Terms of Reference

For

"Hiring a firm for enhancement, development, maintenance, and support of Nothi platform."

Aspire to Innovate (a2i)

Government of the People's Republic of Bangladesh

ICT Division

Agargaon, Dhaka

1. Background

The Government of the People's Republic of Bangladesh had taken the initiative to ensure that Government services are made available to citizens electronically through the improvement of online infrastructure, and Internet connectivity, or by making the country digitally empowered in the field of technology.

E-Governance is the public sector's use of information and communication technologies with the aim of improving information and service delivery, encouraging citizen participation in the decision-making process and making government more accountable, transparent and effective at the forefront. Traditional filing system in Government of Bangladesh is, therefore, was started to transform into an electronic decision support system, ICT enabled filing, noting, workflow and its associated solutions can supplement the initiative of smart government. To bring transparency, dynamism in the administrative process and also to improve the efficiency, Bangladesh government has already launched a digital file management system. Better mechanisms to manage continuous change and improvements are also a part of this initiative. In collaboration with Government offices, a2i had taken initiative to introduce a centralized file management system for Government offices named as Nothi. Currently 16000+ offices are covered by the Nothi System.

Digital File management system is a nationwide GoB document filing, handling and management system. Currently this System is being used by 16000+ Government offices for 150000+ users from Ministry to Upazilla level offices across Bangladesh. There can be different improvement requests, change requests and information demand as post-implementation user requirements in addition to the regular maintenance of this product and improve the system's performance in terms of better concurrency, low bandwidth usage and many more micro service, cloud native features, new development.

2. About the Organization

Aspire to Innovate (a2i), a whole-of-government programme of ICT Division, supported by Cabinet Division and UNDP, that catalyzes citizen-friendly public service innovations, simplifying government and bringing it closer to people. It supports the government to be on 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 3 major 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

3. Review of the Existing System

Nothi started its journey in 2016. During Covid time when the lockdown happened, it was the major tool became instrumental to operate office activities in government offices. Across 64 Districts and 495 Upazillas, 16K+ offices are currently using the Nothi system for their official activities. From 52 Ministries and their field offices, Nothi is a groundbreaking platform that consolidates 150K+ Nothi users. The concurrent user in the platform grows up to 25K-30K in peak time.

The system also offers user-friendly Android and iOS apps.

3.1 What is Nothi/D-Nothi System?

The D-Nothi System (Digital Nothi) is the official electronic file management and decision-making system of the Government of Bangladesh, developed and operated by a2i (Aspire to Innovate), ICT Division. It is a core component of the government's e-Government initiative, enabling ministries, divisions, directorates, and field-level offices to perform all official activities digitally — without paper files. D-Nothi is a secure, cloud-based e-File Management System designed to digitize the traditional "nothi" (official file) process used in all government offices. It allows for digital note-writing, approvals, movement of files, and decision recording in an efficient, transparent, and traceable manner.

Key Features:

1. **Digital Note and File Management**

    - Creation, movement, and approval of digital files (nothi) online following Secretariat Instructions.

    - Supports note writing, draft letters, attachments, and reference management.

2. **Electronic Signatures and Approval Flow**

    - Provision for using secure digital signature technology (e-sign) for document verification.
    - Multi-level approval workflows reflecting government hierarchy.

3. **Inter-Office and Intra-Office File Movement**

    - Enables files to move inside government offices or between different government offices digitally.
    - Reduces dependency on physical documents.

4. **User Roles and Audit Trail**

    - Every action (creation, approval, movement) is logged for transparency.
    - Role-based access control for different user types (officer, assistant, admin).

5. **Reports and Performance Dashboard**

    - Generate office-wise reports for administrative uses.
    - Office-wise and user-wise analytics for pending, processed, and approved files.

6. **Mobile Support**

    - iOS and Android Apps are available for quick note approval and file tracking.

3.2 Process Flow of D-Nothi

The D-Nothi process flow represents how a government "nothi" (file) is created, processed, approved, and archived digitally — replacing the traditional paper-based nothi system.

- **Step 1: File (Nothi) Creation**

  - A user (generally an office assistant or section officer) creates a new nothi in the system.

  - The nothi includes:

    - Subject/Title

    - Type (Administrative, Financial, Confidential, etc.)

    - Nothi number

    - Nothi class (Ka, Kha, Ga, Gha)

- **Step 2: Note Creation**

  - The officer adds notes, onuccheds (paragraph) and draft letters (like memos, office orders, etc.) inside the nothi.

  - Note onuccheds are written digitally using a rich-text editor within the application.

  - Relevant documents can be attached or referenced from previous nothis.

- **Step 3: Movement of Nothi**

  - The digital nothi is forwarded to higher officials or another section through the system.

  - Movement occurs intra-office (within the same office) or inter-office (between different government offices).

  - Each movement is logged with timestamps and recipient details.

- **Step 4: Letter Exchange**

  - Prescribed letters receive from external offices and send to external offices.

- **Step 5: Review and Approval**

  - The receiving officer reviews the note, edits if necessary, and digitally signs (e-Sign) to approve.

  - Approvals follow the office's established hierarchical workflow (Example: Assistant → Officer → Deputy Secretary → Joint Secretary → Secretary).

  - Decisions are recorded in the system.

- **Step 6: File Closure and Archiving**

  - Once all decisions and approvals are made, the note is **closed**.

  - The system automatically stores it in digital archive storage for future reference and audit.

  - Files remain accessible for retrieval by authorized users.

- **Step 7: Monitoring and Reporting**

- The D-Nothi Dashboard provides real-time statistics such as:
  - Total active nothis
  - Pending approvals
  - Time taken for each decision
  - User activity logs
- Senior officials can view performance analytics for decision efficiency.

3.3 Existing Features and Functions

The section provides brief description of existing system for better understanding:
- **Office User Perspective:**

  - **Dashboard:** There is a dashboard for official users to monitor the activities of their Dak, Nothi status by hourly, daily, weekly, by-weekly and monthly data. They can also view their office-wise performance or activity from the report panel.

  - **Workflow management:** Nothi workflow management contains the flowing part:
    - Managing the Dak (Flow starts with Dak receiving and continue with Dak processing and ends with Dak disposing in different way).
    - Managing the Nothi (Flow starts with Note/Onuchched receive or create and continue with Approval of Note and ends with Note disposing in various ways).
    - Managing the Potro (Flow starts with creation of Khoshra potro and continues with potro review and approval and ends with Potrojari).
    - Event triggering and notification (this part of the engine generates notification on various events (like dak receive, nothi receive, pending tasks, etc), dispatches notification to concerned users and logs the notification for future reference).
    - Permission management, task management and other components are also part of the workflow management of Nothi available.
    - There is an integration management as part of workflow to integrate Nothi with other systems.
    - The workflow also includes File Management and Digital Signatures.

  - **Configuration:** Office users can configure various parameters in different modules to personalize his/her tasks, like,
    - Setting the items for various Dak Box.
    - Setting the notification parameter.
    - Setting the folders in different modules.
    - Setting the decision text for different modules.
    - Setting the items for various Nothi Box.

- **Office Admin User Perspective:**
  - **Configuration:** Admin user can carry out various configurations in the Nothi system for his office, like, configuring header for potrojari, configuring decision type, report setting etc.
  - **Office section and organogram:** Can manage office section and organogram for his/her office.

- o **Officer assign/release**: Can assign/release officers for the office/section.
- o **Nothi Permission:** Can manage permission related tasks for nothi.
- o **Guard file setting:** Can manage guard file related settings.
- o **Integration configuration:** Can manage zero coding integration for some components with Nothi.

- **Office/Section Head Perspective:**
  - o **Dashboard:** Office/Section head summarized the dashboard for his office.
  - o **Approval:** Office/Section head can carry out final approval for any process in the system.
  - o **Permission:** Office/Section head assign/revoke certain permission for certain users from Nothi.
  - o **Archiving:** Office/Section head can give final approval for archiving.
  - o There are few other processes also available only for Office/Section head.

- **System/Global Admin Perspective:**
  There are certain users in the system who can work with Nothi as a System level or Global Admin.

  - o System level users can manage some configuration for all offices
  - o System level users can merge/split offices
  - o System level users can configure the system globally for Archiving related

- **System Perspective:**

  - o **Queue Manager:** The Queue Manager is an important component of the Nothi system. It manages various tasks and facilitates seamless and smooth data and information exchange within the Nothi.
  - o **Accessibility:** System provides compliance for accessibility.
  - o **Smart Search:** System provides free text and role-based searching.
  - o **Inter-office communication:** System provides office to office communication for Dak, Nothi and Potros.
  - o **Logging:** System provides various logging features to analyze the user behavior and security later.
  - o **Audit Trail:** System has audit trails functionalities.
  - o **OLAP/OLTP:** System provides OLAP for Reporting and Dashboard and provides OLTP for all real-time transactions.
  - o **Multi-Tenant:** System has multi-tenant models for both horizontal and vertical scaling
  - o There are other components (e.g. PDF maker, Zipper, File Downloader, etc.) available in the system to make it a robust, secured and highly scalable enterprise grade system to cater to all government offices.

Technology Platform of existing system

Platform	Web Application, Android App, iOS App
Back-end Language	PHP, Python
Front-end Language and Tools	HTML/CSS/Javascript, React, Vue.js, jQuery
Framework	Laravel, CakePHP, Flutter
Programming Paradigm	MVC
Architecture	Micro-Service based (RestAPI with JWT)
Database/Storage	MySQL, Mongo, MariaBD
Logging	ELK
Queuing	RabbitMQ
Data Exchange	JSON based with JWT
Operating System	Linux

4. Objective of the assignment

The overall objectives of this assignment will be the following:

1. To achieve the vision of "ICT Division Reform Roadmap" by establishing paperless administration for effective public service delivery ensuring transparency and accountability.

2. Enhance the performance, scalability, and stability of the D-Nothi platform to ensure smooth operation.

3. Permanently resolve recurring technical and functional issues through root cause analysis and sustainable fixes.

4. Simplify and optimize business processes within D-Nothi to reduce complexity and improve overall usability.

5. Strengthening system security, data integrity, and compliance with government standards.

6. Introducing Artificial Intelligence (AI) features to make the platform more user-friendly, efficient, and intelligent in managing official workflows.

7. Improve system responsiveness and reduce downtime through proactive monitoring and performance tuning.

8. Upgrade system architecture, codebase and underlying technologies where necessary to align with modern technology standards and best practices.

9. Ensure long-term maintainability of the platform through documentation, clean coding practices, and automation of routine operations.

10. Increase adoption and user satisfaction by addressing pain points identified through user feedback and analytics.

11. Using the data-driven decision-making process – that provides decision in the note by using previous data, facts, metrics etc.

5. Scope of the assignment

The firm will be required to complete the development and enhancement of D-Nothi as a platform to meet the vision of paperless office by following the Agile methodology and perform the relevant activities accordingly within a proposed stipulated time.

The ultimate scope of this assignment is to enhance, optimize and transform D-Nothi as faster, user-friendly, reliable, standard and sustainable Digital File Management Platform. For detailed clarification and understanding the required high-level functional scope of major features are described in the "Functional Requirement" part below.

The system's scope is described hereunder from the high-level perspective into 2(two sections) 1. Functional Requirements and 2. Non-functional Requirements.

5.1. Functional Requirement

5.1.1. Functional Development

5.1.1.1. Existing Issue Resolution
The consulting firm will do proper root cause analysis and permanently resolve the following issues that occurred in D-Nothi operation:

a) **Potrojari (Letter) related issues**
   i. Signature is not reflected after issuance of Potrojari.
   ii. There is a noticeable blank space before the signature in the letter, and the letter is divided into pages.
   iii. Letter issuance is stuck and shows blank page in the processing state.
   iv. Some major issues occur while issuing the letter: showing "Invalid Req" error message, no potrojari button showing after approval, edit option available after approving the letter, broken font after issuing the letter, name of the committee secretary missing issue in the resolution format.
   v. PDF generation fails: The letter remains in HTML format after issuance.

b) **Report issues**
   i. Reports do not display accurate information in some cases.
   ii. Reports downloading should be easier from the authorized users/Office Admin so that the admin user can easily download the reports of 16,000+ offices filtering the list of offices with office layers, months, years, etc.

c) **Dashboard issues**
   iii. Dashboard does not show updated statistics.
   iv. Dashboard traversing from office to sections takes many times.
   v. Dashboard shows incomplete list of Dak, Nothi, Potrojari, etc.
   vi. Various data in the dashboards are incorrect or missing.

