

**TERMS OF REFERENCE (TOR)**  
**For**  
**e-Stipend System Development and**  
**Post-Development Support**



**Prepared By**

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# **TOR e-STIPEND**

## **1. Background**

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A basic human right to get access to education for all. There is no alternative to education in human resources development. The Prime Minister's Education Assistance Trust (PMEAT) has been constituted under the Ministry of Education in accordance with the intention of the Honorable Prime Minister and guidance so that the poor and meritorious students of the country are not deprived of education opportunities or universal fundamental human rights due to financial abilities of the parents / guardians. Through this trust all the poor meritorious students of Bangladesh will receive stipend hence they get the opportunity of education and have a chance to develop their skills. This plays a role in socio-economic development of the country and ensures basic human rights.

Services of PMEAT are: to give educational assistance to poor and brilliant students, accidentally injured students and another is stipend program for degree level students. Following the current government's initiative PMEAT has taken the initiative to digitize its manual citizen services through the use of information technology. The existing manual services provided by PMEAT has very high TCV (Time-Cost-Visit).

The stipend program has the highest number of service recipients and numerous problems in the existing manual system. Beneficiaries of this service are students of degree or equivalent level of all colleges and madrasahs affiliated by National or Islamic University. This service is delivered manually by collecting data in hard copy from institutions and manual dispersion of funds through banks to the eligible students. The stipend is given once in a year among 240,000 students. There are 3200 service delivery offices involved in the entire service process such as PMEAT, USEO, and Educational Institutions.

### **Major problems and challenges with current service system:**

- Students are required to apply on paper and submit necessary documents with by physically visiting the institutes. This proves very time consuming thus results into not receiving stipend in a timely manner.
- In some cases because of the high TCV the eligible students completely miss the opportunity of receiving any financial help.
- Actual needy and poor students are unable to receive stipend due to the dependency on multiple overseeing agencies.
- Amount of money is not sufficient and disproportional to the cost of application process.
- Current process is dependent on students' provided mobile number which, most of the time, does not belong to the student thus making it very difficult to notify the students about the status of the application process.
- Sometimes the information provided by the chief of the institute that the student belong to is incorrect. No direct link to the student is available for verification.

- Students are unable to communicate with PMEAT and voice their complaints or concerns if any problem arises in the stipend process.

In view of the above listed issues and other not mentioned, PMEAT with the assistance of A2i has deliberated into the conclusion that the stipend program needs to be transformed into an e-Service. Thus reduce the TCV of the current service process and also eliminate other issues that exists in the current manual process.

## **2. Proposed e-Service (To-Be)**

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e-Service objectives and scope is as follows:

### **2.1 Objectives**

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Following are the project objectives for the different stakeholders involved in the service process:

#### ***2.1.1 Service Recipient***

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- Student's ability to provide all necessary information during admission in the educational institute through online. Thus eliminating the need for separate application for stipend.
- Eligibility verification of the applicant is automated thus ensuring that actual poor and needy student will receive stipend.
- Students' ability to get auto notification at different milestones of the service process and ultimately for collecting the stipend.
- Student ability to contact PMEAT and voice their complaints or concerns regarding stipend.

#### ***2.1.2 e-Service Operators (Service Provider)***

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- To deliver the service efficiently and accurately.
- To deliver the service as per the beneficiaries' requirement
- To deliver the service with minimum human resources
- Ability to generate necessary reports in one click
- Easy and efficient student list verification system for Institution chief.
- All required criteria can be checked easily by both institution chief and PMEAT.

#### ***2.1.3 e-Service Observer (Service Performance Monitoring Authorities)***

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- E-service performance monitoring authority can observe the activity through report generating system and dashboard.
- Top managements' ability to make timely decision based on dash board report thus giving them ability to take immediate action if required
- They can make comments on any issues

## 2.2 e-Service Scope

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To develop a centralized e-stipend system which will cover following modules and features:

- **Profile Management System** includes to create profile of the Institutions (College & Madrasa), student, Principal, Upazilla Secondary Education Officer and PMEAT user.
- **Selection and verification Management** includes institution verification, student verification, final eligible student list, notification to Principal, notification to student, report generate, dashboard.
- **Fund Disbursement Module** includes financial institute information management, student bank account, fund information, notification, and payment update.
- **Help Desk Module** includes contact center, complaint resolution system, IVR.

