
9. Once Dir. (CM) approve, it will be ready for certification committee



10. If the certification committee approves then AD will create a payment request, which will go to the customer. When customer pays the license fee, the system will generate License.
11. The certification committee can approve conditionally. In this case a notification will go to the customer to rectify the issue. The customer will rectify the issue and send it to the system.
12. AD will be notified about the issue, and he will send the inspector to verify, if that is verified, AD will request to send for payment. If the payment is complete, the customer will get the license.
13. The certification committee can also send for re-inspection, in that case, the full process will take place.
14. If the certification committee rejects the application, the customer will receive the rejection letter.
15. If the Test report does not pass, AD will prepare a refuse letter and send it to DD for verification. After verification DD will send it to Dir. (CM) for approval. Once Dir. (CM) will approve, customer will receive a refuse letter

➤ **CM Clearance Certificate Issue:**

1. Applicant will apply with required documents
2. Director will receive the application and forward it to DD with remarks (if any). Then DD will forward the application to AD with remarks (if any) and AD will forward the application to Inspector/Field Officer with remarks (if any). Inspector/Field Officer will review the application. If there is any shortfall it will be sent back to the customer to rectify, and customer will resend to inspector.
3. Inspector/Field Officer will set/reschedule Regular Inspection date and visit. AD and DD will approve the inspection date, and the applicant will also be notified.
4. Inspector will make the inspection and prepare the inspection report
5. AD will check if the jurisdiction falls within BSTI, then will check if CM-CC lab test is applicable, if it's not applicable then check if NOC with safety test is applicable. If both are applicable, then inspector will collect the sample and send to AD
6. AD will send the sample to lab
7. Lab will receive the sample and check if resample is needed. If a resampling is needed, then the lab will inform the inspector, and he will set the resampling date. It needs to be approved by AD/DD/Director/DG. If the sample is okay, then the lab will check if the test requires a long time. In that case lab will inform that to inspector. The inspector will check if a temporary certificate is required. If yes, then he will send a temporary certificate proposal to AD. AD, DD and Director (CM) will approve and the customer will access the temporary certificate.
8. After that the applicant will work on good releasing and warehousing and it will be notified to AD. Then the inspector will seal the warehouse and AD will confirm it.
9. Also, if the test does not require long time, then lab will send the report to AD. AD will check if the accreditation lab report is there, then AD will compile them and check if test report pass. If pass, then AD will propose to approve clearance certificate. Also, AD will check there is NOC with no test is applicable then AD will propose to approve clearance certificate. DD and Director (CM) will approve and send to AD.
10. AD will request payment for certificate and lab fee. When customer make the payment, He/She can access the certificate, Test report and STR. If the test report does not pass, then the application will be rejected. If the application is partially rejected, the customer will request resampling, and that process will take place again.



➤ **Brand Inclusion Process of CM Scope Product/Mandatory Product/Halal Certificate:**

Same as CM License scope product/Mandatory Product/Halal Certificate renewal process.

**4.2.4. Wing – Chemical and Physical**

➤ **Chemical Test Report:**

1. There are 6 types of users: Applicant, OSS, Director (chemical), DD, AD, Examiner/ Senior Examiner
2. Applicant will register sample with payments and documents to OSS
3. OSS will receive the sample and check if it needs to be resampled. If yes, then OSS will resend to applicant and receive again.
4. OSS will encrypt the sample and send to Director (chemical)
5. Director will receive sample and set parameter then DD/AD/ Examiner/ Senior Examiner will receive the sample. Examiner/ Senior Examiner will perform test and enter test result. Also, can attach raw data
6. AD will verify the result and send to DD. DD will verify and create file note
7. Director will approve the result and file note and send it to OSS.
8. OSS can access and deliver the test report. With that applicant will be notified and access the report
9. If director wants, then he can also send for re-test to Examiner/ Senior Examiner to perform the test again
10. If the Test report is not approved the customer will be notified
11. In this process Director/ DD/AD will have the option to send back to correct the test result if necessary.

➤ **Physical Test Report**

1. There are 6 types of users: Applicant, OSS, Director (chemical), DD, AD, Examiner/ Senior Examiner
2. Applicant will register sample with payments and documents to OSS
3. OSS will receive the sample and check if it needs to be resampled. If yes, then OSS will resend to applicant and receive again.
4. OSS will encrypt the sample and send to Director (chemical)
5. Director will receive sample and set parameter then DD/AD/ Examiner/ Senior Examiner will receive the sample. Examiner/ Senior Examiner will perform test and enter test result. Also, can attach raw data
6. AD will verify the result and send to DD. DD will verify and create file note
7. Director will approve and result and file note and send it to OSS.
8. OSS can access and deliver the test report. With that applicant will be notified and access the report
9. If director wants, then he can also send for re-test to Examiner/ Senior Examiner to perform the test again
10. If the Test report is not approved the customer will be notified. In this process Director/ DD/AD will have the option to send back to correct the test result if necessary.