5.1.1.2. Feature Development and Enhancement

1. Dak

SL	Feature	Description
1	Automatic Dak information filling through OCR in Dak upload	It will automatically understand the information from the scanned document by analyzing the OCR and image and fill the form.
2	Priority Alert System	If there is an urgent Dak/Nothi waiting for action, it will inform the user.
3	Auto subject from Dak will be subject of note	If the Dak is presented in a new note of the Nothi, the Dak subject will automatically be set as note subject.
4	Source will be auto uploaded in case of Dak upload	In case of Dak upload, the source will be automatically uploaded.
5	Counter tooltip	The bubble next to the Dak shows the total number of incoming Daks and selected Daks, and the note number next to the Nothi. If the user moves the cursor over the number, the user can see the summary of Dak/Nothi.
6	Direct Save/Download option on official Dak receipt	In the Dak upload option in the system, if the official Dak is uploaded to the system from the laptop, the receipt that is sent to the selected recipient only has the print option, and if there is a save/download option, the user will save the receipt in addition to the printer.
7	Use icon on incoming Dak in other channels in Dak type filter	In the Dak type filter, the proper icons will be used to identify from which channel/medium the Daks are received.
8	Provision to share main Dak and attachments together (WhatsApp+Dak)	The main Dak and the attachment can be shared together as separate files or links on WhatsApp+Mail.
9	Provision to write or upload an internal service application (Ex. Leave application)	The user will have the option to write his/her personal/internal service application or upload the scanned application to the system as Dak.

2. Nothi

SL	Feature	Description
1	Nothi Editor.	Need to transform current Editor to User and system friendly editor. Or need to replace the current Editor.
2	Add contact icon next to 22-digit Nothi number option.	When creating a new Nothi/note, the user will see the option to know the Nothi code number and contact instructions.
3	Add previous sample decisions in Nothi decision selection box.	In the Nothi decision list, the previously used sample decisions will be added in the list for the user convenience.
4	Select option to print or download notes/letters.	By clicking the select option, the selected letter/note will be printed or downloaded at once.
5	Instead of using the "ফেরত আনুন" button from the presented Dak list, provide a "সঠিক নথিতে উপস্থাপন" button.	If a Dak is presented in a Nothi by mistake, it has to be returned from the presented Dak list clicking the "ফেরত আনুন" button and then edited from the incoming Nothi and sent again. Instead of doing that, it should be arranged to be presented directly in the correct Nothi.
6	Real-time Notification System	When a notification comes to Nothi system, it does not come realtime. Users must refresh the page first, then they can see that his/her Dak or Nothi. Need to get real-time updates like Facebook Messenger.
7	Onucched/Khoshora Potro sharing.	There should be an arrangement to share note Onuccheds and draft letters like Dak box share. Currently, note Onuccheds are being shared in the Kolab editor. This will not be there. - Arrangements should be made to share multiple Onuccheds at once. - The opportunity to provide all types of attachments should be given to the shared note, onucched. - The history of editing shared note, onuccheds should be saved. - All functional options of the current onucched should be kept in the shared note, onucched. Such as speech to text, Bengali spell check, etc. - When the note/onucched is shared, the user with whom it is shared will receive an SMS/notification.
8	Grouping option in Nothi list.	Grouping options should be included in the Nothi list. If necessary, measures are taken to keep Nothi organized by group, it will be possible to complete all tasks in D-Nothi in a shorter time.
9	Download all/multiple notes.	There should be an option to select and download all/multiple notes at once.

10	Nothi creator name, designation can be kept in all Nothi.	Nothi creator information (name, designation) should be stored in the system because in many cases, the users may not know who created the Nothi.
12	Provision to mark/highlight lines in attachments.	Provide line marking/highlighting for all types of attachments
13	Note references to other notes.	A note onucched can be used as reference other onuccheds.
14	Create flags from all attachment	There will be options to create flags from all attachments.
15	Set buffer time in note section	Buffer time should be set in note section so that user can't send a note to another user without properly checking the onucched content and attachements.

3. Editor

SL	Feature
1	Need to add a "Remove Spacing" feature to the TinyMCE editor, similar to the one in Microsoft Word. Currently, while taking a new line, there is a lot of gaps between 2 lines - almost equal to 1 new line.
2	The "Restore last draft" button on the editor toolbar doesn't work, this needs to be fixed. This button, which was previously enabled and worked correctly, has been disabled for a long time.
3	When a table is added to the text box, it's not possible to type anything above it. The cursor cannot be moved below the table, due to space. This issue needs to be investigated and fixed.
4	When text is copied from external source and pasted, there needs to be a mechanism in place to remove any hidden spaces.
5	It needs to be checked if the editor's text can be set to A4 size. If possible, the text should be set to A4 size by default. Currently, when a user creates a table, they often make many columns, or they keep writing on the same line since there is no default line break in the editor. As a result, a single line becomes very long, but the user does not realize that it will not fit on an A4 page later.
6	In the Onucched view of text box, column and fonts of tables appear correct on-screen, but they shrink when the document is printed. Need to check and fix.
7	When text is copied and pasted into the "Potrangsho", the font does not remain the same. When a user copies text with a specific font and pastes it, the pasted text automatically converts to system's default font. Need to change font size from pt to px.
8	When printing text from "Potrangsho", the font changes. The alignment becomes incorrect, even after adjusting the page setup.
9	When printed, the table's structure breaks, and the font size of both the text and the header becomes smaller.
10	The editor's print view must provide an A4-sized page view so that "page breaks" and "page numbers" are visible. The text editor's A4 size needs to be fixed, and page setup tool must be worked on.

11	When accessing the print preview page, the text has an overwriting issue. This needs to be resolved.
12	In "Potro", the last column of the table breaks, extra space appears, and the signature moves down
13	After adding table in "Khoshra Potro" when a user performs "Potrojari", the right side of the table becomes invisible.
14	In the editor, the Tab key on the keyboard doesn't work.
15	If there is an attached file with "Jarikrito Potro", it is required to put the smarok number of the "Potro" on that file
16	Need to have arrangements to add page number to the "Jarikrito Potro"
17	Make sure that there are no extra empty spaces in the "Jarikrito Potro"
18	Highlight the line spacing in the date format.
19	When writing manually in the editor, pressing Enter creates too much line space. A standard line space should be used in this case.

4. Potro

SL	Feature	Description
1	QR Code view and validation	Feature to view a letter by scanning its QR code.
2	Print all Potros (with range)	Print all letters (with range)
3	New potrojari letter template incorporation	New potrojari letter template incorporation according to the Secretariat Instruction 2024.
4	Use the same button for saving and selection while selecting Potrojari Recipient	When selecting a recipient in 'Find Officer', after selecting and saving the recipient, another button has to be clicked to complete the selection. The button should appear below after saving, so that there is no need to go to another button.
5	Draft Potro page setup	When creating a Khoshra Potro, the user must be able to set up the Khoshra potro's page, and the Khoshra potro can be issued accordingly. The process for recipient selection needs to be optimized to reduce loading time.
6	Voucher draft Potro creation	Need to create a voucher Khoshra potro where multiple users can sign, similar to the report section.
7	Draft Potro share	The Khoshra potro's share option needs all the features of editor available in the note onucched. Need to incorporate the feature with native functionality removing 3rd party tool like Bakshi.
8	Arrangement for making the Potro section "full screen"	The "Potrangsho" section must have a "full screen" option and should open in a new tab.
9	Simplification of creating the seniority order of the recipient / copy recipient	When creating a Khoshra Potro, instead of drag-and-drop to arrange recipients / copy recipients by seniority, a **simpler method** should be used, such as placing numbers or selecting and arranging them in a serial.

10	Provide the facility to copy and paste the content of any Potro section	To provide the feature to copy and paste the content of any letter from the "Potrangsho" section.
11	Attachment Signing	Every page of the attachment of the potrojari needs to be signed.

5. Dashboard

SL	Feature	Description
1	Adding Business Intelligence (BI) tools to the dashboard	To perform data analysis and research necessary information using BI tools and techniques from the existing dataset on the dashboard.
2	Branch-wise pending activities	Review of branch-wise pending activities- a. Single or all pending nothi activities of branch-wise Nothi users. b. Monitoring the list of pending Nothi. c. The last activity of the pending Nothi/Nothis (current desk and status).
3	Branch-wise Nothi editing, record review and monitoring	Review and monitoring of branch-wise Nothi editing records- a. Review of single or all edited and unedited activity records of Nothi users
4	Automatic report creation/preparation	A report can be created/prepared automatically.
5	Graphical/chart view display	The user will be able to create and display customized graphical charts.
6	Metric card display of completed and uncompleted activities	Display of metrics cards for edited and unedited activities based on Office - Branch - Nothi User and Designation.
7	Measures to provide messages/notifications to expedite Nothi activities	Feature to provide message / notification to expedite file activities.
8	Designation wise Dak Pending	Show designation wise dak pending in the dashboard.
9	Reports of Nothijato and Nothi-te-Uposthapito DAK	Generate Reports of Nothijato and Nothi-te-Uposthapito DAKs.

5.1.1.3. Office Merging & Segregation/Splitting

The consulting firm will develop tools to do the following office operation ensuring uninterruptible office activities:

1. **Office Merging** – Merging multiple offices into a single office or multiple sections into a single section having all the data and file migrated/updated accordingly without any service interruption.
2. **Office Segregation/Splitting** – Dividing an office into two or more offices, dividing a section into two or multiple sections having all the data and file migrated/updated accordingly without any service interruption.

5.1.1.4. AI Implementation

The integration of Artificial Intelligence (AI) into D-Nothi will enhance accountability, efficiency, and security, while ensuring that officers perform their responsibilities effectively. AI will act as a task enforcer, workflow assistant, performance monitor, and security guardian. Note that, in this assignment, the authority expects an initial AI PoC (Proof of Concept) in D-Nothi, including preliminary model development and testing across the functional scope outlined below:

- Incorporate feature to notify (even block the SEND button) officer if s/he tries to send a Note/Letter to another officer without reading the Note/Letter and checking the references/attachments properly. Nothi will be able to understand if a particular officer is performing his/her tasks responsibly or not. If not, the system will prompt him/her to do the task responsibly.
- When writing a note "onucched", the system will automatically display relevant laws, rules, and policies.
- The system will suggest a decision based on the subject of the incoming Dak and recommend for appropriate recipient(s).
- Automatic Dak information filling through OCR in Dak upload. It will automatically understand the information from the scanned document by analyzing the OCR and image and fill the form.
- The system will identify the text from a scanned or directly received "Dak" and automatically generate a note onucched or potro for the user.
- The AI will understand a particular "Dak" to be presented to which Nothi and will suggest accordingly. It will also analyze the Dak's subject and details.
- The AI will identify the appropriate Nothi for a Dak and suggest accordingly by analyzing its subject and content when users perform "নথিতে উপস্থাপন" and "নথি জাত".
- AI will automatically identify and suggest for archiving the old (as per secretariat instructions) or resolved Daks/Note/Onuccheds.
- The system will be able to perform automatic Dak sorting, Dak flagging, and set their priority of incoming Daks by analyzing the user's work patterns, previous activities, summarizing the Dak's content, and finding key insights.
- The system will suggest the content of draft note/onucched, khosra potro based on the subject of the Nothi, the subject of the note, the title and content of the Bibeccho Potro, and previously approved similar notes within this Nothi. It will also specify what files the note needs to reference.

- When writing a note "onucched", the system will automatically display relevant laws, rules, and policies.
- The system will provide an instant alert if procedural, legal, or policy-related steps/ references/ files/ other requirements are missing during note drafting, sending, and approval.
- The system will automatically suggest an appropriate "Khosra Potro" Template based on the Note/Onucched/Bibeccho Potro/Nothi.
- Automatically update the daily calendar based on upcoming DAKs.

5.1.1.5. Performance Optimization

1. Infrastructure and Hosting Optimization

The consulting firm will perform the following tasks in coordination with the a2i technology team and a2i's ITSM team:

- Assess current hosting architecture, resource allocation, and system bottlenecks using infrastructure observability tools.
- Recommend and implement infrastructure upgrades (compute, storage, network) to handle national-scale and multi-cloud operations.
- Enable and coordinate a clean-slate migration of the existing hosting environment to a fully modernized, up-to-date operating system and application stack, in collaboration with the infrastructure team responsible for execution.
- Introduce auto-scaling, container orchestration (Kubernetes/OpenShift), load balancing, and high-availability mechanisms.
- Replacement of oracle file storage-based content NFS by VM based NFS with all content.
- Make CPU utilization more than 40% and RAM utilization more than 40% to optimize deployment resources of nothi.

2. Database Optimization

- Conduct database audit to identify garbage/unnecessary data and design a clean-up and data lifecycle management strategy.
- Implement indexing, query optimization, sharding, caching, and partitioning for faster data retrieval.
- Archive historical and inactive records to reduce active database load.
- Introduce database observability, monitoring, and AI-driven tuning tools for continuous improvement.
- Ensure data encryption (at rest and in transit) and compliance (GDPR, ISO 27001).