## 3. e-Service Functional Requirements

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Functional requirements of the e-Service are as follows:

### 3.1 Solution Architecture

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Solution architecture is expected to define and describe an architecture of the proposed e-Service Solution in the context of the mentioned prevailing service delivery process i.e. Stipend program. The solution architecture should assist in the translation of the service to e-Service transformation requirements into a solution vision, high-level operations and/or ICT application specifications and a portfolio of implementation scope. The expected architecture of a solution, where the solution is a e-Service system that should offers a coherent set of functionalities to it's environment. As such, it should concerns those properties of a solution that are necessary and should be sufficient to meet its essential requirements. The vendor shall propose a comprehensive solution architecture on e-Stipend System which may cover the following items in their descriptive and diagrammatic presentation.

- Goals/Results
- Service Recipients
- e-Service Operators/User (Service Providers)
- e-Service Observers (Service Administration and Performance Monitor)
- Database application components:
- Entity application component:
- Utility component
- System federation (Systems to be integrated)
- Process application component
- Interaction application component
- Application
- Accessible Points
- Networks
- Types or Layers of Service Delivery Points
- Hosting Site

## 3.2 e-Service Functions and Features

Following are the functions and features of the necessary modules:

### 3.2.1 Module 1: Profile Management

No.	System Features	Functions	Actor	Media
1	Institutions (College & Madrasa) information retrieve	Collect and organize all degree level institutions data from NU and Islami Arabi University database based on Name, address through integration.	System admin	NU and IAU Database
2	Student's profile creation	Collect and create 1st level eligible student list from DU, NU and Islami Arabi University database through integration.	System admin	System
3	Principal's and Upazilla Secondary Education Officer's profile creation	Collect and create Principal and Upazilla Secondary Education Officer profile from DSHE database through integration.	System admin,	System
4	PMEAT user profile creation	Entry user profile	Admin	Web

### 3.2.2 Module 02: Selection & Verification Management

No.	System Features	Functions	Actor	Media
1	Institution Verification	The concern person will login to the system and verify the institution based on national university or Islamic university approval.	Upazilla Secondary Education Officer	Web Portal
2	Student Verification	The concern person will login to the system and verify the student based on criteria to get stipend. The criteria are attendance percentage, valid mobile no., yearly income of guardian, Land and other conditions. Meeting resolution will be attached for non-government institute only.	Institution Chief /Principal	Web Portal
3	Final eligible student list	PMEAT will confirm the final eligible student list. In the confirmation process, PMEAT will be the final authority to do any modification to fix the total amount of student.	PMEAT	Web Portal
4	Notification to Principal	A final list of eligible student will be sent to Principal.	System	Email

5	Notification to student	A Nominated student will be notified to get stipend.	System	SMS
6	Report Generate, Dashboard	Generate different kinds of reports and show summary on dashboard. In the reports, (1). Total Educational institute list, (2). Total Educational institute list based on Upazilla, district and division, (3). Total student list (Male, Female), (4). Total student list (Male, Female) based on Upazilla, district and division.	PMET, System	Web Portal

### ***3.2.3 Module 03: Fund Disbursement***

No.	System Features	Functions	Actor	Media
1	Financial institute information management	Create and manage detail information of selected financial institute (Post office-postal cash card, Mobile Banking). A contact or MoU paper will be attached.	PMEAT, System admin	Web Portal
2	Student bank account	Create of individual student account from student profile database and integrate with banking system through API.	System admin	Web Portal, API
3	Fund information	Scan copy of check, date and amount	PMEAT	Web Portal
4	Notification	Send auto notification to student to collect stipend.	System	SMS
5	PaymentUpdate	Auto update in the system when financial institute releases funds to student.	System	API

### ***3.2.4 Module 04: Help Desk***

No.	System Features	Functions	Actor	Media
1	Contact Center in out-sourced mode	Provide answers to questions and queries from students	Agent, Student, Principal, Users of system	Phone
2	ComplaintResolutionSystem	Record complaints from students and notification PMEAT	Agent	System, SMS
3	IVR	Interactive Voice Response for screening frequently asked questions.	Student, Principal, Users of system	Phone



### 3.3 Users and User Roles

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Following table depicts approx. users of the e-Service system:

Type of User	No of User	Geographical Office	Frequency of Uses
Service Recipient	2.5 Lac	3200	1
Service Provider	3500	3500	1
System Administrator	2	1	300

Vendor should submit a comprehensive plan and approach covering different types of users and their roles providing accessibility, privacy, confidentiality and transparency based on the given statics. Also have to mention the user friendliness login system.

