



Request for Expression of Interest (REOI)

Memo No.: PARTNER/APCU-BARC-87/SD14/2024/1153

Date: 03/10/2024

1	Ministry/ Division	Ministry of Agriculture
2	Agency	Bangladesh Agricultural Research Council
3	Procuring Entity Name	Dr. Md. Ashrafal Alam, Agency Program Director, PARTNER, APCU-BARC
4	Procuring Entity District	Dhaka
5	Request for Expressions of Interest for Selection of	Consulting Firm for e-Library Management Software
6	REOI Ref No.	SD/PARTNER/BARC-14 Date:03/10/2024
KEY INFORMATION		
7	Procurement method	Quality Cost Based Selection (QCBS)
FUNDING INFORMATION		
8	Budget and Source of Funds	World Bank & IFAD
PARTICULAR INFORMATION		
9	Project/Programme Code (if applicable)	N/A
10	Project/Programme Name (if applicable)	Program on Agricultural and Rural Transformation for Nutrition, Entrepreneurship and Resilience in Bangladesh (PARTNER), APCU-BARC
11	REOI Closing Date and Time	20/10/2024 at 5.00 PM
12	Place of EoI Submission	Office of the Agency Program Director, PARTNER, APCU-BARC, Admin building (2 nd Floor), Bangladesh Agricultural Research Council, Farmgate, Dhaka-1215
13	Joint Venture	Not allowed
INFORMATION FOR APPLICANT		
14	Brief Description of the Assignment	<p>The assignment involves providing Consultancy Services for the Development and Implementation of an e-Library Management System for the library of Bangladesh Agricultural Research Council (BARC). The project aims to establish a comprehensive, modern, and integrated e-library system that efficiently manages the registration, cataloging, circulation, and digitization of library resources.</p> <p>The consultancy firm will be responsible for the following key components:</p> <ol style="list-style-type: none">Koha Library Management System (LMS) Upgradation: Upgrade and customize the existing Koha LMS to include features such as OPAC (Online Public Access Catalog), circulation management, cataloging, acquisitions, serials, reporting, and system administration.Data Migration: Migrate the existing bibliographic, patron, and circulation data into the updated LMS while ensuring data integrity and seamless functionality.RFID Integration: Integrate RFID technology for library materials, including tagging books with RFID tags, ensuring compliance with ISO standards, and enabling efficient circulation and inventory management.Digitization of Books: Provide digitization services for approximately 4,000 books (around 400,000 pages), including scanning, Optical Character Recognition (OCR) in both English and Bengali, and producing searchable PDF files. The scanned content will be uploaded into the library management system.DSpace Upgradation: Upgrade and implement DSpace, a digital repository system, for managing and storing digital content such as e-books, journals, and other materials. This will include metadata management, search functionality, and ensuring compatibility with various file formats.Training: Conduct training sessions for BARC staff to ensure the smooth operation of the e-library system, including the usage of Koha and DSpace.Maintenance and Support: Provide ongoing support and maintenance for both the Koha LMS and DSpace systems for a period of three years, including version updates, bug fixes, system health checks, and training.

		The project will ensure the BARC library is equipped with a fully functional, state-of-the-art e-library management system that enhances the management of both physical and digital resources, ensuring accessibility and efficiency in library operations. (<i>Detailed in TOR</i>).
15	Experiences, Resources & Delivery Capacity Required	<p>The firms must meet the following minimum eligibility criteria:</p> <ol style="list-style-type: none"> 1. Legally established professional consulting firms or entity with minimum 10(ten) years of working experiences in ICT business as a registered Company/ Entity with Register of joint stock & companies (RJSC) in Bangladesh; 2. Must submit valid (updated) Trade License, TIN, VAT, Incorporation & updated income tax Certificate, BASIS Membership, CMMI Level 3 or higher. 3. Must have ISO 27001 Certificate. 4. BACCO, BCS Membership are also preferable. 5. Must be a local company of having minimum 10 (ten) years of experience in Software development in Bangladesh or overseas. 6. The firm must have experience of managing at least two (02) web-based applications with GOB/Donor or with large scale corporate sector. Experience in Government sector will be given preference. URL of live applications needs to be provided. 7. Firm must demonstrate its management capacity (website link or brochures and other documents describing similar assignments, experience, availability of appropriate professional staff and experience among applicant's staff, resources to carry out the assignment). 8. Firm should demonstrate its' logistical capability (well-equipped office space at Dhaka with necessary facilities etc.) 9. Must submit completion certificates of the services completed within the last 5 years with details of issuing authorities; 10. The firm should have yearly turnover minimum 2 Crore. Must submit last 3 (Three) year's financial audit report. 11. List (Name, designation, Number, years or experience, number or projects, expertise) of IT personnels (Project Manager, System Analyst, Business Analyst, Database Administrator, Information Security Expert, Interoperability Expert, Sr. Software Engineer, Software Engineer, Quality Assurance Engineer, System Administrator, Network Engineer, Trainer, Technical Documentation Expert, Support & Maintenance Engineer) who can be engaged and performed the assigned task. <i>Key Experts will not be evaluated at the shortlisting stage.</i> 12. Experience developing bi-lingual (English, Bangla) software accessible across multiple devices like mobile, desktop PC, laptop. 13. Must have proven experience in mobile app development & should have apps published in any global online marketplace (e. g. App Store, google play, etc.) 14. Firm should have at least one web application/ software testing certificate, SQTC given by BCC. <p><i>The detailed Terms of Reference (TOR) for the assignment can be found at the following website: www.barc.gov.bd or can be obtained at the address given below.</i></p>
PROCURING ENTITY DETAILS		
16	Name of Official Inviting EOI	Dr. Md. Ashrafal Alam
17	Designation of Official Inviting EOI	Agency Program Director.
18	Address of Official Inviting EOI	PARTNER, Bangladesh Agricultural Research Council, New Airport Road, Farmgate, Dhaka-1215
19	Contact details of Official Inviting EOI	Phone: +88-02-41025277 Email: ashrafalw@yahoo.com
20		<p>Special Conditions:</p> <ol style="list-style-type: none"> a) Consultants will be selected in accordance with the Public Procurement Rules-2008. c) Interested consultants may obtain further information at the address below during office hours. d) The authority reserves the right to cancel all or any of the Expression of Interest (EOI) without assigning any reasons whatsoever. e) Expression of Interest (EOI) shall be submitted in sealed envelope, delivered to the address of the undersigned.