3. NFS (File Storage) Optimization

- Saving Potros (Letters) as HTML or TXT rather than PDF as PDF is much weighted than HTML/TXT.
- Write script to reduce unnecessary weight of existing files in the server.
- Audit the existing NFS storage to identify redundant and duplicate files.
- Design and implement data optimization and archiving strategy.
- Introduce efficient file compression, CDN integration, and intelligent caching for faster access.
- Adopt object storage solutions (e.g., S3-compatible) where necessary for scalability and cost-effectiveness.

4. Application and Codebase Optimization

- Upgrade the core application framework language from PHP 7.4 to latest stable version.
- Refactor critical modules, services, and APIs to improve execution speed and efficiency.
- Adopt API Gateway with caching, throttling, and monitoring features.

- Eliminate redundant processes and optimize algorithms for faster workflow handling.
- Ensure compliance with clean coding, security, and maintainability standards.

5. **System Monitoring and Performance Management**
   - Deploy APM (Application Performance Monitoring) tools to monitor real-time system performance.
   - Introduce automated alert systems to detect and mitigate slowdowns or outages.
   - Establish performance KPIs (latency, response time, uptime, throughput) and track improvements continuously.
   - Submit monthly monitoring report.

6. **Process Simplification and Workflow Optimization**
   - Review existing workflow processes to identify bottlenecks causing delays.
   - Simplify and re-engineer workflows to reduce system load and improve efficiency.
   - Introduce caching and asynchronous processing where feasible to optimize task execution.

7. **Security and Reliability Measures**
   - Strengthen platform reliability by implementing disaster recovery, backup, and failover strategies.
   - Secure optimized storage and database against unauthorized access during clean-up and restructuring.
   - Ensure no data loss while optimizing/cleaning garbage and redundant data.

8. **Capacity Building and Knowledge Transfer**
   - Document the optimization activities, guidelines, and standard operating procedures.
   - Train the operations and development teams on maintaining optimized infrastructure and applications. a2i will arrange the capacity building and knowledge transfer sessions bearing all the cost associated with the sessions.
   - Establish a sustainable performance management framework for future scalability.

The consulting firm will perform this performance optimization activities in coordination with a2i's technology team and the ITSM team.

5.1.1.6. Database and File Storage Archiving
The consulting firm will implement a standard structured archiving and optimization mechanism to ensure long-term sustainability, scalability, and performance of D-Nothi platform

The consulting firm will:
- Design and implement a data lifecycle management and archiving mechanism for D-Nothi.
- Optimize both database and file storage for faster access.
- Introduce application-level enhancements to ensure smooth user experience.

- Establish a governance and automation framework for continuous performance management.

Activities:

1. Assessment & Policy Development
- Conduct a detailed analysis of office-wise database and file storage growth.
- Classify offices by data size (small, medium, large, very large).
- Develop and document a data retention & archiving policy (e.g., active data = last 3 years, archive data = older than 3 years).
- Ensure compliance with relevant GoB rules on record retention.

2. Database Optimization
- Implement time-based partitioning/sharding for large volume tables (Dak, Nothi, Potro).
- Design and deploy an archive database cluster optimized for read-only access.
- Migrate data older than the defined retention period into the archive cluster.
- Rebalance existing database clusters, allocating high-volume offices to dedicated clusters.
- Apply compression and indexing for large tables to reduce storage footprint and speed up queries.

3. File Storage Optimization
- Separate file storage into hot (active) and cold (archive) tiers.
  - Active files: stored in high-speed SSD/NVMe storage.
  - Archive files: migrated to cost-effective object or cold storage (e.g., S3-compatible or BDCCL tiered storage).
- Restructure existing folder hierarchy to support tiered storage with index references.
- Ensure archived files remain searchable and retrievable on demand from the active platform.

4. Application Enhancements
- Modify application logic to support lazy loading: default load = current year's data; older years loaded only when requested.
- Enforce query pagination and optimization across all modules.
- Introduce caching mechanisms (Redis/Memcached) for frequently accessed metadata and recent records.
- Develop a unified archive search panel to provide seamless access to both active and archived data.

5. Governance & Automation
- Develop and configure an annual automated archiving job (e.g., at year-end, migrate data older than 3 years to archive).
- Implement monitoring and alerting for database growth and slow queries.
- Build a performance dashboard for system administrators to track DB/file size, archive ratio, and query health.
- Establish a backup and disaster recovery strategy covering both active and archived data.

Deliverables:

The consulting firm will deliver:

1. **Archiving and Retention Policy Document**
2. **Database Optimization Plan & Implementation** – Partitioning, archiving, cluster rebalancing, compression.
3. **File Storage Tiering Implementation** – Hot/cold storage with transparent retrieval.
4. **Application Enhancements** – Lazy loading, pagination, caching, archive search.
5. **Automation Framework** – Yearly archiving process, monitoring tools, alerting system.
6. **Governance Framework** – Performance dashboards, backup/DR compliance.
7. **Final Deployment & Training** – Knowledge transfer to a2i technical team, including operations manuals.

5.1.1.7. Digital Signature Implementation

The consulting firm will implement digital signature in Note onucched. The signed note will be downloadable, and it can be verifiable by third-party organization (if necessary).

Outcome:
   (i)   Privacy protection
   (ii) Tamper-evident decision making
   (iii) Incorporation of Third-party verifiable digital signature in Note onucched.

5.1.1.8. Verifiable Digital Seal (VDS) Implementation

GO/NOC documents currently expose sensitive personal information when published for verification, creating privacy risks. A secure, privacy-preserving model is required so that public documents show only essentials, while confidential details are revealed only to authorized verifiers. The consulting firm will implement VDS (Verifiable Digital Seal)-based issuance and verification for GO/NOC through Nothi→ Certifying Authority (CA), with QR as the official authentication data at verification points.

Scope:
- Documents: GO & NOC issued via Nothi.
- Channels: PDF with embedded VDS QR; CA Verifier App for DIP counters.
- Functions: Issue, amend, revoke; real-time verification; audit logs; admin reporting.

Outcome:
   (iv) Privacy protection
   (v)   Tamper-evident documents
   (vi) Faster, auditable verification
   (vii) National standard for secure government documents.

5.1.1.9.D-Nothi Native Login

Currently D-Nothi is using Doptor's SSO login. The consulting firm will develop Native Login for D-Nothi platform so that D-Nothi users can access and perform activities in the platform in case of any interruption of the Doptor's SSO login. This will help to overcome the challenges of the single point of failure of D-Nothi login.

5.1.1.10.System Audit Logs Preservation and Visualization

1. Log Collection, Preservation and Destroy
- Capture all user activities (login, logout, document creation, edit, delete, forward, approval).
- All the activity logs of the office admin will be preserved in the system and displayed in the Audit Dashboard.
- Record administrative actions (role change, permission update, configuration change).
- Preserve system-level events (errors, failed login attempts, unauthorized access attempts).
- Timestamp every log entry with date, time, and time zone.
- Store logs in a tamper-proof repository with retention policy (configurable by competent authority).
- System will destroy and clear the older logs as per the policy of the authority.

2. Log Structure and Details
- Log entry must include:
    - Unique Log ID – auto-generated event identifier.
    - Timestamp (UTC, with millisecond precision) – standardized format (e.g., ISO 8601).
    - User ID / Name / Role – mapped to authentication source (SSO, AD, OAuth).
    - Office / Department – organizational context.
    - IP Address – source and destination.
    - Device Information – device type, OS, browser, MAC address (if possible).
    - Action Performed – CRUD (Create/Read/Update/Delete) or specific event, with before/after state where applicable.
    - Location – geo-location (IP-based or GPS if mobile).
    - Access Channel – web, mobile, API, CLI.
- Unique Log ID for each event for reference.

3. Visualization and Analysis
- Interactive Audit Dashboard with filters by user, office, action type, and date range.
- Graphical charts showing activity trends (e.g., logins per day, failed attempts, file access volume).
- Searchable log repository with keyword-based queries.
- Exportable reports (CSV, PDF) for investigation and compliance.

4. Security and Forensics

- Immutable storage of logs to prevent alteration or deletion.
- Tamper detection with checksum or digital signature validation.
- Anomaly detection alerts (e.g., unusual login times, mass downloads, multiple failed attempts).
- Ability to trace complete activity trail of a specific user/session.

5. Administrative Features

- Role-Based Access Control (RBAC) – only authorized officials can access, view, or manage audit logs.
- Configurable Log Retention – customizable retention periods (e.g., 1 year, 5 years) based on compliance requirements.
- Automated Summary Reports – scheduled reports sent to designated authorities with key insights and anomalies.
- Archiving & Long-Term Storage – seamless archiving of older logs to secondary or cloud-based storage for preservation.
- Immutable & Tamper-Proof Logs – support for append-only storage (WORM) and cryptographic integrity checks.
- Delegated Administration – controlled delegation of log access and report management to specific roles or teams.
- Audit Trails on Log Access – every log view, export, or modification attempt is itself logged for transparency.
- Secure Backup & Recovery – automated backup of log repositories with tested recovery procedures.
- Multi-Tenant/Domain Support – ability to segregate logs and access per department, agency, or project.

5.1.1.11. SRE (Site Reliability Engineering) Implementation

1. **SRE Framework Establishment**

   - Define SRE principles, objectives, and practices tailored for D-Nothi operations.
   - Establish Service Level Indicators (SLIs), Service Level Objectives (SLOs), and Error Budgets for core functionalities.

2. **Monitoring and Observability**

   - Deploy comprehensive monitoring tools for infrastructure, application, database, and storage layers.
   - Implement logging, tracing, and metrics collection for end-to-end observability.
   - Build real-time dashboards for system health and performance tracking.

3. **Incident Management and Response**

   - Establish incident detection, classification, and escalation workflows.

- Implement automated alerting and notification mechanisms.
- Define Incident Response Playbooks to ensure quick recovery during outages.

4. Performance and Reliability Engineering

- Conduct load testing, stress testing, and capacity planning exercises.
- Optimize system architecture to minimize downtime and latency.
- Introduce caching, replication, and failover strategies for high availability.

5. Automation and Tooling

- Automate deployment pipelines (CI/CD) for faster and safer releases.
- Dockerization of all components of the Nothi system (frontend, backend, emailer, pdfmaker, dashboard/report etc.)
- K8S deployment of all components of Nothi systems.
- Automate routine maintenance tasks such as scaling, backups, and monitoring checks.

6. Change and Release Management

- Define safe release practices with canary deployments and rollback mechanisms.
- Introduce automated testing and validation pipelines before production rollout.
- Monitor release impact in real time to minimize risks.

7. Security and Compliance

- Integrate security monitoring and vulnerability scanning into SRE workflows.
- Ensure compliance with government data protection and operational standards.
- Implement role-based access and audit logging for critical operations.

8. Disaster Recovery and Business Continuity

- Design and implement disaster recovery plans, backup strategies, and failover systems.
- Conduct periodic DR drills to validate readiness.
- Ensure zero data loss and minimal downtime during failovers.

9. Continuous Improvement and Postmortems

- Perform root cause analysis (RCA) for major incidents.
- Conduct blameless postmortems and document lessons learned.
- Continuously refine SLOs, SLIs, and reliability practices based on insights.

10. SRE Dashboard

- Develop and implement SRE Dashboard to visualize, monitor the progress of SLOs, SLIs, Error Budget, etc.

- The Dashboard prompts the SRE team for adequate action

5.1.1.12. Research & Development

The consulting firm will engage an R&D team for extensive R&D. The team will create a D-Nothi R&D instance from some live offices suggested by the a2i technology team and D-Nothi implementation team. The R&D team will analyze the processes, data, files and information in potential areas to identify technological scopes and solutions to enhance the performance and user friendliness of D-Nothi system. The firm will create an R&D instance of D-Nothi extracting a group of live/training offices for the analysis and performance optimization.

Here is the scope of R&D:

I.   D-Nothi R&D instance creation with a2i suggested offices (At least 01 Ministry, 01 Directorate/Department, 01 District and 01 Upazila Level Offices).
II.   Exploring the options to mitigate data mismatch and performance optimization of the dashboard.
III.   Exploring the options for file storage (NFS) migration to MinIO/S3 object storage for performance enhancement.
IV.   Exploring pros and cons in terms of performance by replacing encrypted signature image data with file-based image or any other better options. Use SVG instead of other formats such JPEG, GIF, PNG, etc.
V.   Analyzing unused files/ garbage files storage and exploring mechanism to clean those and optimize file storage.
VI.   Analyzing databases to clean unused/ garbage data to enhance database performance.
VII.   Identifying garbage/unnecessary data, files and developing a clean-up and data/files lifecycle management tool as per Secretariate Instructions 2024.
VIII. Exploring options for query optimization, indexing, caching for database performance optimization.
IX.   Exploring service process simplification options for performance enhancement.
X.   Analyzing options for NFS and Database Archiving.
XI.   Exploring incremental database backup with open-source tools.
XII.   Reducing the unnecessary weight of the files while saving in the server without compromising the required quality. Write script to reduce the existing files of the offices in the server.