If the proposed e-Service application needs to integrate and interoperable with government prescribed e-Filing system (a2i e-Filing) then vendor should have design the seamless, smooth and user friendly single login system.

### 3.4 Security and Privacy Requirements

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The vendor should submit an extensive and complete security and privacy plan for this e-Service Project technical scope application considering the following issues:

- Functional and nonfunctional requirements and ultimate objectives
- Concerned service provider organization's operational environments and capacity
- User roles - Accessibility, Authorization and Accountability
- Importance of data management
- Technologies to be used for development & run
- Hosting
- Client and service side
- Overall standard application security requirements.

Apart from these, the vendor should keep in account the following considerations also as well as vendor should provide a checklist based on system and hosting security plan (i.e. fraud, hacking, money laundering etc.) & have to provide the test report of that checklist.

### 3.5 Integration Requirements

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As a government system or e-Service application, integration with the required and other prescribed national system is very important and essential. Only by proper integration making interoperable, an e-Service application can drive the ultimate citizen benefits with the optimum use of technology from service to e-Service transformation. Here vendor should come up with an integration plan in their technical proposal considering and understanding the scope of the e-Service application as per this TOR. The possible integration scopes of this e-Service application are mentioned below as reference for the vendor.

SI	Name of the system	Feature	Purpose of integration	Dependency of organization
1	NU or IAU student database	Profile Management	To create student profile	NU, IAU
2	DSHE database	Profile Management	To create USEO profile	DSHE
3	Financial institute information management	Fund Disbursement	To disburse fund of stipend to mobile accounts through API	Financial organization (Post office, Bank)

### 3.6 Hosting Requirements

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Bangladesh Government is providing an extensive and standard hosting facility for all types of government organization applications and software that is named as National Data Center under Bangladesh computer council (BCC). It may be mentioned here that the vendor developed application will be hosted in government provided data center i.e. National data center (NDC) or Prime Minister's Education Assistance Trust own data center. Therefore, at this stage, vendor is requested to submit a preliminary hosting plan for this e-Service application considering the issues mentioned below-

- Hosting requirement /environment (hardware, servers, network, security, storage, traffic, firewall, bandwidth etc.)
- Hosting architecture
- Data growth and scalability plan
- User handling/load balancing mechanism
- Licensing issues
- Scheduled backup & restore requirements
- Disaster recovery requirements
- Monitoring tools requirements

## 4. e-Service Non-Functional Requirements

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Following are the non-Functional Requirements of the e-Service solution

### 4.1 Application Compliance Requirements

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#### 4.1.1 Web Application

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- The application which is a web based solution, has to be hosted in a centralized Web-server
- The application should be developed following Service Oriented Architecture (SOA)
- Application should support MVC framework.
- Considering the operating/client environment at different level of this application, it should be developed in such a way so 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.)
- Should have ability to seamless integration with future module/components/applications
- Application should be lightweight and rich client-side scripting
- UI should be developed based on the analysis of UX.
- Any web interface of this application should be fully responsive

#### ***4.1.2 Mobile Application Requirements***

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- The mobile application version of the system should be developed for Android and iOS.
- The mobile app should have capability of displaying system notifications
- Functionality for registration options for service recipients
- App should enable compact view of services for service recipients.
- There should be an option to auto synchronization with the central database with apps local database on the availability of the Internet connectivity.

### **4.2 Sizing, Performance and Scalability Requirements**

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- The system shall be capable of handling online functionalities for a database of at least 250,000 service recipients and in terms of service provide 3500 Offices and 300 System Users.
- The system processing shall be scalable to support the volume estimates for a period of 10 years at a 20% annual growth rate.
- The system shall be designed to handle estimated Medium high Scale: 5000 simultaneous connection (online users) when it is ultimately rolled out.
- The vendor must conduct an extensive load testing task taking above factors into consideration and submit a load testing results.
- The database architecture should be such that the system is available to user 24x7x365 days a year without any unapproved downtime.
- Page load time, login response-time, on-click load time for the web application should be less than 3 seconds while this is accessed over the intranet.
- Average transaction response time, on-submit response-time, or any other database access/search time should be less than 5 seconds when the system solution is accessed over the intranet.
- Considering the network infrastructure challenges in Bangladesh, the solution must support low bandwidth conditions for the services defined in the functional requirements.
- In case of mobile application also, this should support very low bandwidth even in 2G network provided internet bandwidth.
- The proposed solution should be highly scalable to accommodate current and future requirements within the scope of the scope mentioned in the TOR
- Analyze the requirements whether both horizontal scaling (scale-up) and vertical scaling (scale-up) will be required for this e-Service application or not?
- The e-Service application should be provided with appropriate caching mechanism to handle very high-traffic scalability
- The vendor may propose here other relevant measures for the e-Service application scalability.