➤ **Physical Lab - Energy Meter**



1. There are 6 types of users: Applicant, OSS, Director (Physical), DD, AD/ Sr. Examiner/Examiner
2. Applicants will make the application with payments and documents, and it will be sent to the Director (Physical). Director can forward or assign to DD/AD/Examiner.
3. The examiner will receive and review the application and if there is any shortfall he will send the shortfall to customers. Customers will rectify and resend.
4. Examiner will set/reschedule sample collection date and AD/DD/Director will approve this date. Then the customer will be notified.
5. The examiner will collect samples and perform a test and enter the result. Examiners can also attach raw data. AD will verify the test result. DD will verify the result and create file note
6. Director will approve the result and file note. If approved, then OSS will have the access and deliver the test report to customer and if needed then it will be sent to retest
7. There will be a send back and pull back option till director
8. If the test result is not approved, then the customer will be notified.

#### 4.2.5. Wing – Management System Certification (MSC)

##### ➤ MSC Certification

There are 9 types of users: Applicant, Certification committee, DG, Director/Head of MSC, DD (DC), DCO, DD (IA), IAO, Audit Team

1. Applicant will make the application with payments and documents
2. DD (DC) will receive the application and forward it to DCO. DCO will receive and review. If there is any shortfall the DCO will notify the customer about it. The customer will rectify and resend. If there is no shortfall then DCO will prepare acceptance letter/Agreement paper. DD (DC) will approve of the acceptance letter and verify the agreement letter then send it to Director/Head of MSC will approve the agreement paper and notify the customer.
3. When DD (DC) approve of the acceptance letter/agreement paper IAO will perform Man-day calculation and set/reschedule or give a notice of stage 1 audit date and team
4. DD (IA) will verify this and Director/Head of MSC will approve of this. Stage 1 audit date/notice will be notified to applicant
5. The audit team will prepare stage 1 audit plan and applicant will be notified about the plan. Audit team will perform the audit and prepare audit report/findings.
6. DD (IA) will check if there are any findings in stage 1 audit. If there are, the findings will be sent to the customer with a reply date.
7. Customer can extend the reply date if required. BSTI officials will approve of this. When a customer makes the corrective action with evidence, DD(IA) will check if that is acceptable. If not, then customers will get a rejection note. And if accepted then IAO will set/reschedule date for stage 2 audit date. DD(IA) will verify the date, and Director will approve of the audit date. Customer will be notified about the date.
8. The audit team will prepare stage 2 audit plan and share that with the customer. Then will perform stage 2 audit and prepare stage 2 audit report, NC report and findings. This will be sent to DD (IA). He will check if there are any findings, if there are, then this will be sent to the customer with a reply date. Here the customer can also request to extend the date if required.
9. When customers make corrective actions according to the feedback DD (IA) checks if it is acceptable and there are no findings, then DD (IA) will approve of stage 2 audit report. And if not accepted then the customer will get a rejection note.
10. When the stage 2 audit report is approved, then DCO will approve initial certification proposal and MSC intimation and Certification Bill. DD (DC) will verify this and send payment request to customer
11. Director/ Head of MSC will review initial certification proposal and MSC intimation and decide if



- it is ready for certification committee. If it is ready for certification committee, DD (DC) will prepare for certificate committee meeting notice. Director will verify the notice and send to DG.
12. DG will approve certificate committee meeting notice and send it to certificate committee.
  13. Certificate committee will approve and send it to DD (DC). DD will upload the decision.
  14. When payment is done, and the decisions are made then the certificate will be generated.
  15. Customer will access certificate, MSC intimation and agreement paper.
  16. If certification committee does not approve, customers will get a reject note.
  17. If the certification committee decides to conduct a follow-up audit the full process will take place in the same manner.