The R&D team will present the periodic report and recommendation to a2i. The consulting firm will implement the recommendation consulting with the a2i technology team.
If Proof of Concept (PoC) is required for any R&D scope, the consulting firm will conduct that accordingly in R&D instance consulting with a2i Technology team.

Common R&D and PoC Activities:
- Define clear success criteria and measurable performance indicators.
- Develop test scenarios and evaluate improvements against baseline benchmarks.

- Prepare periodic progress updates for a2i.
- Deliver final PoC reports including findings, results, and recommendations for full-scale implementation.
- Conduct demonstration sessions with a2i stakeholders to validate outcomes.
- Implement R&Ds and PoCs in consultation with the a2i technology team.

5.1.1.13. API Manager / Gateway

API Manager acts as a central gateway for availing access to all relevant service consumers. API manager provides a centralized platform which acts as a reverse proxy, receiving requests and routing API requests from clients and forwarding them to the appropriate backend services.

1) API Manager acts as a central gateway for providing access to service consumers.
2) It functions as a reverse proxy, receiving requests from clients and routing them to the appropriate backend services.
3) The API Manager provides a centralized platform for managing APIs and their access.
4) It ensures that service consumers can conveniently access the relevant APIs.
5) The API Manager plays a crucial role in facilitating the interaction between clients and backend services.

D-Nothi already have an API Manager/Gateway in place. The consulting firm will review, analyze, enhance that and ensure API implementation standards.

5.1.1.14. Integration

The D-Nothi platform is the central government file and correspondence management system used nationwide. To enhance digital governance and ensure interoperability, D-Nothi has already developed APIs that external government agencies can use to integrate their digital platforms. As more agencies request access to these APIs, a2i aims to establish a robust integration framework that focuses on secure access, governance, performance optimization, monitoring, and capacity building. This will allow agencies to reliably exchange notes, letters, approvals, dashboards, and reports with D-Nothi, thereby streamlining government operations and ensuring consistency across platforms. The consulting firm will support the external agencies to integrate their digital systems with D-Nothi platform.

No.	System Name	Purpose	Dependent Organization
1	A2i Billing System	Billing data collection from D-Nothi to generate office wise bills.	a2i, ICT Division
2	Digital Signature (Onucched)	Generate digitally signed note onuccheds.	BCC, CAs

3	VDS (Verifiable Digital Seal)	Protect personalized data and information from govt. GO, NOC and other letters.	BCC, CAs
5	RMS (Report Management System)	Allow offices to approve their reports and send them to the respective authorities.	Cabinet
6	GRS (Grievance Redress System)	Allow users to take decisions for grievance related activities.	Cabinet
7	Alaap App	Allows users to make free app-to-app voice and video calls, and send messages, like other messaging apps like WhatsApp.	Bangladesh Telecommunications Company Limited (BTCL)
8	External e-Gov Systems	Decision supports from D-Nothi Platform	Govt. Organizations

5.1.1.15. Holiday Calendar

Maintain and enhance the Government Holiday Calendar and provide API service to other Applications.

5.1.1.16. Service Register

Analyze and enhance the existing service register which is a service dashboard for the individual officer as for the office sections. Here service refers to D-Nothi tasks such as processing Dak, Note, Potrojari, etc. that performed by the office users using the D-Nothi platform.

5.1.1.17. Searching

- Enhance the search by adding spelling suggestions.
- Enhance the searching by adding relevancy suggestion.
- Continuously optimize the search index for better searching and storage usage.
- Provide data model from search index to use in other system as / when required.

5.1.1.18. Reporting

- Enhance the existing UI/UX of Reporting Module
- Provide reporting in a categorical way like Pre-Template Based, Column-Based setting.
- Analytical Reporting features.
- Provide queue-based export function for Reports.

5.1.1.19. Task Manager

Enhance the existing Task Manager to facilitate users to create, assign tasks and manage/maintain his/her regular task and view his/her own task at a glance in Calendar Dashboard.

5.1.1.20. Notification System

Analysis and review of the existing Notification System and enhance the system as the business scope of the D-Nothi platform. When an officer is tagged, mentioned, or assigned a role (e.g., committee member, transfer order, promotion, nomination for training or special assignment) in any letter or government order, the system should send automatic notifications via multiple channels (Email, SMS, or WhatsApp). This notification will operate independently of recipient lists to ensure all relevant officers are properly informed. The cost of any third-party modules/packages required for implementation of this Notification System will borne by a2i.

5.1.1.21. D-Nothi Billing

D-Nothi will generate office wise monthly bill based on the stored data, file processing, consumed bandwidth, provided support, etc. The D-Nothi will be integrated with a2i's Billing System and D-Nothi will send the billing information to the Billing System to generate reports as expected.

5.1.1.22. Security and Privacy policy

The system's authentication and permission system are robust to ensure the highest level of security. The following measures will be placed to prevent any kind of security breach:

- Invalid Input: To cover data integrity and user access, all incoming data will be validated, checked and purified before acting on that.
- URL restriction: The system should have feature to protect to access the content by guessing and this will automatically be prohibited.
- Protected Administration Panel: The admin panel URLs of the portals will be different from the well-known portal URLs. The communication between the user's browser and the administration panel will be SSL encrypted to prevent data hijacking through network protocols.
- Password Hashing: All kinds of passwords in the system will be hashed using a one-way algorithm and random salts will be used to strengthen the hashing mechanism.
- Session and Cookies: User sessions and cookies will always be re-generated uniquely each time they log in.
- Disclosure of Sensitive information: In case of any system failure or error condition, no sensitive information (ex: database credential, Database or table name, URL, directory) will be displayed on the site. All kinds of errors will be suppressed and logged and will be only accessible by the administrators with proper rights.
- CSRF Prevention: To prevent CSRF (Cross-Site Request Forgery) attack, automatic tokens will be generated for each form so that unauthorized submission of forms cannot take place.

- SQL Injection: Ensure prepared statements and proper escaping to prevent SQL and Code injections.
- Cross Site Scripting Prevention: The contents submitted by the end users (ex: comments) should always be filtered to remove all malicious script so that XSS (Cross-Site Scripting) cannot take place.

The consulting firm will resolve the issues timely generated in VAPT (Vulnerability Assessment and Penetration Testing) report provided by a2i.

5.1.1.23. Mobile App Enhancement (IOS and Android)
D-Nothi already have iOS and Andorid Mobile Apps. The consulting firm will analyze the existing Apps features, update and enhance those to professional and standard Mobile Apps. Here are some of the features which need to develop/enhance in the Apps:

SL	Description
1	To integrate biometric recognition for faster login.
2	Currently, the app does not allow for the creation of "Khoshra Potro" in all formats. The ability to create and edit "Khoshra Potro" in all formats must be provided.
3	An advanced, smart, simple and self-explanatory interface.
4	Calendar feature (for creating, editing, and sharing daily routines of office heads) + task list.
5	All web fonts must be added.
6	Add "Doptor" option to the main menu.
7	Add helpdesk options in the inner screens of the Apps after login.
8	Add the feature to upload and verify Dak by scanning QR code.
9	Add search button to all lists, including Dak, Nothi, and note.
10	Add a theme to the main menu and auto-sync it with the mobile's dark theme.
11	There will be "Prishthangkon" facility.
12	Dak tracking, settings and tagging.
13	In the app, there must be an option to copy and paste text from any document, letter, or paragraph. For example: to copy/paste text from a Potro to a note onucched.
14	e-Sign and third-party apps integration (OCR, STT, Spell Checker).
15	The system should be compatible with all types of Android and iOS devices (E.g., iPads, Foldable Phones, etc.).

5.2. Non- Functional requirement
5.2.1. Project Management

The project management plan serves as a comprehensive document outlining the execution, monitoring, control, and closure of a project. It brings together and incorporates all subsidiary management plans, baselines, and essential information required for effective project management. The project management team assure the system

performance with optimized resource utilization also share performance index & upgrade with discussing all stockholders. The specific requirements of the project dictate the inclusion of relevant components within the project management plan.

Initiation: Initiation will mark the initial phase of the project lifecycle. During this stage, the project's value and feasibility will be assessed. The identification of all project stakeholders will also take place in this phase.

Planning: After receiving approval, the project will require a robust plan to lead and ensure the team's adherence to schedule and budget. A meticulously crafted project plan will provide guidance on resource allocation, securing financing, and procuring necessary materials. It will provide clear direction to the team in terms of delivering high-quality outcomes, mitigating risks, fostering stakeholder acceptance, communicating benefits, and effectively managing suppliers. Additionally, the project plan will equip the team with the necessary preparation to tackle any obstacles that may arise throughout the project and facilitate their comprehension of the project's cost, scope, and timeframe.

Execution: The upcoming phase, often synonymous with project management, will be the Execution phase. Its primary objective is to construct deliverables that meet customer requirements. Team leaders will play a crucial role in accomplishing this by allocating resources and ensuring team members remain dedicated to their assigned tasks.

Monitoring and Control: Monitoring and Control will be integrated with Execution as they frequently take place concurrently. While teams carry out the project plan, they will continuously monitor their progress. This constant vigilance will facilitate the smooth progression of the project.

Closure: Project will be considered closed once the team delivers the completed project to A2I. This crucial phase in the project lifecycle enables the team to assess and document the project, subsequently transitioning to the next endeavor.

5.2.2. Change Management

The Change Management process aims to effectively manage and implement changes, enhancements, and updates to the system while minimizing disruption and maximizing user acceptance. It involves identifying, planning, communicating, and controlling changes to ensure smooth transitions and successful adoption by government officials and users. The supplier will be responsible for following and maintain the 7'R of change management process.

7'R are:

- Who RAISED the change?
- What is the REASON for the change?
- What is the RETURN required from the change?
- What are the RISKS involved in the change?
- What RESOURCES are required to deliver the change?
- Who is RESPONSIBLE for the build, test and implementation of the change?

The Change Management process shall include the following functionalities:

1. **Change Request Management**: Establish a systematic process (Following CMMI/ITIL/any standard) for submitting, evaluating, and approving change requests, considering their impact, priority, and alignment with Business as well as organizational objectives.

2. **Change Planning and Documentation:** Develop change plans that outline the objectives, scope, timelines, resource requirements, and risks associated with proposed changes. Document all changes and associated processes (Incident, release).

3. **Stakeholder Communication:** Establish effective communication channels and strategies to keep stakeholders informed about upcoming changes, their benefits, and potential impacts. Provide regular updates and address concerns or queries.

4. **Training and User Support**: Develop training materials, conduct training sessions, and provide user support to ensure users understand the changes, their implications, and how to utilize the updated Nothi effectively.

5. **Change Implementation and Testing:** Execute changes following a structured and controlled approach, including proper testing, validation, and quality assurance. Minimize disruptions and errors during implementation.

6. **Post-Implementation Evaluation:** Monitor the effectiveness and performance of implemented changes, gather feedback from stakeholders, and evaluate the impact of changes on the Nothi's efficiency and user satisfaction.
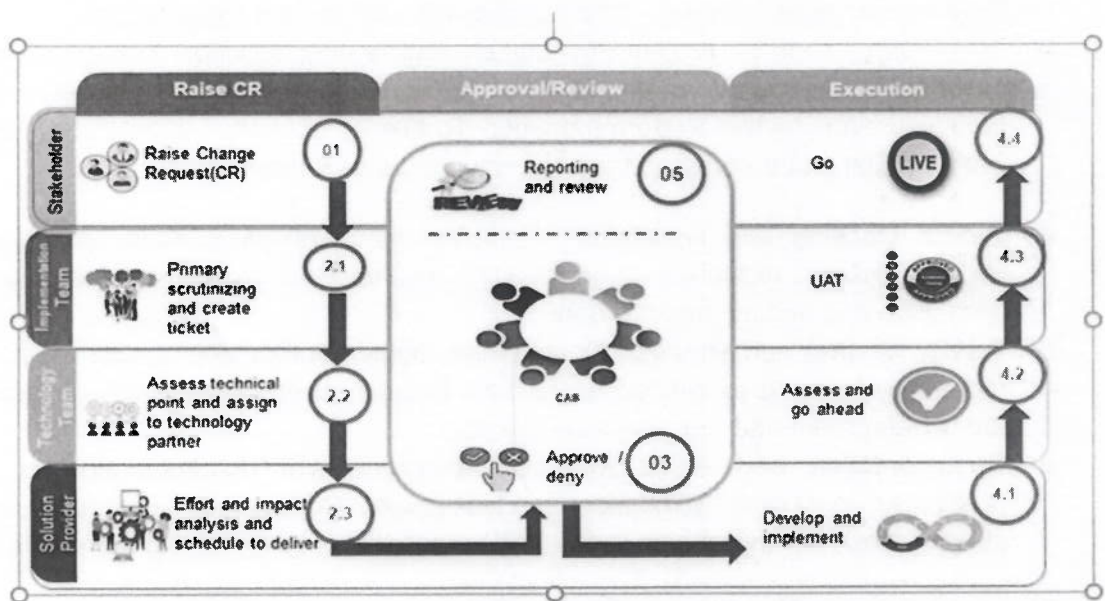
Existing change management Process

5.2.3. UI/ UX

The consulting firm will incorporate the UI/UX for both Web and Mobile Apps to make D-Nothi more user friendly and professional. A2i will provide UI/UX designs to the consulting firm to incorporate those following the suggestions and guidance of a2i experts. The consulting firm will perform internal testing of the design and fix the issues. The consulting firm will arrange

UAT for the new design and fix the issues and recommendations received from the UAT sessions. The cost of the UAT session(s) will be borne by a2i.

