



Terms of References

for

Development and Implementation of Integrated Digital Business Solution Platform (eKsheba Uddokta)

A. Project Title: Aspire to Innovate (a2i)

B. Project Description

Aspire to Innovate (a2i), a whole-of-government programme of ICT Division, supported by Cabinet Division and UNDP, that catalyses citizen-friendly public service innovations, simplifying government and bringing it closer to people. It supports the government to be at the forefront of integrating new, whole-of-society approaches to achieve the society. The objective of the project is to increase transparency, improve governance, and reduce the time, difficulty, and costs of obtaining government services for under-served communities of Bangladesh. This is to be achieved by the following major 3 components of the project:

Component 1: Institutionalizing Public Service Innovation and Improving Accountability

Component 2: Catalyzing Digital Financial Services and Fintech Innovations

Component 3: Incubating Private Sector-enabled Public Service Innovation

C. Scope of Services, Expected Outputs, and Target Completion

1. Background of the work:

A2i has established 9,000+ Digital Centers (DC) - including ones in all union councils, Municipality and City Corporation. They were established to ensure that the underserved, particularly poor rural women, people with disabilities, and the elderly – regardless of their literacy and ICT literacy - can access vital information and services. A typical UDC is about 4 km from the average rural citizen's home whereas the closest sub-district government office or bank branch is on average 20 km away.

A unique, distinguishing feature of the Digital Centers is that they are essentially micro-enterprises run by 'citizen entrepreneurs' – 1 male and 1 female in tandem with elected local government representatives. This allows Digital Centers to combine the mandate and infrastructure of the public sector with the entrepreneurial zeal and efficiency of the private sector. They are hosted in local government institutions while everyday expenses – like utility charges, internet bills, computer maintenance costs, etc. – are borne by the entrepreneurs who generate revenues by selling certain public and private services. They leverage modern technology to provide citizens both free and fee-based access to public services (Banking Service, land records, birth registration, telemedicine, life insurance, passport, and overseas job application as well as application to various other government services) and private services (mobile financial services, insurance, various types of computers and vocational training, etc.).

a2i developed **ekSheba uddokta** (<http://uddokta.eksheba.gov.bd>) platform to create a single-entry point for these micro entrepreneurs to access different types of digital services and information to provide services to the citizens. Digital Center entrepreneurs upload their daily transactions and activity into the platform which helps a2i, upazilla & district administration to monitor the country-wide performance and activity of Digital Center.

2. Objective of the assignment:

The primary objective of this assignment is to:

- a. Redesign and revamp the eKsheba Uddokta Platform from a monitoring tool to as an integrated digital business solutions for the micro entrepreneurs of digital center.
- b. Create an one-stop solution for all CMSME's specially cottage & micro enterprise to provide them all types of financial service related information, service link and provide digital tools for their final and access to different financial service.

This will also ensure a significant contribution to the whole economy and enlighten the vision of Smart Bangladesh. This initiative will help a2i for an integrated digital intervention for the small and medium level entrepreneurs in rural and urban areas who face tremendous challenges to **manage** their business and access appropriate financial services in a cost-effective, easier and hassle-free way.

3. Overview of Existing Systems:

The selected Firm will need to review the existing **eKsheba Uddokta Platform** and conduct an extensive requirement analysis for finalizing the up gradation and enhancement scope in collaboration with a2i and other relevant stakeholders.

Features, Scopes, or Services in Existing eKsheba Uddokta Platform:

- User and role Management
- Entrepreneur Registration
- Entrepreneur Management
- Report upload module
- Notification Centre
- Reporting Module
- Dashboard in various role
- Web Portal for Entrepreneur
- Integrated Service Management Module (Basic)

Technology of the existing Platform:

- PHP 7+
- CakePHP 3
- MySQL with personal custer DB enabled
- App server with load balancing server
- proxy server
- XML Perser for report engine
- JavaScript
- CSS 3
- HTML 5

4. Scope of Work:

Overall Scope of Work is divided into the following sub-section.

4.1 New features and Functional Requirements

4.1.1 Entrepreneur Registration and Onboarding:

- Online application, selection, and approval system for newly recruited entrepreneurs. The exam part will be managed by Muktopaath and the result should be linked with the eKsheba Uddokta platform through API.
- The admin should have the facility to block or withdrawal the approval of any entrepreneur.
- The entrepreneurs will get full access to the platform after final approval.

4.1.2 Unique Identity and verification System:

- The platform must have a secured Entrepreneur Identity verification and authentication mechanism.
- All existing Entrepreneur will be verified using their NID number from NID database and new entrepreneur will be verified similarly during registration
- Create provision to add/upload Entrepreneur Qualification and Experience in the profile section, along with document attachment facility.
- A Digital ID Card will be generated through the Identity and Profile Management System using QR Code.
- The ID card should be verifiable using the QR Code Scanner.