#### ➤ **MSC Re-Certification**

There are 9 types of users: Applicant, Certification committee, DG, Director/Head of MSC, DD (DC), DCO, DD (IA), IAO, Audit Team

1. Applicant will make the application with payments and documents.
2. DD (DC) will receive the application and forward it to DCO. DCO will receive and review. If there is any shortfall the DCO will notify the customer about it. The customer will rectify and resend. If there is no shortfall then DCO will prepare acceptance letter/Agreement paper. DD (DC) will approve of the acceptance letter and verify the agreement letter then send it to Director/Head of MSC will approve the agreement paper and notify the customer.
3. When DD (DC) approve of the acceptance letter/agreement paper IAO will perform Man-day calculation and set/reschedule date/ notice/committee for re-certification audit.
4. DD (IA) will verify this and Director/Head of MSC will approve of this. Re-certification audit date/notice will be notified to applicant.
5. The audit team will prepare a re-certification audit plan, and applicants will be notified about the plan. Audit team will perform the audit and prepare audit report/findings. IAO will approve and send to DD (IA).
6. DD (IA) will check if there are any findings, if found then the feedback will be sent to the customer with a reply date. Customers can request to extend the date. When customers make correction actions with proper evidence, DD (IA) will check if it's acceptable.
7. If it's not acceptable DD (IA) will send notice of improvement to the customer. DD (DC) and Head of MSC will approve the notice and customers will be notified. Customer will response and send to DD (IA). DD (IA) will accept.
8. And If it is acceptable or if there are no findings, DCO will prepare re-certification proposal, MSC intimation and certification bill.
9. DD (DC) will approve and make payment requests and send them for review to the Director for re-certification proposal and MSC Intimation. The director will check if it is ready for the certification committee. If yes, then it will be sent to DD (DC) to prepare certification committee meeting notice. Director will verify it and send it to DG for approval. DG will send it to the certification committee and if the committee approves DD (DC) will upload the decision.
10. When payment is done, and the decisions are made then the certificate will be generated
11. Customer will access certificate, MSC intimation and agreement paper.
12. If certification committee does not approve, customers will get a reject note.

#### **4.2.6. Wing – Administration**

1. HRM (Employee profile as per BSTI format) with Leave Management
2. Payroll
  - a. Regular Salary: i. Earnings/Deductions. Salary Fixation. Salary Process. Bonus Process, v. Bank Advice (Salary/Bonus), vi. Top Sheet (Salary/Bonus), vii. Salary Sheet (Salary/Bonus), viii. Salary Certification. Income Tax Statement, x. Journal Voucher





b. Loan Management

c. GPF: i. Previous Balance Entry, ii. GPF Ledger, iii. GPF Statement. GPF Certificate, v. GPF Schedule

d. Pension: i. Pension Process, ii. Bank Advice, iii. Top Sheet, iv. Salary Sheet

e. Customized Report Engine

3. Finance and Accounts: a. Budget, b. Income, c. Expenditure d. Cheque Register e. Cheque Reconciliation f. Standard Financial operations and reports

4. Case Management: a. Case Entry, b. Case Update, c. Case Approval by DG, d. Report Management

#### **4.2.7. Wing – Standards**

1. Simple (Standard) E-commerce solution with online payment.

2. Admin panel for product and division wise standard publication.

3. Approval Path: Desk Officer: Examiner/Sr. Examiner/AD (Upload) -> DD (Verify) ->

Publisher: 1 for all Division (Publish) -> available at Ecommerce.

4. Amendment option after publishing (Approval path same).

5. Archiving as Version.

6. Public Search Option without login.

7. Login for only Purchase.

8. Department/Division wise Circular Publication.

9. Customized Sales Report.

#### **4.2.8. Wing – Metrology**

##### **➤ Metrology License**

There are 5 types of users: Applicant, Director, DD, AD, Inspector/Examiner

1. Applicant will make the application with payments and necessary documents
2. The application will be sent to the director. Director will receive and can forward to DD/AD/Inspector.
3. The inspector will receive and review the application. If there is any shortfall in the application, the inspector will send the shortfall to the customer. Customer will rectify it and resend. And if there is no shortfall then inspector will set/reschedule inspection date. AD, DD, Director will approve the inspection date, and the customer will be notified about the date.
4. After receiving the approval, the customer will be notified about the inspection date.
5. Inspector will make the inspection and prepare inspection report. AD will verify the report.
6. DD will approve the report and send it to the director. If director approves, he will make payment request of license.
7. When a customer makes the payment, the applicant can access the license.



8. If director does not approve, the customer will get rejection letter.
9. If the director wants to do re-inspection, the process will take place again.