5.2.4. Quality Assurance and Testing

The QA and testing team's mission are to help developers to deliver the best possible product within the estimated timeline, detecting any issues that might block the successful operation of the software or even affect the user experience. The QA and Testing team will follow any of the international quality management system standards such as ISO 9001/AS9100/ Six Sigma/CMMI. There will be 2 major parts of the quality assessment:

1. Functional – the product's compliance with functional (explicit) requirements and design specifications. This aspect focuses on the practical use of software, from the point of view of the user: its features, performance, ease of use, absence of defects.
2. Non-Functional – system's inner characteristics and architecture, i.e. structural (implicit) requirements. This includes the code maintainability, understandability, efficiency, and security.

Expected Activities
1. Quality Planning: Develop a comprehensive quality management plan that outlines the objectives, processes, and resources required to ensure the quality of the Nothi.
2. Requirement Validation: Verify and validate the requirements of the system to ensure they are complete, accurate, and aligned with stakeholder expectations.
3. Test Planning and Execution: Plan and execute testing activities, including functional, performance, security, and usability testing, to identify defects, ensure system reliability, and validate system behavior. To ensure maximum quality of the platform both manual and automated tests will have to be performed.

4. Defect Tracking and Resolution: Establish mechanisms to track, prioritize, and resolve defects identified during testing or reported by users, ensuring timely resolution and quality improvement.
5. Quality Control and Process Compliance: Implement quality control measures to monitor adherence to defined processes, standards, and best practices throughout the development and maintenance lifecycle.
6. Documentation and Audit: Maintain comprehensive documentation of quality processes, test plans, test cases, and test results. Conduct periodic quality audits to identify areas for improvement and ensure compliance with quality standards.

The consulting firm should have to perform below testing:

a. **Unit testing**
   Unit testing is to verify individual components, modules and features of the system for correctness. Automated or manual testing of each code unit will be accomplished by developers before integration.
b. **Integration testing**
   This testing will ensure correct interaction and data exchange between modules and external systems. The QA team will conduct end-to-end tests on connected modules to verify data exchange and workflow.

c. **Regression testing**

This test will confirm that recent code changes do not break existing functionality. The QA team will execute previously created test cases after every update, bug fix, or enhancement.

d. **Smoke testing**

This test will validate that the critical functionalities of the system are working. The QA team will perform quick checks on major features before detailed testing; usually automated or manual.

e. **Whitebox testing**

Following this testing, the developers will examine the internal logic, code paths, and structure of the application. Code-level testing will be performed by developers to detect logic errors, vulnerabilities, or improper handling.

f. **Functional testing**

The QA team will perform functional testing to ensure that system functions meet the specified requirements. The team will execute test cases based on functional specifications, including workflows, user actions, and business rules.

g. **User Acceptance Testing**

User Acceptance Testing (UAT) will validate that the system meets the real users' needs and expectations. a2i will conduct the UAT sessions ensuring presence of end-users in a controlled environment with real-life scenarios; feedback documented for resolution.

h. **Performance testing**

The QA team will conduct this testing to assess system responsiveness, stability, and scalability under expected conditions. The team will Simulate realistic usage scenarios using performance testing tools; measure response time, throughput, and resource utilization.

i. **Load Testing**

Software load testing is a type of performance testing that evaluates the behavior and performance of a software system under normal and anticipated peak load conditions. It involves subjecting the software application to simulated user traffic and workload to assess its response time, scalability, and reliability. The primary goal of load testing is to identify performance bottlenecks and ensure that the software can handle the expected user load without degradation in performance.

key aspects and objectives of software load testing will be:

1. Performance Assessment.
2. Response Time Analysis.
3. Stress Testing.
4. Resource Utilization.
5. Performance Optimization.
6. Failover and Recovery Testing
7. Capacity Planning

The consultant firm will be responsible for performing a load test on overall D-Nothi application, rectifying the artifacts and resolving accordingly.

The consulting firm will perform the tests mentioned and submit test reports in a timely manner.

5.2.5.   IT Service Management

The Consultancy firm will manage, administer and monitor the technology Infrastructure that includes Physical Server, Virtual machine, Services, network etc. The firm will ensure that the development and deployment will maintain a continuous process involving the team members of all teams concerned. They will follow and establish the standard DevOps practices throughout the team. The major scope of the assignment will be:

- IT Service Management
- NOC Operation
- Resource administration
- Incident Management
- Change Management
- Adopting Continuous Integration and Continuous Delivery (CI/CD)
- Version controlling
- Automated testing
- Performance Tuning
- Data back and data integrity testing.
- Monitoring and logging
- Collaboration and communication
- Security

5.2.5.1. IT Service Management:

ITIL & COBIT service management processes and procedures will be put in place and followed for IT operations management and to ensure measurable IT service and re-enforce compliance.

5.2.5.2. Incident Resolution:

The NOC escalated event or any incident escalated by any party should be assessed by the service provider. Also, the event and incident should be resolved by the vendor when that is under the scope and for the event outage for the scope the vendor should immediately notify the client and respective data center.

1. The events and/or incidents should be resolved by the solution provider within a predefined resolution time
2. The resolutions which are not under the scope of the vendor should be jointly monitored by vendor and a2i.
3. The resolution history should be documented for further references in KEDB
4. All the incidents should be recorded, and a summary has to be reported monthly to the client.

5.2.5.3. Root Cause Analysis:

Reactive problem management focuses on solving problems in response to one or more incidents as they occur; proactive problem management focuses on identifying and solving problems and known errors that might otherwise be missed, thereby preventing future incidents. Should be looking for repeat incidents with the same category, affected service, configuration item (CI), cause, or resolution:

1. Performing trend analysis of incident records.
2. Detecting duplicate and recurring issues.
3. During major incident management, identifying a risk that an incident could recur.

5.2.5.4. Resource Administration:

Covers the identification, recording, and reporting of IT components, including their versions, constituent components and relationships. A series of reviews and audits that verify the physical existence of CIs and check that they are correctly recorded in the *Configuration management system.*

2. **Help organizations in various activities:** To plan, control, manage, monitor, evaluate and provide accountability for IT Assets. To provide accurate *asset* information for various business processes.
3. Deals with maintaining up-to-date and verified database of all assets and CIs which are also made available to other service management processes.

5.2.5.5. Change Management:

Ensure that standardized methods and procedures are used for efficient and prompt handling of all changes to configuration(s) of IT infrastructure with assistance from data center authority (if required), in order to minimize the number and impact of any related incidents upon service

1. patch management.
2. management and co-ordination of Change implementation
3. assessing the impact, benefits and risk of Changes
4. ensure that changes are recorded, evaluated, authorized, prioritized, planned, tested, implemented, documented and reviewed in a controlled manner.

5.2.5.6. Capacity Planning

Based on the performance of the existing system, growth rate of the data and users, technology lifecycle, projection of new office, user integration etc. the service provider will analyze the requirement of capacity enhancement and share the technical suggestions with the client.

1. The solution provider has to prepare the requirement proposal for computing capacity enhancement (storage expansion, memory extension, node addition etc.) in order to ensure performance and availability of the infrastructure based on existing growth rate, performance, incident trends, upcoming requirement etc.

2. The expansion of capacity which could be done through optimization within the managed software and hardware environment and without any financial involvement should be done by the solution provider.

5.2.5.7. Reporting

Service Provider should periodically share report with A2I which will depict the performance, utilization, capacity of the system, reason of incidents, required of preventive actions, deviation of the system from the baseline, history of corrective action etc. to ensure transparency of service and deliverables.

1. The solution provider will share reports associated with availability, performance of system and SLA in a pre-approved format with the client that includes:
    i.   Data Backup Drill
    ii.   Operating System patch and update details.
    iii. Service/System Availability Reports.
    iv.   Data Storage capacity Report
    v.   Public IP block usage
    vi.   Bandwidth consumption
    vii. Server Capacity and Health Check Report
    viii. Network Capacity and Health Check Report
    ix.   IT and Security Incident Monitoring Report
    x.   Data Backup Report
    xi.   Root cause analysis

2. The solution provider will share the security assessment and gap report as per predefined standards.
3. The solution provider should prepare the on-demand report as requested by the client on the managed devices and software.

5.2.5.8. Incident Resolution

Incidents should be resolved by the Consulting firm when that is under the scope and for the event beyond the scope the Consulting firm should immediately notify the client and respective data center.

- The events and/or incident should be resolved by the Consulting firm within predefined resolution time.
- The resolution history should be documented for further references. All the incidents should be recorded, and summary has to be reported periodically to the client.
- The events and/or incident should be resolved by the Consulting firm within predefined resolution time.
- The resolution history should be documented for further references. All the incidents should be recorded, and summary has to be reported periodically to the client.
- Performing trend analysis of incident records

- Detecting duplicate and recurring issues and fixing them accordingly to avoid recurrency. In case of any dependency, the consultant firm will advise the client

5.2.5.9. Root Cause Analysis

Reactive problem management focuses on solving problems in response to one or more incidents as they occur; proactive problem management focuses on identifying and solving problems and known errors that might otherwise be missed, thereby preventing future incidents. Consulting firm should be looking for repeat incidents with the same category, affected service, configuration item (CI), cause, or resolution:

- Performing trend analysis of incident records

- Detecting duplicate and recurring issues.

5.2.5.10. DevOps process

The consulting firm will also be responsible for adopting the standard DevOps Process. That includes:

- Plan: This phase involves the planning and design of software products, identifying user requirements and defining project objectives.
- Development: In this phase, development teams write code and test the software using automated testing tools.
- Test: During this phase, the software is tested for functionality, performance, security, and usability. Testing is typically done using automated testing tools.
- Deploy: In this phase, the software is deployed to production environments using automated deployment tools.
- Operate: Once the software is deployed, it is monitored and maintained using automated monitoring and maintenance tools.
- Monitor: In this phase, the software is continuously monitored for issues, and the data collected is used to improve future iterations of the software to achieve the performance utilizing optimum resources.
- Iterate: Based on the feedback and data collected from the monitoring phase, development teams iterate on the software, making improvements and adding new features as necessary.

5.2.6. Support & Helpdesk

The firm will ensure continuous support and maintenance by deploying multi-layered support services. The scope of the assignment and deliverables are:

1. Helpdesk Support (1st Layer Support):

The efficient provision of first-layer helpdesk support will be the responsibility of the firm. Several dedicated agents will be responsible for addressing user queries and providing assistance.

The firm will ensure that the helpdesk support team will be well-equipped and capable of delivering high-quality support services.

2. Issue Management (2nd Layer Support):

For issue management, we need to have a monitoring and review stage after actions are implemented. Here are the proposed steps:
- Issue investigation, issue Categorization, Prioritization and Escalation.
- Preparing and managing SoP based on the frequently asked questions and fixing basic level troubleshooting issues of application, database, and infrastructure in accordance with the prepared SoP.
- Collaboration and coordination among the layers.
- Collecting feedback from both service recipient and service provider end and adjusting feedback through the proper communication and coordination with Nothi Team and Technology Team.
- Prepare customized support reports for the management

3. Technical Support (3rd Layer Support):

Consulting firm will ensure third-layer technical support in collaboration with core technology partners of Nothi platform. Here are the proposed steps:
- Core applications, Database and Infrastructure level bug fixing.
- Accommodating change requests at Core applications, Database and Infrastructure level.
- Continuously analyze service logs and take necessary actions if required.
- Taking prompt preventive action solely or with the help of core technology partners if any misconfiguration or anomaly is found in the Core applications, Database and Infrastructure.
- Periodically health checking of Core applications, Database and Infrastructure.

The consulting firm will have to deploy:
- A support ticket management system and provide necessary accesses to the management so that they can track the issues and monitor the overall project status.

5.2.7. **Capacity Management:**
The consulting firm will develop a capacity management framework, provide training support, assist with training planning and materials, provide trainers, collect feedback, and offer other relevant assistance as needed for capacity enhancement.
- The Consulting firm will arrange knowledge sharing and brainstorming workshop at least 2 times a year to explore new technology.
- The Consulting firm will assist in preparing the training related documents, presentations and user manuals.
- Furthermore, any other relevant assistance regarding training and workshop will be provided by the consulting firm as and when required.