4.1.3 Digital Center Location Map

- Integrate with google map to locate the digital center all around the country.
- There will be an interface/options in the system where entrepreneurs can upload his/her center location in google map.

4.1.4 Agent Management:

- Using this module, the authorized user will be able to manage agents and sub-agents as multiple levels. One single Entrepreneur will be able to operate and manage multiple outlets also known as branch/sub-centers and franchises.
- All the transactions will be tracked at the individual center/sub-center/franchise/entrepreneur level.
- Entrepreneurs will be able to view complete activity reporting of the sub-centers and franchises such as sub-centers and franchises wise service sales report, product sales report, all kind of expense report, commission report etc.
- Sub centers and franchise requests will be approved by the authorized or authorized user.
- A comprehensive user role management system needs to be developed to accommodate the Sub Centers and franchise users.

4.1.5 Reward Points management system:

- Reward points will be awarded based on different types of service activity.
- There should be a user-friendly process to redeem Reward points in exchange for various services and products availed from the platform.

- Based on Reward Points, Entrepreneur will get different badges such as Silver badge, Gold badge, and Platinum badge.
- Entrepreneurs should be able to view detailed reports of Reward points earned and redeemed.
- The entrepreneur should be able to avail different product and services in exchange for reward points in the platform or other platform.
- Admin should be able to set reward points for different services and activities.
- Admin will be able to generate various Reward Point reports segregated by Entrepreneur, Zila, City Corporation, Upazila, Ward, and Union etc.

4.1.6 Digital Center based product profiling to promote rural commerce

- There will be an option for each entrepreneur to upload local products (multiple) to the platform to do e-commerce with other entrepreneurs. There will be a separate part in the entrepreneur's profile section of this product.
- There will be an option for each entrepreneur to make his/her products available in ekShop e-commerce platform for selling the products across the country.
- Entrepreneurs will be able to see products, new arrival in the EKsheba Uddokta Platform Dashboard.
- Entrepreneurs should be able to add new products, edit existing products and remove/delete products.
- Entrepreneurs, agents will act proactively to prepare business arrangements based on the received notification and system forecasting

4.1.7 Call center/helpline based Service

- The EKsheba Platform will be integrated with the National Help Line (333) or any other helpline to provide services to citizens.
- 333/helpline agent will initially receive the call and take details of the services that the citizen is looking for and input it into the system
- Nearest Entrepreneur will receive the service request in the EKsheba Uddokta Platform Dashboard.
- The entrepreneur will ensure the service to the citizen and update the information in the EKsheba Uddokta Platform
- National Help Line (333) agent will be able to see the status and provide update to the citizen if needed.

4.1.8 e-Communication

- **System Notification Management (Inbox):** The proposed system will have dynamic notification management through which all the system notifications will be prompt to the system user. There will be a notification inbox, which will manage all system notifications. Notification inbox should be developed in a way that authorized system users may message each other through inbox.
- **Inbox:** This window will display the users Direct Message (or DM) Inbox: This function will also allow the user to compose a new message, delete current messages, and read existing messages in greater detail

- **Email:** The system will send an email notification to authorized system users and other stakeholders such as Service Provider, Service Recipient
- **Blog:** The e-Communication component will have a blog where UDC/CDC/PDC users can blog and subscribe to other blogs. Users following the blog would have the ability to comment on the blog.
In addition to the blog, we will have a commenting option, where users will be able to post and comment on discussion based on the pre-selected topics. The users must log in using their login credentials. The user posts will be screened by the admin before publishing.
- **E-Publication:** The system will have an E-Publication module to manage all the newsletter templet and sending them to the Entrepreneur. This will be completely dynamic newsletter management through which the admin user will select the template and update it before sending it to the Entrepreneur.

4.1.9 Desktop Publishing (DTP) and Multimedia Content Creator:

DTP and Multimedia Content Creator will create and manage all the Multimedia content.

- There will be a Multimedia content developing tool through which the entrepreneur will be able to design Boucher, Flyers, Poster, visiting Card Etc.
- There will be a Multimedia content gallery segregated by category from which Entrepreneur will choose the template, redesign it and save the new one in the gallery.

4.1.10 Distribution/Sub-Distribution model

There will be a distribution/sub-dilution model in the platform. The platform should be able to integrate with different commercial and service delivery platform like e-ticketing, mobile top-up, e-commerce, hotel booking, NID verification & others as a master distributor. Then the system will be able to enable different digital center as sub-distributor. The system should be able to calculate sub-distributor wise calculation of total commission earnings and visible it to the sub-distributor/digital center profile and status of settlement.