Handwritten signature/initials

Handwritten signature and date: 03.10.2024

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Government of the People's Republic of Bangladesh
Office of the Agency Program Director
Program on Agricultural and Rural Transformation for Nutrition, Entrepreneurship and Resilience in
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APCU-BARC
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New Airport Road, Farmgate, Dhaka-1215

Terms of Reference (ToR)
for
**Selection of Consulting Firm for e-Library Management Software under
package no.: SD/PARTNER/BARC-14**

BACKGROUND:

Bangladesh Agricultural Research Council (BARC), operating under the Ministry of Agriculture, serves as the apex body of the **National Agricultural Research System (NARS)**. Its primary mandate is to strengthen the nation's agricultural research capabilities through the strategic planning and integration of resources across various ministries and sectors. BARC functions as an umbrella organization, coordinating Bangladesh's agricultural research efforts in collaboration with several government ministries, including Agriculture, Fisheries and Livestock, Environment and Forest, and more. The council's policy-making is guided by a governing body, chaired by the Hon'ble Minister of Agriculture, alongside co-chairmen from other ministries and various representatives from research institutes, farmers, and scientists.

BARC is tasked with preparing the national vision and agricultural research plan, providing the strategic direction for national agricultural research activities. Its responsibilities include fostering inter-institute collaboration, monitoring research programs, and ensuring efficient governance within NARS institutes. Through these efforts, BARC aims to create an effective, sustainable, and innovative agricultural research system, ultimately contributing to the nation's agricultural development.

To support its mission, BARC is initiating the development of an **e-Library System**, a digital platform designed to manage and disseminate agricultural research outputs, such as videos, research papers, and educational content. The e-Library System will be a user-friendly, SEO-optimized system, enabling researchers, policymakers, and the general public to access categorized and searchable content. This online platform will feature advanced functionality, including personalized user accounts, multi-language support, video streaming, and an intuitive content management system for BARC's administrators. The goal is to enhance the dissemination of agricultural knowledge and foster greater collaboration across the agricultural research ecosystem in Bangladesh.

GENERAL OVERVIEW OF THE SOFTWARE:

The **BARC e-Library System** is a comprehensive digital platform designed to centralize, manage, and disseminate agricultural research outputs, including videos, research papers, PDFs, articles, and educational content. The platform is built to enhance user experience, provide administrative ease, and ensure scalability for future expansion. It is intended to support researchers, policymakers, educators, and the general public by providing easy access to categorized, searchable, and highly optimized content related to agricultural research and development.

This overview provides an in-depth look at the platform's features and functionalities, which have been carefully crafted to meet BARC's objectives and ensure seamless integration with their existing systems and research networks.

Key Features of the e-Library System:

User-Friendly Interface:

- Intuitive navigation for users to access a wide range of agricultural research materials easily.

Search Functionality:

- Advanced search options, including keyword search, category filtering, and author search, to improve content discoverability.



Personalized User Accounts:

- Allow users to create accounts for saving favorites, tracking access history, and managing personal reading lists.

Multi-Language Support:

- The system will support both English and Bengali languages, catering to a broader audience.

Video Streaming Capabilities:

- Integration of video content for educational purposes, allowing for seamless playback of webinars, instructional videos, and presentations.

Content Management System for Administrators:

- An administrative backend for managing content uploads, metadata editing, and user account management.

SEO Optimization:

- Features designed to enhance search engine visibility, ensuring that the library's resources are easily found online.