5.2.8. Documentation and Manuals

The firm must deliver comprehensive documentation covering architecture, database schema, APIs, infrastructure, and user interaction flows. All documents must adhere to best practices and standards. API documentation must follow OpenAPI/Swagger format, while infrastructure documentation must include environment setup, server roles, and failover procedures.

Technical Documents
The following is an approximate list of technical documents required for the successful completion of this assignment:

1. Terms of Reference (ToR)
2. Inception Report
3. Software Requirement Specification (SRS)
4. SDD (Software Design Document)
5. Source Code (a2i Internal Git repository)
6. Source Code Document / Code Guideline
7. Testing Documents and Reports
8. Infrastructure & Access Management
9. User Manual (PDF, Video)
10. Training manual (PDF, Video)

5.2.9. Workshop and Knowledge transfer:
The firm will cover the costs of workshops, training for the Nothi initiative. These activities will bring stakeholders together to enhance existing systems, equip staff with necessary skills, ensure data security, and leverage emerging technologies. Capacity development will focus on enhancing technical expertise and fostering innovation. The firm's commitment to continuous learning will drive the success of Nothi. This section below may fluctuate and should not be limited to the scope explained within this section. All the costs associated with the knowledge transfer sessions will be borne by a2i.

5.2.9.1. Training/Knowledge Transfer/Capacity Development

- Knowledge transfer initiatives will be implemented to share domain-specific knowledge and best practices among team members.
- These training sessions will cover a wide range of topics, ensuring comprehensive understanding and proficiency among staff members.
- Capacity building programs will be implemented to enhance technical skills and knowledge of the team members.

The focus will be on emerging technologies and industry best practices to stay updated with the latest trends and advancements.

5.2.10. VAPT

a2i will conduct VAPT at least one also based on security incidents. a2i will share the VAPT reports with the consulting firm, and the firm will mitigate the issues timely.

5.2.11. Data Ownership

The ownership of all data generated, processed, transmitted, or stored within the D-Nothi platform shall remain solely with the Government of Bangladesh (GoB). The selected vendor must ensure that no data—whether in raw, processed, metadata, or derivative form—is duplicated, transferred, stored, or used outside the authorized D-Nothi environment without written approval from the authority. All intellectual property rights, documentation, configurations, code repositories, logs, and platform-related datasets shall be treated as government property. The vendor must guarantee unrestricted administrative access and ensure that full data portability is maintained throughout the contract period and after completion of the assignment.

5.2.12. Data Security

The vendor must ensure end-to-end data security for the D-Nothi platform, applying national cybersecurity guidelines and internationally recognized standards such as ISO/IEC 27001, OWASP, and NIST best practices. All data at rest and in transit must be protected through strong encryption mechanisms. The vendor shall implement adequate access control, identity management, security hardening, network-level protection, continuous monitoring, and vulnerability remediation. Any security breach, anomaly, or suspected threat must be immediately reported to the authority along with detailed incident analysis and mitigation actions. The vendor must also ensure secure API communication, regular patching, secure coding practices, and periodic security audits.

5.2.13. Technology Handover

Upon completion or termination of the contract, the vendor shall conduct a comprehensive technology handover to the authority or any nominated agency. This includes full delivery of source code, database, technical documentation, API documentation, system architecture diagrams, deployment scripts, configuration files, test cases, credentials, version control repositories, and operational manuals. The vendor must ensure that all knowledge, processes, and tools required for the uninterrupted operation, maintenance, and future enhancement of the D-Nothi platform are fully transferred. A hands-on knowledge transfer session, along with detailed walkthroughs and technical demonstrations, must be conducted to ensure smooth transition without service disruption.

5.2.14. IT Compliance

The vendor must ensure that the D-Nothi platform and all related services strictly comply with national ICT policies, digital security laws, data protection regulations, and government interoperability guidelines. The platform must also maintain

compliance with international best practices including secure coding standards, accessibility guidelines, data privacy principles, and software licensing norms. The vendor must maintain transparent audit trails, adopt proper change-management procedures, and ensure that all infrastructure, software, and operational activities adhere to IT governance, quality assurance, and documentation standards mandated by the authority.

5.2.15. Language and Localization

The language for the solution will be Bangla, and the solution should be adapted to the other language especially in the English Version.

5.2.16. Availability

- The solution is expected to be available 24 hours per day, 7 days per week.
- The loading time of any non-archive page or content will not be more than 3 seconds.
- The allowed downtime for regular maintenance is 2 to 4 hours per month.
- Solutions must provide a test environment.
- Solutions should provide for automatic failover between the production and the disaster recovery environments.
- Solutions must provide for real-time replication between the production and disaster recovery environments.
- The consulting firm will be responsible for submitting an availability report at the end of each quarter.

5.2.17. Fault Tolerance

- The solution should implement proper exception handling at all layers.
- The solution must be able to recover from exceptions relating to communication failures with external or remote systems.
- The solution must ensure atomicity of transactions such that if any element of a transaction is not successful then the whole transaction is roll-backed completely.
- The solution must ensure that no transaction failure will result in irrecoverable data loss.
- The solution must report back all relevant exception and error messages with clear instructions on recovery methods and next steps.

5.2.18. Supportability

The solution should be modifiable, extensible, and evolvable so as to allow for the future addition of new functionality, features, and capabilities, and exploitation of new technologies.

5.2.19. Configurability

- The behavior of the solution should be controlled through configuration.
- Changes to configuration should not require the modification of source code or redeployment of any packages or compiled objects.
- Local or Central Database tables should be used to store the configuration that controls the solution behavior. This configuration should be loaded automatically at runtime.

5.2.20. **Scalability**

The solution should have the ability to easily expand to accommodate additional users and additional transactions and data as the additional users are added.

5.2.21. **Configuration Management**

Al of the source (I.e. software program codes, database object codes, configuration files, operating system scripts, and system documents) for the solution must be maintained under version control software.

5.2.22. **Human Factors**
- The solution should be intuitive and easy to use by users without prior training.
- The solution should be easy to learn and should allow users to efficiently complete tasks once they have learned the solution.
- The solution should be designed to limit the quantity and severity of user errors and should provide the user with clear error messages and instructions on error recovery.

5.2.23. Minimum SLA Terms to Comply With

Below minimum SLA terms are listed. The consultant firm will ensure the uptime throughout the assignment period while developing, deployment, enhance, maintenance or upgradation of the system. Firm may propose additional terms and terminologies:

- a2i/a2i nominated data center will be responsible for Physical Server, Network Equipment, Power and External Connectivity.
- Availability (Uptime): 99.5% Uptime of Managed server and resources.
- Performance: 98% deployed clusters response time should be less than 30 seconds.
- Fault handling process and response time:

Firm shall propose the fault handling process and response time in accordance to following format.

7 Days a week from 7:00 AM to 11:59 PM hours except for government National holidays:

Priority Definitions	MTTA (mean time to acknowledge)	MTTR (Mean time to Response)	Update Intervals
Out of Service	5 Mins	1 Hour	15 Mins
Service Interruption	10 Mins	4 Hours	60 Mins
Non-Service Affecting	1 Hours	24 Hours	6 Hours
Incident Receive	20 Mins	1 Hour	30 Mins

Beyond working Hours:

Priority Definitions	MTTA	MTTR	Update Intervals
Out of Service	30 Minutes	6 Hours	2 Hours

Service Interruptions	60 Minutes	8 Hours	2 Hours
Non-Service Affecting	90 Minutes	24 Hours	12 Hours
Incident Receive	1 Hour	2 Hours	1 Hours

6. Duration of the Assignment

The total duration of the assignment will be nine (9) months. Both the Development & Enhancement activities and the Maintenance & Support Services shall commence from the first day of signing the contract.

7. Delivery Schedule

SL.	Scope of Work	M1	M2	M3	M4	M5	M6	M7	M8	M9
1.	Inception report	▓								
2.	Requirement Analysis and Finalization, Update SRS and Relevant Technical Documents.	▓	▓							
	D1: Existing Issue Resolution									
3.	D1.1 Potrojari (Letter) related issues			▓	▓					
4.	D1.2 Report issues		▓	▓	▓					
5.	D1.3 Dashboard issues		▓	▓	▓					
	D2: Feature Development and Enhancement									
6.	D2.1 Dak feature development and enhancement		▓	▓	▓	▓				

#	Code	Task
7.	D2.2	Nothi feature development and enhancement
8.	D2.3	Editor feature development and enhancement
9.	D2.4	Potro feature development and enhancement
10.	D2.5	Dashboard feature development and enhancement
11.	D2.6	Mobile App Enhancement (IOS and Android)
12.	D2.7	UI/UX Implementation
13.	D2.8	Integration (a2i's Billing System, Digital Signature, VDS, External e-Gov Systems)
14.	D2.9	D-Nothi Native Login
	D3: Office Merging & Segregation/Splitting	
15.	D3.1	Development of Office Merging & Segregation Tools
	D4: AI Implementation	

#	Code	Task
16.	D4.1	AI implementation
		D5: R&D and Performance Optimization
17.	D5.1	Upgrade application framework, PHP and database versions to latest stable versions.
18.	D5.2	R&D instance creation with a2i suggested offices.
19.	D5.3	NFS to MinIO/S3 object storage/block storage migration.
20.	D5.4	Replacing encrypted signature image data with file-based image or any other better options.
21.	D5.5	Identify garbage/unnecessary data, files and clean-up those as per Secretariat Instructions of the government maintaining required backup (if necessary)
22.	D5.6	Identify unused/ garbage data and perform PoC to enhance database performance.
23.	D5.7	Identify high hit database queries, apply query optimization, indexing, caching for database performance optimization.

#	ID	Task
24.	D5.8	Identify scope of service process simplification options for performance enhancement.
25.	D5.9	R&D and PoC for NFS and Database Archiving
26.	D5.10	R&D and PoC for incremental database backup with open-source tools.
27.	D5.11	Reducing the unnecessary weight of the files while saving in the server without compromising the required quality. Write script to reduce the existing files of the offices in the server.
	D6: Database and File Storage Archiving	
28.	D6.1	Database and File Storage Archiving for 100 high-volume offices
	D7: System Audit Logs, Monitoring, Deployment Automation	
29.	D7.1	System Audit Logs Preservation and Visualization
30.	D7.2	APM (Application Performance Monitoring) tools deployment
	D8: SRE (Site Reliability Engineering) Implementation	

#	Code	Deliverable
31.	D8.1	Dockerization of all components of the Nothi system (frontend, backend, emailer, pdf maker, dashboard/report etc.)
32.	D8.2	K8S deployment of all components of Nothi systems.
33.	D8.3	SRE Dashboard Development.
34.	D8.4	SRE Implementation.
	D9: Non-Functional Requirements	
35.	D9.1	Non-functional deliverables
36.	D9.2	VAPT Issue Resolution
37.	D9.3	Technical Document Transfer
38.	D9.4	Capacity Management and Knowledge Transfer
39.	D9.5	Closing Report

Please note that the delivery schedule may be updated during the project inception phase based on proper review and analysis.

8. Payment Schedule

Payments shall be made in line with agreed-on outputs according to the following schedule: The payable amount (Total contract value) will be divided into 2 parts i.e.

a) For Development & Enhancement = 60%

b) For Maintenance Support Service = 40%

The details payment schedule and plan are mentioned hereunder

(a) Development & Enhancement - 9 (Nine) Months

As per SDLC, this part includes the Requirement Analysis, Issue Fixing, Development, Enhancement and Release, Testing and Deployment activities. After completion of the deliverables with expected quality and formal consent or approval for each tasks / steps /action's deliverables, the consulting firm can claim **60%** of the total payable amount as per the following payment schedule. Note that, here the payment is distributed assuming the amount for the Development & Enhancement as 100%.