4.1.11 IT Training registration and distribution management

There are many digital centers (RTO center) who provide IT training for the rural people under the certification of Bangladesh technical Education Board (BTEB). But it is not possible for other digital center due to some technical requirements from BTEB. This module will allow non-RTO center to register students and manage IT training under RTO center. This module will also include a dashboard to manage and report the IT training all around the country, manage & reconcile registration fees & commission among RTO, non-RTO and center management authority.

4.1.12 Accounting & reconciliation

There should have a complete financial accounting solution to manage all

kind of financial transaction specially the transaction between a2i and digital center entrepreneurs. There must be a double entry accounting provision to track the entire transaction flow from different service head. It will help a2i/nominated and digital center entrepreneurs to monitor and report a complete financial picture including inflows (total transaction under different service, total commission for different entrepreneurs for different service, total settlement with different entrepreneurs and reconciliation). This part should have role based accessibility, reports, dash board for different stake holders like a2i & Digital Center. This module should also consider the following feature:

- Connect with Banking API
- Create Periodical Usage/ Transactional Record.
- Real Time Dashboard by crosschecking System data & bank provided Data
- Manual System (Financial Management)
- Create a periodical statement (day, weekly or monthly)
- Agent statement (commission)
- Own statement (a2i/nominated representatives commission)

4.1.15 Monitoring Dashboard:

Real-time data-driven monitoring is extremely important for this service-driven platform to improve service quality and administer the overall operation, activities and resources efficiently to ensure quality and timely service delivery to the target beneficiaries. The dashboard will have the following features-

- i) Real-time category wise, sector wise financial transaction statistics.
- ii) Category wise Entrepreneur's income and expenses analysis with statistics.
- iii) Agent, sub-agent, sub-center and franchises' service activity summary
- iv) Entrepreneur's performance analysis.
- v) Agent based sales, expense, commission analysis
- vi) Sales trend analysis.
- vii) External and integrated service analysis
- viii) Geo-location wise entrepreneurs and agent statistics.
- ix) Advanced charts for the statistics and analysis.
- x) All the statistics and summery must have details information link to drill down and analyze the information at granular level.

4.2 Non-Functional requirements

4.2.1 Web Application Requirements

- The application should support the MVC framework.
- Considering the operating/client environment at different levels of this application, it should be upgraded in such a way that it requires low bandwidth to run.

- The web-based application should support cross-browser platforms (popular web-browsers such Mozilla Firefox, Opera, Chrome, Internet Explorer, Safari, etc.)
- The application should have the ability to seamless integration with future modules/components /applications
- UI should be re-designed based on the analysis of UX.
- Any web interface of this application should be fully responsive.

4.2.2 Mobile Application Requirements

- The existing mobile application version of eKsheba uddokta should be re-designed for Android.
- The Firm need to develop iOS mobile application for the system.
- There will be a separate mobile android app for the digital business manager module.
- The mobile app should have the capability of displaying system notifications
- There should be an option for auto-synchronization of the central database with the app's local database on the availability of Internet connectivity.

4.2.3 Integration Requirements

The Firm can follow standard integration mechanisms such as exposing standard restful APIs for the service process in different components so that any component or service can exchange data and related resources whenever it is required by satisfying the Govt. Agency's business purposes. The application should be able to exchange data with other digital systems within the particular Govt. agency as well as with inter-agency solutions. So, the Firm should analyze and ensure necessary modification of the existing API manager following international standards so that the data sharing can happen efficiently and standard securities will be maintained smoothly. Also the Firm need to ensure API integration with 30 different system (including a2i's own system) within the contract period.

- An online repository needs to be developed for all the common components/modules/features. The repository will manage all the reusable assets and should include integration prerequisite, integration compliance, integration guideline, integration standards, and integration specification segregated by an asset.
- The system should have the ability to build and publish APIs/Services to a selected set of gateways in a multi-gateway environment
- The system should support enforcement of government and system policies for actions like API/Service subscriptions, application creation, etc., via customizable workflows
- Manage API/Service visibility and restrict access to specific agencies or systems
- Manage API/Service lifecycle
- Ensure API/Service security by restricting API access tokens to domain/IPs, validating APIs payload contents against a schema, applying security policies to APIs authentication and authorization, and provide threat protection, bot detection, and token-fraud detection
- The system should generate JSON web tokens for consumption by back-end servers