➤ **Metrology Registration**

There are 5 types of users: Applicant, Director, DD, AD, Inspector/Examiner

1. Applicant will make the application with payments and necessary documents.
2. Director will receive the application and can forward/assign to DD/AD/Inspector. Inspector will review the application and if there are any shortfalls it will be sent back to applicants to rectify and resend.
3. If there are no shortfalls, inspector will set/reschedule inspection date. AD/DD/Director will approve the inspection date, and the system will send notification to the applicant about the inspection date.
4. The inspector will make the inspection and prepare a report. AD will verify the report and DD will approve it. The Director will make the final decision. If the director gives approval, he will make a payment request which is the registration fee. When the customer makes the payment, the registration paper will be accessible.
5. If the director does not approve, Customer will get a rejection note.
6. The Director can also proceed to re-inspection if required. In that case, the process will take place again.

➤ **Tank Lorry Calibration**

There are 5 types of users- Applicant, Director, DD, AD, Inspector/Examiner

1. Applicant will make the application with payments and necessary documents.
2. Director will receive the application and can forward/assign to DD/AD/Inspector. Inspector will review the application and if there are any shortfalls it will be sent back to applicants to rectify and resend.
3. If there are no shortfalls, the inspector will set/reschedule calibration date. AD/DD/Director will approve the calibration date, and the system will send notification to the applicant about the calibration date.
4. Inspector will perform the calibration and prepare report.
5. AD/DD will verify the report and send it to the Director for approval. If the director approves, the applicant will access the license. If the director does not approve, the customer will get a rejection letter.
6. The Director can also proceed to re-inspection if required. In that case, the process will take place again.

➤ **Industrial and Scientific Metrology Calibration**

There are 6 types of users: Applicant, Director, DD, AD, Inspector/Examiner, OSS

1. Applicant will initially fill up the application form with necessary documents and initial questionnaires.
2. Director will receive the application and can forward it to DD/AD/Inspector.
3. AD will receive and review the application.
4. If there is any shortfall in the application, it will be sent to the customer to rectify the issue and resend it. And if there is no issue then AD will send payment request to the customer and when customer makes the payment the system will give them option to choose if onsite calibration is required.

5. If onsite calibration is not needed, then the customer will have to send the instrument. Customer will submit it to OSS and OSS will receive it and inspector will make the inspection and prepare inspection report.
6. If onsite calibration is needed, AD will set inspection date and the inspector who will perform the inspection. DD can approve the inspection date. After that, the inspector will perform the inspection and prepare the report. DD will approve the report and send to director for final approval. If DD approves, the customer will access license and instrument. If rejects, the customer will get a rejection note. Director can also send for re-inspection, and in this case, the process takes place again.

➤ **Storage Tank Calibration**

1. Applicant will make the applications with payment and necessary documents.
2. Director will receive the application and can forward to DD/AD/inspector.
3. Inspector will review the application and if there is any shortfall it will be sent to customer to rectify and resend.
4. After that inspector will set/reschedule calibration date. AD, DD and director will approve the calibration date, and the system will send notification to the applicant about the inspection date.
5. The inspector will make the inspection/calibration and prepare calibration report.
6. AD/DD will verify calibration report and additional fee and send to director for approval.
7. If the director approves, he will check if an additional fee is needed. If yes, then the customer must pay the fee and then can access the license. And if the additional fee is not required then applicant can just access the license.
8. If rejects, the customer will get a rejection note. Director can also send for re-calibration, and in this case, the process takes place again.

➤ **Import Registration**

1. Applicant will make the applications with payment and necessary documents.
2. Director will receive the application and can forward to DD/AD.
3. AD will review the application and if there is any shortfall it will be sent to customer to rectify and resend.
4. After that inspector will set/reschedule the inspection date. AD/DD/Director will approve the inspection date, and the system will give notification to customer. After that the inspector will make the inspection and prepare the inspection report.
5. AD can also prepare/verify inspection report and DD will approve it and send it to director for final approval.
6. If the director finally approves, he will send payment request of registration fee to the customer. After making the payment customer will access the certificate.
7. If it rejects, the customer will get a reject note. Director can also send for re-inspection, and in this case, the process takes place again.

➤ **Polymerase Chain Reaction (PCR) Lab Test Registration**

1. Applicants will make the application with an application fee and documents. Director will receive the application and send to DD/AD/Inspector.
2. Inspector will review the application and if there is any shortfall it will be sent to customer to rectify and resend.