### 4.3 Business Continuity

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Business Continuity plan will play a very important role by creating the systems of prevention and recovery to deal with potential threats and risk of the e-Service operation. Vendor is requested to propose a Business Continuity Plan for this e-Service application. Regarding business continuity you may take in account the followings issues if applicable or suitable for this e-Service Application.

- All standard backup facilities should be supported by the system which can be started with disk based backup facility, gradually moving to Storage Area Network (SAN) based backup system.
- Data and the Operating system core component will be separated. A ghost image of the Operating system will always be available in case of rebuilding the server. All data can be restored in the data drive once the Operating System is restored.
- System can also have an automated Backup mechanism by which users can schedule the backups and the system will take the backups without manual intervention.
- System must check for the media and generate a report on backup with date time and details of backup.
- If a restoration fails for any reason, the system should prompt with proper error messages and suggest what has to be done to rectify the situation via on-screen, logs, email and text messages.
- System should maintain an automated recovery system and all versions of backup will be maintained. At any given point in time, the versions and incremental backup details can be retrieved from the system.
- The system may be hosted in virtual servers or containers. A restore of a virtual server/container is much easier and faster compared to a single host server.

### 4.4 Interoperability and Data Exchange

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The selected vendor must develop this e-Service 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:**

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

Full API documentation must be provided so that third party integrators can integrate their system with this system.

## 4.5 System Audit

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This e-Service 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:

- Log the users who are accessing the system
- Log the parts of the application that are being accessed
- Log the fields that are being modified
- Log the results of these modifications
- Log attempted breaches of access
- Log attempted breaches of modification rights
- Timestamp.

Ensure an audit trail is kept for all transactions and all audit transactions logged are kept on the trail file or trail database from where system can generate different audit reports as and when required.

## 4.6 UI/UX

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The vendor must propose a UI/ UX plan containing UI designing method and tools, prototype or Mockup design (if applicable) , UI review method , process for study and analyze UX , collaboration of basic web and mobile UX issues and expected result and outcome of UX, finalizing the UI/UX design. Apart from this, the vendor should consider the following issues as requirement at the time of UI/UX plan.

- The system interfaces should be highly user friendly, easy to navigate and ensure fast loading.
- The UI shall design by using 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.

## 4.7 Language Support

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

## 4.8 Accessibility

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Vendor must develop this e-Service application ensuring access for the citizen (Service Recipients) with disabilities in different standard accessible formats. e-Service application should be developed in “universal design” and “assistive technologies”. Accepting and facilitating the use of sign languages, augmentative and alternative inputs and all other accessible means, modes and formats for inputs and outputs as per their choice by “Service Recipients” with disabilities; all e-service features (Web application or Mobile Application) should be usable with the help of screen reading software by the service recipients with disability.

## **4.9 Coding Conventions**

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The vendor must follow the standard coding styles to produce high-quality code for further uses of the code in terms of reusability, refactoring, task automation, language factors etc. The vendor should submit a standard coding convention approach, which may include different conventions like commenting, indent style, naming etc. following the best coding practices.

## **4.10 Documentation**

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Detail and proper documentation of such ICT based project like e-service application development and implementation for Government is very vital and essential. Documentation is required for any such project as reference, knowledge transfer, analysis of development and implementation history, baseline information for any modification or change, guidance etc. In this issue, Vender should shows highest-level of professionalism for delivering the standard documentation approach at each phase of e-Service development and implementation project. Vendor should include an extensive documentation plan of this project in their technical proposal, which may cover the followings:

- Documents titles phase or activity wise
- Purpose of document
- About the format of documents (if possible only index or fields)
- Type of expert and skilled resource will be used for documentation
- Document priority and dependency
- Time requirement for preparation (If applicable)

## **4.11 Quality Attributes and Assurance**

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The Quality attributes and Assurance plan will describe the standards, processes and procedures in this e-Service application development life cycle which will be used to support the consistent delivery of high-quality, professional standard e-Service application and services provided in the support of an automated environment. The quality assurance process will be concerned with establishing the authority of the QA function, quality assurance standards, procedures, policies, and monitoring, and evaluation processes to determine quality in relation to established standards. Quality assurance activities will concentrate on the prevention of problems through the continuous improvement of processes.