- The system should provide a developer portal to search APIs by the provider, to provide the API keys, subscribe API, notification for a new version of subscribed APIs, and view of the API consumer analytics.
- The system should have proper capabilities to manage and scale API traffic and enforces rate limiting and dynamic throttling based on usage quotas and bandwidth quotas.
- The system should be horizontally scalable with easy deployment into the cluster using proven routing infrastructure
- The system should have high-performance pass-through message routing with minimal latency
- The system should provide a pluggable analytics framework for API usage, like, requests, responses, faults, throttling, subscriptions etc.
- The system should track consumer analytics per API, per API version, per tiers and consumers
- The system should have configuration payment schemes to monetize API usage
- The system should monitor SLA compliance for the API
- The system should have provision to do the proper/required integration with SSO System
- The system should have a live API monitoring dashboard

4.2.4 Act as an assisted model for Whole of Government (WoG) approach

As eksheba uddokta platform is one of the main pillar of whole of government approach in the citizen access perspective, it is acted like an assisted model for citizen specially who are not literate enough for accessing digital services by themselves. The selected firm will be responsible to integrate, customize and enhance ekSheba Uddokta platform to incorporate any kind of requirements from the whole of government platform (ie. myGov or other e-service platform. etc.) for assisted model perspective.

4.2.5 Information Security Audit

The selected Firm needs to assist with Information Security Audit depending on technology changes or on-demand issues from a2i. They will provide necessary documents and technical knowledge during the audit period.

4.2.6 UI/UX Requirements

The Firm must propose a "UI/UX Plan" to update the existing portal and for the newly developed modules containing UI designing method and tools, UI design Activity plan, prototype or Mock Up design for both web & mobile, expected result & their finalizing process of that UI/UX design. Apart from this, the Firm should consider the following issues as a requirement at the time of the UI/UX plan.

- The system interfaces should be highly user-friendly, easy to navigate, and ensure fast loading.
- The UI shall be designed by using a well-established, supported, and lightweight UI framework so that it follows widely used industry flow patterns

- UI shall be easily configurable if any changes are needed
- Menu, content, and navigation shall be based on the user entitlements, roles, and permissions.
- The Firm is requested to include five important features considering the service recipient five UI for each platform i.e. mobile, web.

4.2.7 Language Support

The application should support multilingual options i.e. Bangla and English for both the Web version and Mobile Apps. All the user interfaces should be able to display, and input controls can take input both in Bangla and English. System/App users can choose and set their preferred language in the profile setting for the system interfaces. The system should support Unicode for the Bangla Language.

4.2.8 Training & Knowledge Transfer

The firm will have to deploy technical resource persons/trainer to organize and facilitate 2 batch master trainer training for implementation of the platform. Beside that the firm may support on-demand training for the end user of the platform. They will also responsible to develop technical and operational manuals to operate and manage the platform. The firm will provide resource person, training material, venue and other relevant cost to organize and facilitate the ToT training.

4.2.9 Report redesign

The existing report management module needs to be redesigned according to the requirements of a2i. The different level system user should view current, periodical, time-based, location-based status, details/summary information which allow the person to take decisions for intervention. There will be an advance report generator in the system which will allow admin user to create a report format with necessary report criteria and conditions.

4.2.10 Maintenance & support service

The following listed maintenance and support services will continue same as last phase:

Area	Activities to be Performed
Project Management	
	<ul style="list-style-type: none"> • Manage and monitor the over-all technological operation of eKsheba Uddokta. • Develop and maintain documentation and execute plans, and procedures for conducting activities and tasks of the Operations and Maintenance Phase. • Planning and controlling change according to a2i. • Manage relationships with a2i and translate all requirements to the technical team. • Monitor the business development activity of the platform.
Account Settlement	

	<ul style="list-style-type: none"> • Prepare and examine the financial records. • Develop revenue recognition strategies to maximize revenue. • Review and recommend improvements to the existing settlement process. • Identify and resolve account settlement-related issues promptly. • Research and troubleshoot accounting issues. • Prepare financial statements in a timely manner. • Review and reconcile accounts. • Assist in audit activities.
Dispute Management	
	<ul style="list-style-type: none"> • Analyze dispute cases and coordinate accordingly. • Simultaneously handling diverse and pressing engagements in sensitive and adversarial situations • Fraud prevention including fraud risk assessments and compliance program development
Partnership Management	
	<ul style="list-style-type: none"> • Coordinate with different business organization to integrate and implement different business idea through eKsheba. • Communicate with all the partners and be over the top about the current business flow as well as the change in the business flow of those partners. • Assist technical team for integration.
Maintenance	
	<p>The selected Consulting firm will provide maintenance support for the existing system from the date of contract signing the contract. After the redesign and development work, the support will continue till the end of the contract.</p> <p>Application</p> <ul style="list-style-type: none"> • Tweaking and fixing of bugs • Develop and deploy change request • Ensure functionality and responsiveness of system • Monitor functional performance and recommend solution • Ensure stable functioning, scalability, high performance and security • Restructure of software program as per requirement/instruction of client • Test module functionality on regular basis • Monitor and analyze user experience • Closely observe internal and external risk factors • Transform and implement change requests <p>Server</p>