3. After that inspector will make a payment request to the customer and when the customer makes the payment.
4. set/reschedule the inspection date. AD/DD/Director will approve the inspection date, and the system will give notification to customer. After that the inspector will make the inspection and prepare the inspection report.
5. AD/DD will verify the inspection report and send it to the director for approval. If director gives approval, He will make a payment request of registration fee. When the customer makes the payment, the registration will be completed.
6. If the Director does not give approval, the customer will get a rejection letter.
7. Director can also send for re-inspection, and in this case, the process takes place again.

➤ **Notes for all services:**

1. Every license/certificate will have the option of suspension and cancellation.
2. Product management of CM and Metrology will be different.
3. Payment options- online/offline.
4. OTP verification for user registration.
5. All services will have amendment option .
6. QR code base Online (real-time) verification option.
7. Customized dashboard and report engine for all services and users.
8. Save as draft, Submit, Preview, Print option for all users.
9. Send notification with attachment (audit report) to customers after completion of audit.

#### **4.3. Design System Architecture**

- i. The bidder must design an appropriate system architecture and submit the inception report within 45 days of the signing of the contract.

#### **4.4. Setup of Main Server, Local Server (s), PC (s), LAN, WAN and Printer (s)**

- i. The bidder must set up or configure the above devices and accessories as per requirement analysis.

### **5. Technical Features and Requirements**

#### **5.1. Client / Server Model, Database and Programming Language**

The systems will be designed and developed as web-based Client/Server technology model which will be operated from multiple locations all over Bangladesh. Through this model, the client computer is identified separately from the server computer. The client computer makes the request, and the server computer accepts this request, processes the request and initiates a response.

To store organizational data there needs to be used relational database management systems (RDBMS). The database software will manage this data efficiently and provides features to maintain the integrity of the data. The databases may be MySQL/SQL/Oracle/any suitable database engine and scripting language may be Python (reputed python's framework)/ PHP (reputed PHP's framework) and/or Java based or any suitable language; programming or coding approach may be either object oriented or procedural, whereas it is expected that the bidder will suggest the appropriate technology of the systems.

#### **5.2. Security and Privacy Requirements (Functional)**

The authentication and authorization of the system need to be robust enough ensure highest level of security. The system prevents all standard web and database vulnerabilities and provides industry

standard security measurements. With a very strong Enterprise system's regular security audit and careful implementation of various measurement, the following must be taken to prevent any kind of security breach:

#### 5.2.1. Application Security

- a) The system should be completely secure and foolproof with incorporation of industry standard proven data encryption techniques and methodologies. Those encryption techniques should be audited by third party in timely manner to detect loopholes and updated with the latest patches, in order to ensure that the mechanisms are fitted with the latest security features.
- b) User sessions and cookies should be uniquely re-generated and stored securely each time they log in.
- c) URL restriction should be tight. The system should recognize a logged-in user with proper rights and only present the part of the system that falls within his/her authorization scope. Furthermore, trying to access a URL by guessing should also be prohibited.
- d) The URLs for internal users should be relatively unique and separate from the well-known portal URLs. The communication between the user's device and interfaces should be SSL encrypted to prevent data hijacking through network protocols.
- e) Configuration and other sensitive system-level artifacts should be securely stored.

#### 5.2.2. User Interface Security

- a) Facility can be provided to lock a user and unlock as and when required.
- b) No invalidated data should be accepted in any web forms – all incoming data should be validated, checked and purified before processing.
- c) In case of any system failure or error condition, no sensitive information (e.g. database credential) should be displayed on the site. All kinds of errors should be suppressed, logged, gracefully handled and should only be accessible by the administrators with proper rights.
- d) SQL/XML/Code injection, Session hijacking/fixation, Output Escaping, Cross-Site Request Forgery, Cross-Site Scripting, Enforced Same Origin Policy, Parameter Tampering, Directory Traversal, Denial of Service etc. should be prevented, logged, and reported.

#### 5.2.3. Data Security

- a) No personally identifiable information may be exposed within and outside the system without proper authorization as privacy of the user data must be dealt with utmost priority.
- b) Any attempt to breach the security will be recorded with all the relevant data.
- c) If the system is accessed in the time not defined by the Administrator, all options will be locked, and the user will not be able to use the system.
- d) Reports can be retrieved for all audit logs.

#### 5.2.4. Login Security

The developer must address the following security issues of the web application and mobile app carefully but not limited to:

- a) Access to the system in any role must be complex password protected. The login authentication process shall be greater than or equal to two layers such as 1. Password-based authentication 2. Multi-factor authentication (OTP, Captcha test, fingerprints etc.) 3. Certificate based authentication etc.
- b) The system should automatically perform log out if any workstation remains idle for a specific period (e.g. 30 minutes or so).