In order to provide high quality products and services, each support team will adhere to processes, procedures and standards. Quality Assurance (QA) is a process used to monitor and evaluate the adherence to processes, procedures, and standards to determine potential product and service quality. It will involve reviewing and auditing the products and activities to verify that they comply with the applicable procedures and standards, and will assure the appropriate visibility for the results of the reviews and audits.

The vendor is requested to provide an extensive Quality Assurance plan with measurable attributes for each phases of this e-Services development life cycle in their technical proposal.

## **4.12 Copyright**

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Prime Minister's Education Assistance Trust shall be entitled to all proprietary rights including but not limited to patents, copyrights and trademarks, with regard to many Vendor.

All kinds of source code including code documentation and other approved documents (all versions trail, products , developed applications, documents and all kinds of deliverables which bear a direct relation to or is made in consequence of the services provided by the vendor under this scope of this TOR.

At the request of the Prime Minister's Education Assistance Trust, the vendor shall assist in securing such property rights and transferring them in compliance with the requirement of the applicable law. After the completion of the project such rights will be handed over to the (Prime Minister's Education Assistance Trust's) that will be produced at the time of entire system development and implementation life cycle under the scope of this TOR will be owned by Prime Minister's Education Assistance Trust.

The vendor should properly deliver all the entire approved source codes and other deliverables to the Prime Minister's Education Assistance Trust. The vendor cannot claim any royalty or authority of any sort in case of replicating the source code or database or any other deliverables under this TOR for any future use that Prime Minister's Education Assistance Trust and the Government of Bangladesh may see fit.

Any studies, documents, reports, graphics or other material prepared by the vendor for this project under this TOR shall belong to and remain the property of Prime Minister's Education Assistance Trust.

## **5. Scope of Work**

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Following sections describes the scope of work:

### **5.1 Development and Implementation Methodology**

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Development methodology i.e. SDLC (System Development Life Cycle) plays a very important role to clear the ultimate project objectives precisely, to stable the project requirements, to monitor the progress with measurable deliverables and managing the entire project efficiently. Here the vendor is requested to propose and submit a best possible suited SDLC approach for this project considering the project scopes, requirements of e-Service, objectives, organizational environmental factors and behavior, project timeline, ultimate deliverables and various resources to be used.

### **5.2 System Requirement Analysis**

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Requirements finalization will be a very important milestone of vendor's proposed development methodology. It is expected that, the selected vendor will carry out detailed requirement study and analysis on the each and every scope of e-Service that mentioned in the TOR. Under this scope of work, the selected vendor has to analyze the detail functions, processes, documents, actors, sites and infrastructure of the relevant prevailing system precisely of the concerned organization. At this phase,

vendor's ultimate objective will be finalization of the e-Service requirements in details under the scope of TOR and approval of the concern organizational authority. Here vendor is requested to propose and submit a system requirement analysis plan which should cover the scope of work at this phase, relevant activities to be performed, timeline, deliverables to be produced, dependencies and resources to be used.

### **5.3 System Design**

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At this phase, the detail functional scope defining and designing as per the standard of software engineering approach for the proposed e-Service system tasks are being performed. This is very vital and important phase of any SDLC. Considering the ultimate development and implementation scope, the proposed system design should be robust, scalable, user friendly and interoperable enough.

At this system-designing phase, vendor may performs following designing related task and will produce various standard System Designing Documents (SDD):

- Identifying module, components, tasks, I/O and functional features
- Specifying technical and functional requirements
- User Interface design
- Description of UI and requirements
- Preparing the use cases
- Defining Integration and interoperability scope
- Designing system architecture
- Determine process and data flow
- Database design
- API design
- Finalizing tools, technologies and frameworks to be used etc.

Here vendor is requested to cover details system designing plan in their technical proposal, which may include relevant activities, approaches, methods, documentations and deliverables.