	<ul style="list-style-type: none"> • Regular health check-up of core application, database and infrastructure. • Load balance and stress testing • Data volume and capacity monitoring • Upcoming data forecasting and performance measuring • Check server log files on regular basis • Monitor and assess storage status and capacity • Regularly monitor and examine security features • Take prompt and urgent actions on security threat • Install necessary security software patches • Check application updates and measure modified performance • Monitor and verify back ups • Ensure backups are working properly • Check remote management tools and hardware errors
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5. Platform Security Requirements:

The Consulting firm should follow any of the industry-standard secure development methodology such as Comprehensive Lightweight Application Security Process (CLASP) by OWASP etc.

- The Consulting firm should consider common vulnerabilities such as SQL Injection, Broken Authentication, Sensitive Data Exposure, XML External Entities, Broken Access Control, Security Misconfiguration, Cross-Site Scripting, Insecure Deserialization, Using Components with Known Vulnerabilities, Insufficient Logging and Monitoring and others.
- The Consulting firm will undertake responsibility for Input Validation Controls, Authorization/Authentication Control, and other security controls in both test and production environment of application.

6. Version control and source code repository:

- Consulting firm must ensure that all source codes are maintained through market leading source repository solutions (Ex: Bit Bucket, GitHUB, GitLAB etc).
- The source repository must be regularly used for controlling file and history changes.
- Solution must be upgraded to a new version by fixing bugs, optimizing algorithms and adding extra functions.
- Production instances should get updates directly from the repository instead of regular file upload.
- Source code should be fully access by a2i focal person. Firm will hand over the source code and DB Schema after completion of the contract.

7. Deployment requirements

- The Consulting firm will need to identify the expected system user for next 5 to 10 years along with concurrent user sessions and suggest a2i regarding infrastructure retirement.
- Configure necessary development, Staging server, Testing environment & Production server.
- Continues server monitoring sizing and tuning.
- Maintain system uptime as per standard SLA.
- Keep planning a backup schedule for DB content and ensure its repository at client-specified Data Center.
- Security: Protection & security of content, hosting environment, servers, network elements, access & network must be ensured.
- Ensure usage of data bandwidth capacity, assessment of data load.
- Mirror hosting: To be introduced as a full proof measure and can be done in collaboration with a2i nominated agency.
- Ensure Instant Modular expandability option of cloud computing resources using cloud resource control & configuration panel.
- Ensure necessary configuration and management of IP addresses & bandwidth arrangement as collaborated derived requirements with a2i to accommodate scalability, user growth & integration to other systems.
- Ensure System software back-up at DR site as advised by a2i
- Monitor system performance, guide the system users, counterpart experts on time to address maximum uptime and user satisfaction.
- Provide Version Control Solution, User Feedback Recording System, Incident Management Mechanism, CMS & DB tuning services for the aforesaid systems.
- Comply, configure and deploy best-analyzed deployment architecture as decided by both the parties and as suggested by the Consulting Firm.

8. Platform quality assurance and testing requirements:

The Consulting firm must propose a testing plan starting from development to deployment. This testing plan should cover all the standard suitable testing approaches, which may include phase-wise testing activities like test scripting, test cases, testing tools, testing process, test log, result and report formats i.e. expected test deliverables based on the application development requirements. The Consulting firm should submit the testing plan, which may include standard test approaches.

9. Technology Specification

- Open-source PHP language at back-end or server-side scripting layer will be used as the existing platform is developed using PHP and MySQL.
- The platform and solution development should comply with Native Web App.
- API-centric enterprise-level design using JSON or other data delivery format.
- Micro service architecture following micro-service design approach.
- Secure interaction with Core-service and shared service using a dynamic token
- API lifecycle, policy and community governance using proper analytics