### 5.3. Application Requirement

- a) Applications which are web-based solution, must be hosted in a centralized Web-server or cloud of BCC. BSTI may configure additional server for further backup of the system.
- b) The scripting language of the systems should be Python/PHP/Java and database will be MySQL/SQL/Oracle/Any renowned suitable or compatible database engine; where it is expected that the bidder will propose the appropriate technology.
- c) The application should be developed following Service Oriented Architecture (SOA).
- d) Application may support MVC/MVT framework.
- e) The web-based application should support cross browser platforms (popular web-browsers such Mozilla Firefox, Chrome, Internet Explorer, etc.).
- f) Should have ability to seamless integration with future module / components / applications.
- g) Application should be lightweight and rich client-side scripting.
- h) UI should be developed based on the analysis of UX.
- i) Interface language will be Bangla or English or Both.
- j) Any web interface of this application should be fully responsive. The software will support low network bandwidth, scalability, robustness and load balancing properties.
- k) It essential to follow the Bangladesh National Digital Architecture (BNDA) Coding Standards and Secure Coding Guideline (Standards ID: ARM.COS.001, ARM.COS.002 and SEC.STD.005).
- l) It is essential to follow the Bangladesh National Digital Architecture (BNDA) Application Development Technologies for Mobile Devices (Standards ID: MPS.HYB.001) if Mobile Apps intended to develop.

#### 5.4. Interoperability and Data Exchange

The selected bidder must develop this system following all the standards and protocols of interoperability, integration and data exchange with other systems. It is expected that the system will be based on open architecture and will be fully interoperable with the current and future systems.

The following are the key expectations on interoperability requirements:

- a) The system should be designed for interoperability using industry standard protocols.
- b) System must expose data by Advanced Message Queuing Protocol and REST via TLS.
- c) All imported data must undergo data validation to ensure full integrity.
- d) Data exchange within the system at different levels via the internet shall be encrypted.
- e) The system should have functionality to exchange data with other own systems or external institute systems.
- f) The system shall have functionality to export/import files based on the standard template defined through web services and/or API.

#### 5.5. System Audit Feature

This system will maintain an audit trail of any changes or updates made in any information that are considered as vital and should maintain the audit log with information such as-

- a) Log the users who are accessing the system.
- b) Log the parts of the application that are being accessed.
- c) Log the fields that are being modified.
- d) Log the results of these modifications.
- e) Log attempted breaches of access.
- f) Log attempted breaches of modification rights.
- g) Any missing feature will be added during SRS.

#### 5.6. Testing

The IT firm will test and submit the report under Software Quality Testing and Certification (SQTC)

BASIS ICT Division's testing center. Develop Quality (QA) mechanisms to audit all software testing activities and processes within (SQTC) under BASIS. The IT Firm should submit a testing plan which may include standard test approaches. Some are mentioned below as examples for reference.

- Installation Testing.
- Software Performance Testing.
- Usability Testing.
- System Testing.
- Functional testing.
- Security testing.
- Load testing.
- Integration testing.

## **6. Maintenance and Support**

The IT Firm shall provide post-implementation technical and maintenance support to BSTI for one year after the successful launch of the application. During this period, the IT Firm will troubleshoot problems as required to ensure the smooth operation of the application.

The IT Firm will provide assistance to BSTI through telephone or email by a qualified representative between 7:00 a.m. and 12:00 a.m. (Bangladesh time) to attempt to correct or bypass defects or errors in the application that have been brought to the attention of the Firm. The IT Firm will commence work on the critical fixes within 2 hours of notification by the Team and provide an immediate response to critical problems. It is expected that the IT Firm will use a ticketing system that will be used by the agencies and BTF Team to report an issue. At the end of every month, the IT Firm will provide BSTI a report on the total raised tickets, the criticality, and the mean time to solve it.

The IT Firm shall develop and submit a Service Level Agreement (SLA) of the support service mentioning the process of reporting issues, the contact details of the focal points, the process of defining the severity level of an issue, the process of communication with the Team and tracking of the issue, the mean time to response and the mean time to recovery, the types and scope of the support and the exclusions. The SLA must be accepted and signed by the BTF project.

At the end of the maintenance period, the IT Firm is expected to hand over all updated source code, technical reference manual, backup of the database, and all types of credentials to BSTI.

An IT Specialist from BTF will closely supervise the handover and the IT Firm shall be obliged to hand over to BSTI and BTF any documents, reports, or any technical resources developed under this contract.