### **5.4 Development**

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At this stage, vendor must take prior acceptance or approval from the concerned authority on tools, technologies and framework that will be used for the development of the e-Service application. Based on approved SRS and SDD, vendor will prepare a comprehensive development plan for the e-Service Application which should include a schedule consisting development item wise start date, test date, review date, completion date etc. At the development stage, vendor must follow the standard code convention, code level documentations, header of each file, algorithms, interfaces, code compression and APIs should be supplied with proper description and documentations. All kinds of standard testing tasks that are required to be performed at the development phase, should be mentioned in the plan. Considering the scope mentioned in the TOR for this e-Service application, vendor is requested to include a preliminary development plan (standard approach) in their technical proposal.



## **5.5 Integration**

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Considering the above mentioned Integration requirements and scopes for this e-Service application, vendor must include a phase in their proposed development and implementation methodology approach. At this stage, the vendor will perform all necessary tasks regarding integration to make the e-Service application interoperable.

## **5.6 Testing**

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The vendor must propose a testing plan for this e-Service application starting from development to deployment. This testing plan should cover all the standard suitable testing approaches for this e-Service application 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 vendor should submit testing plan which may include standard test approaches. Some are mentioned below as examples for reference.

- Unit Test
- Functional Test
- Installation testing
- Compatibility testing
- Smoke and sanity testing
- Regression testing
- Stress Testing
- Acceptance testing
- Alpha testing
- Beta testing
- Functional vs non-functional testing
- Continuous testing
- Destructive testing
- Software performance testing
- Usability testing
- Accessibility testing
- Security testing

## **5.7 Hosting**

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Vendor should submit primary hosting requirements for this application related to hardware, servers, network, security, storage, traffic, firewall, bandwidth etc. i.e. complete hosting infrastructure that will be required for their developed application hosting considering the implementation scope. Based on their submitted requirements, regarding hosting Prime Minister's Education Assistance Trust will provide detail hosting infrastructure, facility and environment.

## **5.8 User Acceptance Test (UAT)**

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User Acceptance Test (UAT) is a very vital and essential phase in the e-Service development lifecycle. At this phase, all types of users must test the developed e-Service application by themselves and have to provide a details feedback/ test report. Based on the UAT report, vendor has to update the application accordingly to ensure user satisfaction by making it more user friendly. Here, it is expected that, considering the type of users and their role in the e-Service application, the vendor must propose a comprehensive UAT plan in their technical proposal which may cover the followings:

- UAT activities to be perform (planning, designing test cases, selection of testing team, Executing test cases and documenting, Bug fixing, sign-off etc.)
- Types of user wise roles and test items distribution
- Resource requirement,
- Activity wise time requirement
- Activity wise test case, test results/ deliverables
- Detail user feedback / test reports
- System update plan

## **5.9 Management and Migration of Legacy Data**

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Under the process of service to e-Service transformation, during e-Service activation or deployment, it may be necessary to move the legacy data of prevailing services. In this case, vendor may require to perform different relevant activities that may include data collection, softcopy conversion, data filter, data cleansing, data verification, data process, data entry, data migration and overall data management. Here, it is expected that, the vendor will propose their detail data management and data migration plan for this e-Service application considering the estimation of legacy data mentioned below which will be required to migrate into the developed application.

The plan may cover amount of data to be migrated, activities to be performed, amount of resources to be used, required time for different data migration phases for different activities (data collection, hardcopy to softcopy conversion, data entry, data transformation from soft copy, data filtration, data cleaning, data verification ) etc.

## **5.10 Deployment and Implementation**

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This is the phase of SDLC, when the consent is being given to “GO LIVE” of the developed system after completed all kinds of development integration, testing and hosting. This is very crucial and sensitive stage for a Government application because at this stage the system becomes public and expose to access towards all levels of users. The Pilot or full scale implementation period starts formally in this stage only. Vendor is requested to propose their deployment and implementation plan covering the major activities to be performed, the deliverables to be provided etc.

## 5.11 Training and Knowledge Transfer

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- The vendor must propose a detail training plan for the users of the e-service application.
- The vendor should include necessary training methodology, documentation and training materials support in their training plan
- The training materials may include user manual, administration manual, quick start tutorial, online help, and frequently asked questions
- The training plan must describe the sequencing, time, duration and resources involved in implementation of each of the consultant's proposed training activities.
- The training plan should contain full course descriptions for all courses that to be carried out for respective users.
- The vendor should develop multimedia training materials for all users. These materials shall be available for viewing and reviewing for all users through a web portal.
- The training instructions should support both English and Bengali language.
- The training activities should cover the training feedback, evaluation and report also.
- The vendor also need to propose their smooth, efficient and effective knowledge transfer idea and plan here in this technical proposal with the training plan.