- Multi-tenancy support in the platform
- SAML2 bearer grant type, JWT assertion grant type, and NTLM-IWA grant type
- Messaging protocol support e.g. AMQP 1.0, STOMP, MQTT, HTTP
- OAuth2 token revocation support
- OAuth token introspection
- OpenID connect based session management, discover and dynamic client registration
- Federated SSO Open source IDP platform (WSO2, Keycloak etc.) via SAML2 or OpenID with external identity providers
- White label login and registration process
- Role-based authorization support for SSO
- Support for multi-option/multi-step authentication
 - X.509 Authentication
 - 2-factor authentication (2-FA) (hardware-based or soft OTP)
 - Time-based one-time password (TOTP) based authentication
- Enterprise Linux to host all application
- Bootstrap, jQuery, and Ajax for best UX
- Open-source RDBMS ie. mySql
- Redis, Memcache, CDN, or Varnish for caching and faster data delivery
- Must ensure load balancing for scalability and failover for high availability of service endpoints
- Code Version Controlling using GIT or Bitbucket in private mode
- GIT issue board or Jira or Asana for issue tracking and feature change management
- Technology and all related design/data should be open to a2i
- Future technology change, iterative prototyping, and agility in framework design are the generic expectation

10. Duration of the Work

Total Duration of the assignment is Twenty-four (20) Months. The maintenance support service for the existing platform will be start from the date of the signing the contract. The development and enhancement work will be completed within Twenty-four (24) Months. from the date of the signing the contract.

11. Deliverables:

SL	Completed Products Under Each Area and Activity	Delivery Timeline
1.	An inception report including in-depth requirement analysis of the technical development and design	30th days after signing the contract
2.	Submission of Software Requirement Specification (SRS) & Software Development Document (SDD)	90 days after signing the contract
3.	UAT	At the end of 10 months after signing the contract

4.	Debugging & Final Deployment of the System	At the end of 12 months after signing the contract
4.	Final release of the Android and iOS application	At the end of 14 months after signing the contract
7.	Maintenance support for the old platform months	12 months from the signing of the contract
8	Maintenance support for the new platform	8 months after deployment of new platform
9.	Handover the system with a user manual and source code	At the end of 20 months after signing the contract

12. EXIT PROCESS:

During the contracted period, there will be a technical team at procuring entity side who will be engaged to gather knowledge on both the technology and operation of the platform. Once contract is expired and platform is delivered, that team will undertake the platform. a2i will work on that to take over the responsibility with the implementing entity of the system. a2i, on behalf of Govt. of Bangladesh will handle this technology after expiree of the contract.

13. Supervision and Performance Evaluation:

The Consulting firm will be working closely with the Digital Access team of Aspire to Innovate Project. The Team Leader and assigned person from Digital Access team will be responsible to review and approve the performance/activities.

14. Location of Work: *Bangladesh.*

15. Minimum Eligibility Criteria and Team Composition:

a. Minimum eligibility criteria for the firm

- Minimum 5 years' experience in ICT business in Bangladesh as a registered entity.
- At least 5 experience in design, development, and implementation experience of web-based applications and mobile apps in the public/Private sector/International Organization. (Please submit Work Completion Certificate along with contract agreement/ URL)
- At least 1 (one) running similar contract with the government or any international/UN agency. (Please Provide Work Completion Certificate Along with Contract Agreement/URL)
- Minimum average annual Turnover BDT 2.5 cr. for last 3 years (FY: 2022-2023, 2020-2021, 2019-2020).

- The firm must have proof of minimum BDT 1 cr. average working capital in reflected in the last 2 years audited financial statements (FY: 2021-2022, 2020-2021) (If applicable).
- Must submit Certificate of Incorporation (If applicable) or initial trade license, up-to-date valid Trade License, TIN, Tax Clearance Certificate, and VAT Registration Certificate.

b. Team composition and criteria of the team members

Sl.	Key Position	No.	Responsibilities	Required Minimum Qualification
1	Project Manager	01	<ul style="list-style-type: none"> • Overall management of the project activities • Ensure on time delivery of the project activities • Act as a focal point for all sorts of client communication for the project. • Communication with the clients (PMU) and other stakeholders if required. • Managing own Team and providing work plans and progress reports regularly. 	(i) Minimum Bachelors in CS/CSE/EEE or any relevant discipline from any reputed university. (ii) 10 years of professional experience in IT Industry. (iii) Minimum 3 years' experience in government project management.
2	Deputy Project Manager	01	<ul style="list-style-type: none"> • Support project manager for overall management and coordination of the project activities • Assist for requirement collection, analysis and prepare SRS. • Communication with the clients (PMU) and other stakeholders if required. • Collaborate with Project Manager to manage the system. 	(i) Minimum Bachelors in CS/CSE/EEE or any relevant discipline from any reputed university. (ii) 5 years of professional experience in IT Industry. (iii) Minimum 1 years' experience in government project management.
3	System Analyst	01	<ul style="list-style-type: none"> • Requirement analysis, prepare SRS, Prepare system design, Infrastructure design. • Prepare Use case diagram. • Lead the development team and ensure the work is done as per design coding standard, data standard, api standard. • Monitoring DB design from DB expert, system as per designed 	(i) Minimum Bachelors in CS/CSE/EEE or any relevant discipline from any reputed university. (ii) Should have minimum 7 years of profound experience in the field of System analysis and design for ICT based application or Software Development project.
4	Business Analyst	01	<ul style="list-style-type: none"> • Analysis System rules and regulation to the business logic for development. • Analysis other business which are related to the system implementation. Prepare business process flow as human readable format. 	(i) Bachelor's in Computer Science and Engineering/ICT related Subject preferably having a degree from a reputed university. (ii) Should have minimum 8 years of profound experience in the field of business