Sl.	Deliverable	Timeline	Payment / Weight	Total Weight
1.	Project Inception Report	End of 1st Month	5%	5%
2.	Requirement Analysis and Finalization, Update SRS and Relevant Technical Documents.	End of 2nd Month	5%	5%
	D1: Existing Issue Resolution			
3.	D1.1: Potrojari (Letter) related issues	End of 4th Month	3%	10%
4.	D1.2: Report issues		3%	
5.	D1.3: Dashboard issues		4%	
	D2: Feature Development and Enhancement			
6.	D2.1: Dak feature development and enhancement		2%	22%

#		Timeline		
7.	D2.2: Nothi features development and enhancement		2%	
8.	D2.3: Editor feature development and enhancement		2%	
9.	D2.4: Potro feature development and enhancement		3%	
10.	D2.5: Dashboard feature development and enhancement	End of 6th Month	3%	
11.	D2.6: Mobile App Enhancement (iOS and Android)		3%	
12.	D2.7: UI/UX Implementation		3%	
13.	D2.8: Integration (a2i's Billing System, digital Signature, VDS, External e-Gov Systems)		2%	
14.	D2.9: D-Nothi Native Login		2%	
	D3: Office Merging & Segregation			
15.	D3.1 Development of Office Merging & Segregation/Splitting Tools	End of 9th Month	5%	5%
	D4: AI Implementation			
16.	D4.1 AI implementation	End of 9th Month	5%	5%
	D5: R&D and Performance Optimization			
17.	D5.1: Upgrade application framework, PHP and database versions to latest stable versions.	End of 9th Month	2%	20%
18.	D5.2: Reducing the unnecessary weight of the files while saving in the server without compromising the		2%	

	required quality. Write script to reduce the existing files of the offices in the server.			
19.	D5.3: Replacing encrypted signature image data with file-based image or any other better options.		3%	
20.	D5.4: Identify garbage/unnecessary data, files and clean-up those as per Secretariate Instructions 2024 maintaining required backup (if necessary)		3%	
21.	D5.5: Identify unused/ garbage data and perform PoC to enhance database performance.		2%	
22.	D5.6: Identify high hit database queries, apply query optimization, indexing, caching for database performance optimization.		2%	
23.	D5.7: Identify scope of service process simplification options for performance enhancement.		2%	
24.	D5.8: R&D and PoC for NFS and Database Archiving		2%	
25.	D5.9: R&D and PoC for incremental database backup with open-source tools.		2%	
	D6: Database and File Storage Archiving			
26.	D6.1 Database and File Storage Archiving for 100 high-volume offices	End of 9th Month	10%	10%
	D7: System Audit Logs, Monitoring, Deployment Automation			
27.	D7.1: System Audit Logs Preservation and Visualization	End of 6th Month	2%	5%
28.	D7.2: APM (Application Performance Monitoring) tools deployment		3%	

#	Deliverables	Timeline	Tasks	Payment
	D8: SRE (Site Reliability Engineering) Implementation			
29.	D8.1: Dockerization of all components of the Nothi system (frontend, backend, emailer, pdf maker, dashboard/report etc.)	End of 6th Month	2%	8%
30.	D8.2: K8S deployment of all components of Nothi systems.		2%	
31.	D8.3: SRE Dashboard Development.		2%	
32.	D8.4: SRE Implementation.		2%	
	D9: Non-Functional Requirements			
33.	D9.1: Non-functional deliverables	End of 9th Month	1%	5%
34.	D9.2: VAPT Issue Resolution		1%	
35.	D9.3: Technical Document Transfer		1%	
36.	D9.4: Capacity Management and Knowledge Transfer		1%	
37.	D9.5: Closing Report		1%	

Development & Enhancement Budget does not include Maintenance & Support cost.

(b) Maintenance & Support Service

Total Maintenance & Support Service payable amount (**40%** of the contact value) will be based on the submitted and approved Maintenance & Support Service Reports including user's feedback, service delivery logs etc. The consulting firm can only claim this maintenance support service payments subjected to comply with approved Service Level Agreement (SLA) terms & conditions. Note that, the payment here is distributed assuming the amount for the Maintenance & Support Service as 100%.

Deliverables	Timeline	Tasks	Payment
User feedback, review and CR adjustment report,	End of 3rd Month	Providing continuous support services and	30% of total allocated amount for

Maintenance support service approved report.		maintenance as per predefined plan.	Maintenance & Support Service
User feedback, review and CR adjustment report, Maintenance support service approved report.	End of 6th Month	Providing continuous support services and maintenance as per predefined plan.	**35%** of total allocated amount for Maintenance & Support Service
User feedback, review and CR adjustment report, Maintenance support service approved report.	End of 9th Month	Providing continuous support services and maintenance as per predefined plan.	**35%** of total allocated amount for Maintenance & Support Service

9. Work distribution & Team Composition

Sl. No	Designation	No. of Person	Man Month
Project Management			
1	Project Manager	1	7
2	Sr. Business Analyst	1	3
3	Business Analyst	2	4
4	Technical Documentation Expert	1	3
Development and Enhancement			
5	Solution Architect	1	2
6	System Analyst	1	3
7	Sr. Software Engineer (Frontend)	1	3
8	Sr. Software Engineer (Backend)	2	5
9	UI/UX Expert	1	1
10	Database Architect / DBA (Senior)	1	3
11	Database Expert	2	4
12	Integration Engineer	1	3
13	Machine Learning Engineer	2	5

14	Software Engineer (Frontend)	2	3
15	Software Engineer (Backend)	2	5
16	Senior Developer Mobile App	1	3
17	Mobile App Developer	2	4
Research & Development (R&D)			
18	Research & Development Manager	1	3
19	Sr. Software Engineer (R&D)	1	3
20	Software Engineer (R&D)	2	5
Security			
21	Security Analyst	1	2
22	Security Expert	1	3
Quality Assurance			
23	QA Lead	1	2
24	QA Engineer	2	4
IT Service & Release Management			
25	Hosting Infrastructure Expert	1	2
26	Storage & Archiving Specialist	1	3

27	Network Engineer	1	2
28	DevOps Engineer	1	3
Support and Helpdesk			
29	Support Manager	1	5
30	System Engineer (L2)	4	5
31	Support Executive (L1)	8	5
	Total	**50**	**108**

Note that, from the listed positions, the consulting firm will ensure at least 2 officers in a2i office to ensure smooth management and support services.

1. Management Coordinator (Designation: Business Analyst):
   Responsibilities:
   - This role will make collaboration act as bridge among Technology Team, Domain Team & Firm.
   - Liaise between the development team and the domain team to ensure effective communication and collaboration.
   - Facilitate meetings between the development team and the domain team to review project progress, identify challenges, and develop solutions.
   - Ensure that project requirements are clearly defined and communicated to the development team.
   - Ensure that project timelines are being met and that progress is reported to the domain team.

2. Technical Support & System Coordinator (Support Executive - L1):
   Responsibilities:
   - Provide first-level technical support for D-Nothi users and escalate unresolved issues to the vendor's technical team.
   - Receive technical support related issues from D-Nothi domain team and escalate to the vendor's technical team for prompt resolution.
   - Monitor system health, database performance, and storage utilization in coordination with the a2i Technology Team.
   - Assist in the implementation of database archiving, file storage optimization, and backup mechanisms.

Qualification

SL	Position	Minimum Qualification
Project Management		
1	Project Manager	**Job Description:** • Lead overall planning, execution, monitoring, and delivery of all D-Nothi development, enhancement, and support activities. • Coordinate with a2i, development teams, QA teams, and stakeholders to ensure timely milestone completion. • Ensure requirement analysis, sprint planning, resource allocation, and technical decision-making. • Maintain project documentation, risk matrix, mitigation plan, and progress dashboard. • Ensure compliance with standards, security guidelines, and government procedures. **Experience, Expertise and Educational Requirement:** i) Minimum graduate in Computer Science and Engineering/ICT. ii) 10 years of progressive experience with at least 5years' experience in managing large-scale IT projects. iii) Experience in leading such an assignment, role including software design and development. iv) Relevant certification in PMP/PRINCE2/Scrum Master, or equivalent is preferable.
2	Sr. Business Analyst	**Job Description:** • Lead requirement gathering, user research, workflow analysis, and process mapping for D-Nothi modules. • Prepare detailed BRD, FRD, use cases, acceptance criteria, and change requests. • Facilitate workshops with government offices and coordinate with technical teams for requirement validation. • Ensure alignment of requirements with national e-government standards. • Support UAT planning and requirement traceability. **Experience, Expertise and Educational Requirement:** i) Minimum Bachelors in CS/CSE/EEE or any relevant discipline from university. ii) Minimum 10 years' professional experience in IT Industry. iii) Minimum 8 years' professional experience as a business analyst.

3	Business Analyst	**Job Description:** • Conduct requirement analysis, stakeholder discussion, and documentation of system processes. • Prepare user stories, use-case diagrams, workflows, and requirement specifications. • Assist Sr. BA in validating requirements, managing change requests, and conducting UAT. • Coordinate with UI/UX, development, and QA teams for requirement clarification. • Support functional review of developed modules. **Experience, Expertise and Educational Requirement:** i) Minimum Bachelors in CS/CSE/EEE or any relevant discipline from university. ii) Minimum 8 years' professional experience in IT Industry. iii) Minimum 5 years' professional experience as a business analyst.
4	Technical Documentation Expert	**Job Description:** • Prepare user manuals, system documentation, SRS, API documentation, and release notes. • Develop structured documentation for all major modules of D-Nothi based on inputs from BA and development teams. • Ensure version-controlled, updated, and standardized documents following government documentation guidelines. • Assist QA and support teams by preparing troubleshooting guides and FAQs. **Experience, Expertise and Educational Requirement:** i) Bachelors in English/BBA/IT or any relevant discipline. ii) 3 years of experience in technical documentation. iii) Prepared documentation for at least two platforms.
Development and Enhancement		
5	Solution Architect	**Job Description:** • Lead system and solution architecture design for D-Nothi core system and sub-modules. • Define architecture patterns, integrations, database structures, API standards, and security models. • Review system scalability, performance, load distribution, and failover strategies. • Guide development teams with best practices and ensure alignment with cloud and on-prem standards. • Evaluate new technologies for system enhancement and optimization.

		Experience, Expertise and Educational Requirement: i) Bachelor's/Master's in CSE or any relevant discipline. ii) Minimum 7 years of experience in software development, with at least 2 years in a solution architect role. iii) Designed and developed at least two medium to large-scale relevant projects. iv) Relevant certification in TOGAF, AWS, Azure, Google, Oracle Solution Architect or equivalent is preferable.
6	System Analyst	**Job Description:** • Translate business requirements into technical requirements, workflows, data models, and system diagrams. • Prepare SRS, system design documents including sequence diagrams, ERD, API specifications, and module interactions. • Work closely with Solution Architect to finalize system logic. • Support developers by clarifying system behaviors and constraints. • Validate functional and system-level alignment before development. **Experience, Expertise and Educational Requirement:** i) Bachelor's in CSE or any relevant discipline. ii) Minimum 5 years of experience in analysis, with at least 2 years in system analysis and documentation. iii) Proficient in use cases, diagrams, and requirement gathering.
7	Sr. Software Engineer (Frontend)	**Job Description:** • Develop high-quality, responsive, and user-friendly frontend interfaces for D-Nothi modules. • Lead component design, UI integration, and performance optimization. • Ensure reusable frontend architecture and adherence to UX guidelines. • Integrate REST APIs, develop custom components, and support cross-browser compatibility. • Mentor junior developers and conduct code reviews. **Experience, Expertise and Educational Requirement:** i) Bachelor's in CSE or any relevant discipline. ii) Minimum 7 years of profound experience in frontend programming and technologies. iii) Experience in frontend programming for 2 medium to large scale projects. iv) Experience in multiple development platforms including PHP,

		HTML/CSS/Javascript, React, Vue.js, jQuery.
8	Sr. Software Engineer (Backend)	**Job Description:** • Develop scalable backend modules, APIs, and perform critical fixings/issue resolutions for D-Nothi. • Implement business logic, database queries, authentication, and third-party integrations. • Ensure coding standards, secure API design, and high-performance backend logic. • Conduct code reviews, performance tuning, and database optimization. • Support solution design and system-level enhancements. **Experience, Expertise and Educational Requirement:** i) Bachelor's in CSE or any relevant discipline. ii) Minimum 7 years' experience in programming using PHP, Python, RDBMS & NoSQL for medium to large scale web-based applications. iii) Experience in backend programming for 2 medium to large scale projects.
9	UI/UX Expert	**Job Description:** • Lead UI/UX design for D-Nothi web and mobile platforms. • Prepare wireframes, mockups, prototypes, and visual interfaces aligned with government usability guidelines. • Ensure accessibility, user experience consistency, and responsive design. • Conduct user research, usability testing, and interaction design improvements. • Collaborate with frontend and BA teams for seamless UI implementation. **Experience, Expertise and Educational Requirement:** i) Bachelor's in any relevant discipline. ii) Minimum 6 years of experience in UI/UX design for medium to large scale web-based applications. iii) Designed at least 02 full digital products. iv) Experience in wireframes and visual design.
10	Database Architect / DBA (Senior)	**Job Description:** • Design and optimize large-scale database architecture for D-Nothi. • Implement sharding, indexing, clustering, backup, and high-availability strategies.