## 5.12 Maintenance and Support Service

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The selected vendor has to provide a period of 2 year maintenance and support service. After the development and deployment phase when the implementation period starts the vendor has to provide maintenance and support service for the 2 years. The maintenance and support services will include a Contact Center for the service recipients and SMS notification services. The cost of the system generated SMSs will be borne by client. Here it is expected that, the vendor must provide a detail maintenance and support service plan in the technical proposal, which may include the followings:

- Support service types and mode of services
- Service desk functionalities
- Configuration management
- Change management
- Service layers for support
- Tools will be used for Support service management
- Communication management and modality
- Release management
- Incident management
- Problem management
- SLA (Service Level Agreement)
- Maintenance and support service related reporting
- Support service types
- Service Log Management
- Contact Center/Help Desk Operational Plan

Apart from the above mentioned issues, if vendor thinks any other issue to be included in their plan, it

would be considered as added value addition.

### 5.13 Duration of the Project and Work Station

The selected vendor will need to work for the above-mentioned scope as per approved project management schedule. The selected vendor must complete e-Service application development and deployment i.e. development life cycle as per their proposed development methodology within **270 days (9 month)** excluding the maintenance and support service period.

Now here in their technical proposal vendor is requested to propose detailed timeframe plan which may include:

- Total duration of the e-Service application development i.e. e-Service development
- Total duration of the Maintenance and support service at implementation phase
- Proposed SDLC Phase wise and deliverable wise time distribution and duration
- The schedule may cover Activity, Deliverables, Time in Days, Dependencies etc.
- Can be present as table or Gantt chart.

### 5.14 Work Distribution and Team Composition

The vendor is expected to provide work distribution and team composition plan as deemed suited based on this project requirements and milestones and as per their proposed development and implementation methodology approach. The interested applicant (Vendor) should provide a team composition plan in their proposal describing the position, roles, tasks to be assigned, expected man-days of involvement, expected deliverables and required skill and expertise.

However, for proper execution of the project i.e. e-Service application the vendor should include at least the following personnel as minimum requirement:

SL	Position	No. of Person	Total Man Month
1	Project Manager	1	7
2	Software Architect/Sr. Software Engineer	1	6
3	System/Business Analyst	1	6
4	Connectivity/Integration Expert	1	6
5	Database Administrator	1	6
6	System Administrator	1	6
7	QA Expert	2	12
8	Sr. Programmer	1	8
9	Programmer	3	24
10	Mobile App Developer	2	16
11	Technical Document Engineer	2	18
12	Network Engineer/Expert	1	8
13	UI/UX Expert	1	5

SL	Position	No. of Person	Total Man Month
14	Trainer	2	4
15	Technical Assistant	2	18
	<b>Totals</b>	<b>22</b>	<b>150</b>

## 5.15 Expected Deliverables

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Considering the scope of service and scope of work of this project and based on the proposed project development & implementation methodology, the vendor has to submit here a complete list of all types of deliverables will be produced throughout the entire project timeline whether those are materials, services, applications, source codes, documents, plans, reports etc. in a table format mentioning the stages, activities and timelines.

Some examples of the deliverables are mentioned here under for your reference.

- Project inception and management report
- System requirement specification (SRS)
- System design document (SDD)
- Complete source code
- Detail source code documentation
- Test plan with test scripts and testing reports
- Technical documentation (system architecture, module integration points, workflow engine, data dictionary, user manual etc.)
- Training plan and reports
- Training materials and user manuals
- Integration plan and reports
- Audit log
- Mobile Application
- Web application
- UAT Report
- Maintenance, agreement & SLA
- Maintenance and support log
- Hosting requirement specification, plan and report
- Implementation plan and report
- HR activity plan and report
- Progress and review reports

## 6. Conclusion

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Prime Minister's Education Assistance Trust (PMEAT) expects an effective and fast system from the vendor that can provide best service to its service recipients. A detail technical proposal needs to be presented by vendor so that the organization can get confidence on vendor to materialize the e-service dream.