Sl.	Key Position	No.	Responsibilities	Required Minimum Qualification
				requirement study and analysis for ICT based or software development.
5	Solution Architect	01	<ul style="list-style-type: none"> • Create product specifications and design documents. • Providing the development team with architectural blueprints to follow. • Collaborate with Enterprise Architect for develop system Architecture. 	<ul style="list-style-type: none"> • Minimum Bachelors in CS/CSE/EEE or any relevant discipline from any reputed university. • Minimum years of experience in software Architect and design with a total of 8 years of experience in ICT industry
6	Enterprise Architect	01	<ul style="list-style-type: none"> • Creating product specifications and design documents. • Define Statement of Work (SoW). • Define Architecture Standards • Guiding and assisting the development team throughout the process. 	<ul style="list-style-type: none"> • Minimum Bachelors in CS/CSE/EEE or any relevant discipline from any reputed university. • Minimum years of experience in software Architect and design with a total of 10 years of experience in ICT industry
7	Database Administrator	01	<ul style="list-style-type: none"> • Design, implementation and configure Database. • Preparing ER diagram and onwards. • Ensure data transfer as per security expert. Prepare script for data back-up while interconnection among other module. • Ensure quality data for the data- bank. 	<ul style="list-style-type: none"> (i) Minimum Bachelors in CS/CSE/EEE or any relevant discipline from any reputed university. (ii) 5 years of professional experience in IT Industry (iii) Minimum 3 years' experience as a database administrator.
8	Network Administrator	01	<ul style="list-style-type: none"> • Installing and maintaining operating environments. Monitoring these operating environments. • Responding effectively and speedily to any problems. Providing training and support. Ensuring operating environments stay safe and secure. • Updating any software and hardware where necessary. 	<ul style="list-style-type: none"> (i) Minimum Bachelors in CS/CSE/EEE or any relevant discipline from any reputed university. (ii) At least 5 years of working experience in the relevant field.
9	System Administrator	01	<ul style="list-style-type: none"> • Install and configure software and hardware. • Manage network servers and technology tools. • Set up accounts and workstations. • Monitor performance and maintain systems according to requirements. • Troubleshoot issues and outages. • Ensure security through access controls, backups and firewalls. 	<ul style="list-style-type: none"> • Minimum Bachelors in CS/CSE/EEE or any relevant discipline from any reputed university. • Minimum 7 years of experience in the field of IT solution development.
10	Senior Software Engineer	02	<ul style="list-style-type: none"> • Customization of application & coding as per statement of work (SOW), i.e., APIs' • Software installing, testing, debugging & running, etc. • Understanding the SRS and Plan to implement business logic maintain 	<ul style="list-style-type: none"> • Minimum Bachelors in CS/CSE/EEE or any relevant discipline from any reputed university. • At least 6 years working experience in the relevant field.