		• Conduct query optimization, performance tuning, and slow-query analysis. • Lead DB migration, capacity planning, and monitoring. • Ensure data integrity, security, and disaster recovery readiness. **Experience, Expertise and Educational Requirement:** i) Bachelor's in CSE or any relevant discipline. ii) Strong knowledge of MySQL/MariaDB partitioning, sharding, indexing and clustering solutions like Galera Cluster, InnoDB Cluster, or ProxySQL. iii) Minimum 10 years of experience with database design, query optimization, slow query analysis. iv) Experience working with DB migration (100GB+ to TB scale) optimization. v) Familiarity with compression techniques and backup/replication strategies.
11	Database Expert	**Job Description:** • Support database optimization and maintenance for all modules of D-Nothi. • Optimize queries, indexes, and stored procedures for performance improvement. • Manage database backups, restoration, and routine health checks. • Support DBA in migrations, tuning, and resolving DB-related issues. • Ensure database alignment with application requirements. **Experience, Expertise and Educational Requirement:** i) Bachelor's in CSE or any relevant discipline. ii) Minimum 8 years of experience in database design, database programming, query optimization, database backup and restoration. iii) Experience in database programing, database optimization for 2 medium to large web-based applications.
12	Integration Engineer	**Job Description:** • Plan and execute system-to-system integration using REST, SOAP, and middleware. • Develop APIs, manage integration endpoints, and handle authentication protocols. • Diagnose integration issues and ensure proper data synchronization. • Document integration flows and prepare test scripts. • Work with external government agencies for API onboarding.

		Experience, Expertise and Educational Requirement: i) Bachelor's in CSE or any relevant discipline. ii) Minimum 7 years of experience in software development, with at least 2 years in system integration role. iii) Experience in at least two integration projects using REST, SOAP, or middleware tools. iv) Experience in integration standards and tools.
13	Machine Learning Engineer	**Job Description:** • Design and develop ML models for D-Nothi automation and intelligence features. • Prepare datasets, conduct feature engineering, and develop training pipelines. • Deploy ML models in production and optimize model performance. • Collaborate with BA for ML use-case identification and PoC development. • Monitor and tune model accuracy with real-time datasets. **Experience, Expertise and Educational Requirement:** i) Bachelor's in CSE or any relevant discipline. ii) Minimum 5 years of experience in ML programming. iii) Contributed to at least 02 medium to large scale ML products or services.
14	Software Engineer (Frontend)	**Job Description:** • Develop user interfaces and reusable components following UI/UX guidelines. • Integrate APIs, implement modular designs, and ensure smooth navigation. • Assist senior frontend engineers in implementing complex UI logic. • Perform debugging, optimization, and cross-platform testing. • Maintain frontend code quality and documentation. **Experience, Expertise and Educational Requirement:** i) Bachelor's in CSE or any relevant discipline. ii) Minimum 4 years of profound experience in frontend programming and technologies. iii) Experience in frontend programming for 2 medium to large scale projects. iv) Experience in multiple development platforms including PHP, HTML/CSS/Javascript, React, Vue.js, jQuery.
15	Software Engineer (Backend)	**Job Description:** • Develop backend modules, REST APIs, and server-side business logic.

		• Perform issue fixing and resolution for the system. • Implement database interactions, authentication workflows, and validation rules. • Support senior backend engineers in refactoring and system improvements. • Conduct unit testing, bug fixing, and documentation of backend modules. • Ensure coding standards and security compliance. **Experience, Expertise and Educational Requirement:** i) Bachelor's in CSE or any relevant discipline. ii) Minimum 4 years of profound experience in backend programming and technologies. iii) Experience in frontend programming for 2 medium to large scale projects. iv) Experience needs to focus on multiple development platforms including PHP.
16	Senior Developer Mobile App	**Job Description:** • Lead mobile app architecture design, coding, testing, and deployment. • Develop Android/iOS modules, UI components, and offline-first functionalities. • Integrate APIs, optimize performance, and ensure app security. • Guide mobile team and conduct code reviews. • Coordinate with backend and QA teams for full-stack integration. **Experience, Expertise and Educational Requirement:** i) Bachelor's in CSE or any relevant discipline. ii) Should have minimum 07 years of profound experience in the field of mobile apps design and development. iii) Experience in mobile app development for 5 medium to large scale projects.
17	Mobile app Developer	**Job Description:** • Develop mobile app screens, features, and integrations based on design guidelines. • Conduct testing, debugging, and performance improvements. • Collaborate with senior developers and API teams for smooth integration. • Support UI/UX implementation and version releases. • Maintain documentation and participate in app enhancements. **Experience, Expertise and Educational Requirement:**

		i) Bachelor's in CSE or any relevant discipline. ii) Should have minimum 04 years of profound experience in the field of mobile apps design and development. iii) Experience in mobile app development for 5 medium to large scale projects.

Research & Development (R&D)

18	Research & Development Manager	**Job Description:** • Lead the R&D team for D-Nothi innovation and performance optimization. • Oversee prototype development, PoC design, and technology evaluation. • Coordinate with architecture and development teams to integrate R&D outcomes. • Prepare R&D reports and recommend adoption strategies. **Experience, Expertise and Educational Requirement:** i) Bachelor's in CSE or any relevant discipline. ii) Minimum 7 years of experience in ICT with 02 years in research and development.
19	Sr. Software Engineer (R&D)	**Job Description:** • Develop backend modules, scripts, or prototypes under R&D pipeline. • Assist in experimental architecture, new technology validation, and system-level enhancement. • Optimize algorithms and evaluate system performance. • Prepare technical reports and code documentation. • Collaborate with development team and architect to move PoC to production. **Experience, Expertise and Educational Requirement:** i) Bachelor's in CSE or any relevant discipline. ii) Minimum 7 years' experience in programming using PHP, Python, RDBMS & NoSQL for medium to large scale web-based applications. iii) Experience in programming for 2 medium to large scale projects.
20	Software Engineer (R&D)	**Job Description:** • Assist in developing prototypes, backend modules, scripts, and new features under R&D scope. • Conduct testing of experimental features and prepare documentation. • Participate in research activities and comparative analysis. • Support integration of R&D outputs into core system.

		• Maintain code quality and innovation-focused development. **Experience, Expertise and Educational Requirement:** i) Bachelor's in CSE or any relevant discipline. ii) Minimum 4 years of profound experience in backend programming and technologies. iii) Experience in programming for 2 medium to large scale projects. iv) Experience needs to focus on multiple development platforms including PHP.
Security		
21	Security Analyst	**Job Description:** • Conduct vulnerability assessment, penetration testing, and security audits. • Monitor system logs, analyze threats, and prepare security reports. • Review application code for security compliance and support remediation. • Evaluate security policies and ensure alignment with national ICT standards. • Coordinate with DevOps and hosting teams for secure deployment. **Experience, Expertise and Educational Requirement:** i) Bachelor's in CSE or any relevant discipline. ii) Minimum 7 years of experience in web security and at least 2 years in security analysis. iii) Certification in CISSP, CEH, or equivalent is preferable.
22	Security Expert	**Job Description:** • Lead implementation of application and infrastructure security measures. • Configure security tools, firewalls, WAF, IAM, and encryption mechanisms. • Develop security guidelines and enforce secure coding practices. • Respond to security incidents and perform forensic analysis. • Support compliance with GDPR, ISO27001, and government security standards. **Experience, Expertise and Educational Requirement:** i) Bachelor's in CSE or any relevant discipline. ii) Minimum 7 years of experience in web security

		implementation.
		iii) Certification in CISSP, CEH, or equivalent is preferable.

Quality Assurance

23	QA Lead	**Job Description:** • Lead QA strategy, planning, and execution for all D-Nothi modules. • Supervise QA engineers, review test cases, and manage defect lifecycle. • Oversee functional, regression, integration, performance, and UAT testing. • Ensure quality metrics and testing standards are maintained. • Prepare QA reports, dashboards, and improvement recommendations. **Experience, Expertise and Educational Requirement:** i) Bachelor's in CSE or any relevant discipline. ii) At least 10 years of progressive experience in Quality Assurance. iii) CSQA, CMSQ ISTQB Certified Tester is preferable.
24	QA Engineer	**Job Description:** • Develop test cases, perform manual/automated testing, and report defects. • Conduct functional, UI, smoke, and regression testing. • Work with BA and developers to validate requirements and fixes. • Track bugs using appropriate tools and ensure retesting. • Maintain test documentation and support UAT. **Experience, Expertise and Educational Requirement:** i) Bachelor's in CSE or any relevant discipline. ii) Minimum 5 years of experiences in software testing and quality assurance for medium to large scale web-based applications iii) Experienced in test cases, bug tracking, and functional testing.

IT Service & Release Management

25	Hosting Infrastructure Expert	**Job Description:** • Manage server infrastructure, virtualization, storage, and deployment systems. • Troubleshoot hosting issues, performance bottlenecks, and

		network-related problems.
		• Support production environment, monitoring, and high-availability setup. • Work with DevOps, security, and DBA teams during releases. • Prepare infrastructure documentation and capacity planning. **Experience, Expertise and Educational Requirement:** i) Bachelor's in CSE or any relevant discipline. ii) Minimum 7 years of experience in infrastructure, with at least 2 years in engineering roles. Supported at least two IT environments. iii) Experience in virtualization, storage, and troubleshooting.
26	Storage & Archiving Specialist	**Job Description:** • Manage tiered storage systems, object storage, and archiving mechanisms. • Implement lifecycle policies, cold storage strategies, and data retention rules. • Monitor large-scale storage performance and optimize file systems. • Support DB archiving, NFS management, and disaster recovery needs. • Maintain documentation for archiving processes and retrieval workflows. **Experience, Expertise and Educational Requirement:** i) Bachelor's in CSE or any relevant discipline. ii) Minimum 7 years of experience in hosting infrastructure, DB and NFS archiving. iii) Expertise in tiered storage (hot/cold) design and implementation. iv) Hands-on experience with object storage (S3-compatible, MinIO, or Ceph) and file system optimization. v) Knowledge of archival policies, lifecycle rules, and transparent retrieval mechanisms.
27	Network Engineer	**Job Description:** • Design and manage LAN, WAN, VPN, and firewall configurations in data center/cloud. • Troubleshoot network failures, security incidents, and performance issues. • Implement routing, switching, wireless solutions, and network monitoring. • Coordinate with hosting and DevOps teams for deployments. • Maintain network diagrams, policies, and logs.

		Experience, Expertise and Educational Requirement:
		i) Bachelor's degree in computer science, Information Technology, Electronics & Communication Engineering, or a related field.
		ii) At least 5 years of hands-on experience in designing, implementing, supporting enterprise-grade LAN, WAN, VPN, firewall, network monitoring tools, wireless network solutions including multi-tier network architectures in data centers or cloud environments.
		iii) Relevant professional certifications (e.g., CCNA, CCNP, HCNA, JNCIA) will be considered an added advantage.
28	DevOps engineer	**Job Description:** • Implement CI/CD pipelines, containerization, and automated deployment workflows. • Manage Kubernetes, Docker, Terraform, Ansible, and cloud infrastructure. • Optimize application performance through monitoring and scaling. • Coordinate with developers, QA, and hosting teams for release cycles. • Ensure secure and reliable DevOps practices. **Experience, Expertise and Educational Requirement:** i) Bachelor's degree in Computer Science, Information Technology, Software Engineering, or a related discipline. ii) Minimum 5 years of hands-on experience in DevOps roles supporting medium- to large-scale applications and hosting infrastructures. iii) Proficient in CI/CD, containerization (Docker, Kubernetes), cloud platforms and infrastructure automation tools like Ansible and Terraform. iv) Relevant professional certifications (e.g. AWS Certified DevOps Engineer, Kubernetes Administrator, Azure DevOps, or equivalent will be an added advantage.
Support and Helpdesk		
29	Support Manager	**Job Description:** • Lead nationwide support operations for D-Nothi end-users and government offices. • Establish support workflows, SLAs, escalation matrix, and service procedures. • Supervise L1/L2 teams and generate support analytics. • Coordinate with development and QA teams to resolve recurring issues. • Ensure quality service delivery to all ministries and field

		offices. **Experience, Expertise and Educational Requirement:** i) A bachelor's or master's in Computer Science and Engineering/ICT related discipline preferably having a degree from a reputed university. ii) Must have minimum 10 years of profound experience with IT projects in the field of support management. iii) Must have minimum 5 IT/ICT enable software project support management (maintenance and support) experience which should include minimum 3 (Three) e- Government application/digital service application for the public sector with the government organization. iv) Strong record of working with government organizations and their personal structures.
30	System Engineer (L2)	**Job Description:** • Provide advanced technical support, diagnosis, and problem resolution. • Analyze reported issues, replicate technical problems, and escalate when needed. • Assist deployment, configuration, and troubleshooting of systems. • Maintain logs, prepare reports, and support L1 team during escalations. • Document repeatable solutions and technical guides. **Experience, Expertise and Educational Requirement:** i) Minimum graduate in any subject. ii) At least 2 years of experience on providing software support services.
31	Support Executive (L1)	**Job Description:** • Provide first-level support to D-Nothi users through phone, email, and ticket system. • Log issues, perform initial troubleshooting, and escalate unresolved cases. • Guide users with system usage, basic configurations, and FAQs. • Maintain ticket records and ensure timely closure as per SLA. • Support training and awareness activities. **Experience, Expertise and Educational Requirement:** i) Minimum graduate in any subject ii) At least 2 years of experience on providing software support services