Sl.	Key Position	No.	Responsibilities	Required Minimum Qualification
			coding standard. <ul style="list-style-type: none"> Conduct pair-review, white box testing, deployment, bug review. 	
11	Software Engineer	04	<ul style="list-style-type: none"> Customization of application & coding as per statement of work (SOW), i.e., APIs' Software installing, testing, debugging & running, etc. Implement business logic and maintain coding standards. Perform unit testing, Bug fixing, and help SSE to deploy the system. 	<ul style="list-style-type: none"> Minimum Bachelors in CS/CSE/EEE or any relevant discipline from any reputed university. At least 3 years working experience in the relevant field.
12	Information Security Expert	01	<ul style="list-style-type: none"> Ensure data security with standard encryption technique. Secure the data flow among other services/application with appropriate technique. Ensure the Application level security into the designs. Implement/suggest the security policy for the application. 	<ul style="list-style-type: none"> (i) Minimum Bachelors in CS/CSE/EEE or any other relevant discipline from any reputed university. (ii) Minimum 8 years' experience in IT system security.
13	Lead App developer	01	<ul style="list-style-type: none"> Setting up IT systems covering the project's activities and ensuring their smooth operation Software installing, testing, debugging & running, etc. Lead the technical persons (SSE, SE), review the code, help to deploy the system when ready. Ensure that development has done maintaining standard design, development pattern. Help technically when the others are in trouble. 	<ul style="list-style-type: none"> Minimum Bachelors in CS/CSE/EEE or any relevant discipline from any reputed university. Minimum 8 years of experience in application development and design
14	Mobile Apps Developer (Android)	01	<ul style="list-style-type: none"> Produce fully functional mobile applications writing clean code Gather specific requirements and suggest solutions Write unit and UI tests to identify malfunction 	<ul style="list-style-type: none"> (i) Minimum Bachelors in CS/CSE/EEE/IT or any relevant discipline from any reputed university. (ii) Minimum 3 years of experience in Android application development.
15	QA Expert	01	<ul style="list-style-type: none"> Preparing test design, test cases, test methodology, System Testing, Regression testing, BAT testing, test report. Monitoring the implementation if there occurs any bug in system. 	<ul style="list-style-type: none"> (i) Minimum Bachelors in CS/CSE/EEE/ IT/ICE or any relevant discipline from any reputed university. (ii) Minimum 7 years of experience in the sector of software testing and quality assurance.
16	Graphics Designer	01	<ul style="list-style-type: none"> Study design briefs and determine requirements Develop illustrations, logos and other designs using software or by hand Use the appropriate colors and layouts for each graphic 	<ul style="list-style-type: none"> (i) Minimum Bachelors in CS/CSE/EEE/ IT/ICE/BA/BBA or any other discipline from any reputed university. (ii) Minimum 3 years of experience in graphic designing.

Sl.	Key Position	No.	Responsibilities	Required Minimum Qualification
17	Integration Engineer	01	<ul style="list-style-type: none"> Plans, designs and implements the integration process Integrating new hardware and complex systems 	(i) Minimum Bachelors in CS/CSE/EEE /IT/ICE or any relevant discipline from any reputed university. (ii) Minimum 5 years of experience in planning, implementation and integration process.
18	UI/UX Expert	02	<ul style="list-style-type: none"> Gathering and evaluating user requirements, in collaboration with product managers and engineers Illustrating design ideas using storyboards, process flows and sitemaps Prepare user interface aligned with SRS/business logic. 	(i) Minimum Bachelors in CS/CSE/EEE/ IT/ICE/BA/BBA or any other discipline from any reputed university. (ii) Minimum 3 years of experience in designing web application/ visualization or any other related field.
19	Technical Documentation Expert	02	<ul style="list-style-type: none"> Ensure entire technical documentation of the system Prepare varies types of manuals -User manual, training manual, API integration manuals 	<ul style="list-style-type: none"> Minimum Bachelors in CS/CSE/EEE or any relevant discipline from any reputed university. Should have minimum 5 years of profound experience in field of technical documentation with a total of 5 years industry experience.
20	Test Engineer	03	<ul style="list-style-type: none"> Preparing test design, test cases, test methodology, System Testing, Regression testing, BAT testing, test report. 	(i) Minimum Bachelors in CS/CSE/EEEIT/ICE or any relevant discipline from any reputed university. (ii) Minimum 4 years of experience in the sector of software testing and quality assurance.
21	Trainer	01	<ul style="list-style-type: none"> Prepare a plan to transfer knowledge through training Develop training manuals and other documents as per need. Arrange & facilitate ToT 	(i) Minimum Bachelor Degree in any subject from any University. (ii) Must have minimum 02 years of profound experience in the field of user training of web-based application or Software.
22	Support Engineer	01	<ul style="list-style-type: none"> Research, diagnose, troubleshoot and identify solutions to resolve customer issues Follow standard procedures for proper escalation of unresolved issues to the appropriate internal teams Provide prompt and accurate feedback to customers 	(i) Minimum Bachelors CS / ICT/CSE or any other relevant disciplines from any University. (ii) Must have minimum 03 years of profound experience in the field of software

Payment Schedule:

SL	Deliverables	Delivery Timeline	% to be paid
1.	An inception report including in-depth requirement analysis of the technical development and design	30 th day after signing the contract	5%
2.	Submission of Software Requirement Specification (SRS) & Software Development Document (SDD)	3 rd months after signing the contract	10%
3.	UAT	At the end of 10 months after signing the contract	25%
4.	Debugging & Final Deployment of the System	At the end of 12 months after signing the contract	25%
6.	Final release of the Android and iOS application	At the end of 14 months after signing the contract	10%
7.	Maintenance support for the old platform months	12 months from the signing of the contract	20%
8.	Maintenance support for the new platform	8 months after deployment of new platform	
9.	Handover the system with a user manual and source code	At the end of 20 months after signing the contract	
10	UAT	At the end of 10 months after signing the contract	5%