Inter-Institution Collaboration:

- Tools to facilitate collaboration among research institutions, enabling shared access to resources and joint research efforts.

Reporting and Analytics:

- Built-in analytics tools to monitor user engagement, content popularity, and resource usage metrics.

Data Security and Privacy:

- Measures to ensure the confidentiality and integrity of user data and intellectual property.

SCOPE OF WORK:

The scope of work for the **Development and Implementation of an e-Library Management System** for the library of Bangladesh Agricultural Research Council (BARC). The project aims to establish a comprehensive, modern, and integrated e-library system that efficiently manages the registration, cataloging, circulation, and digitization of library resources.

1. RFID Integration:

Integrate RFID technology for library materials, including tagging books with RFID tags, ensuring compliance with ISO standards, and enabling efficient circulation and inventory management.

The installation of **RFID (Radio Frequency Identification) book tags** is a crucial part of the e-library system implementation. These tags will enable efficient and automated management of the library's inventory, circulation, and security processes. The consultancy firm is responsible for providing and installing RFID tags on all books in the BARC library collection as per the following requirements:

The RFID tags to be installed on each book must meet the following technical specifications:

- **Standards Compliance:** The RFID tags must comply with **ISO 15693** and **ISO 18000-3** standards, ensuring compatibility with international RFID systems and devices.
- **Memory Capacity:** Each tag must have a minimum memory of **2.5 Kbit** to store essential identification and circulation data.
- **Operating Frequency:** The RFID tags must operate at a frequency of **13.56 MHz**, which is standard for library applications, ensuring they can be read by compatible RFID readers.
- **Passive Working Mode:** The tags must be **passive** (i.e., they do not require a power source), drawing power from the RFID readers to communicate with the system.
- **Antenna and Dimensions:** The tags must have an antenna size of **45 x 76 mm** and must adhere to specific mechanical dimensions for easy attachment to books. The tags must also be **thin and flexible** to prevent interference with the use and storage of the books.

- **Durability:** The RFID tags must be durable and capable of withstanding temperatures ranging from **-40°C to +85°C**, ensuring they remain functional in various environmental conditions.
- **Data Retention:** Tags must have a data retention capability of **100,000 cycles**, ensuring long-term reliability and performance.
- **Manufacturer Requirements:** The tags must be sourced from reputable manufacturers, preferably from **USA, EU, or UK**, with a manufacturer's authorization letter to ensure product authenticity and compliance with quality standards.

Tag Pasting Process:

- The vendor will be responsible for physically affixing **self-adhesive RFID tags** to each book in the library's collection. The tags must be applied following specific guidelines provided by the library authority.
- **Placement of Tags:** Tags should be placed in a standardized location within each book, typically on the inside back cover or the inside front cover, as directed by the library management. The placement must ensure that the tags do not interfere with the aesthetic or usability of the books.
- The tag placement must also consider readability by RFID readers. The tags must be positioned so that they can be read quickly and accurately by library staff during circulation or inventory processes.
- **Tag Integrity:** The vendor must ensure that each RFID tag is securely affixed, with no risk of peeling or detachment during regular use. The adhesive used must be of high quality, ensuring long-term attachment without damaging the book's surface.

RFID Tag Functionality Testing:

- After the installation of the RFID tags, the vendor is required to perform **functionality tests** to ensure that each tag is fully operational and can be read by the RFID system.
- Testing should include the use of RFID readers to confirm that the tags are correctly linked to the corresponding book records in the **Koha Library Management System (LMS)**. The tests should verify that the tag communicates all necessary information, including book title, author, accession number, and other key metadata.

- **Technical Specification:**

Book label: ISO 15693, ISO 18 000-3

Mechanical dimensions:

Antenna size: 45 x 76 mm

Tolerance: +/-0.5 mm

Die-cut size: 50 x 80 mm

Tolerance: +/-0.5 mm

Pitch, length: 86.36 mm (Minimum)

Die-cut to web edge: 3 mm (Minimum)

Die-cut radius: 2 mm (Minimum)

Antenna to Die-cut length: 2.0 mm +/- 0.5 mm

Antenna to Die-cut width: 2.5 mm +/- 0.5 mm

Operating temperature:

-40 ~ +85 C / 20% ~ 60% RH

Storage temperature:

-40 ~ +85 C / 20% ~ 60% RH

Data Retention:

1,00,000 cycles

Working mode:

Passive

Operating Frequency:

13.56 MHz
Memory:
2.5 Kbit (Minimum)
Protocol:
ISO / IEC / 15693
Antenna Process Mode:
Aluminum Etching
Substrate material:
PET
Manufacturer / IC: NXP ICODE SLIX2
Reel Details:
Web width (A): 56 + 1mm (A)
Inner core diameter (B): 76 mm (B)
Core thickness (C): 6-8 mm (C)
Quantity: 10000 pieces
Consulting firm must submit manufacturer authorization Letter.

- Any defective or non-functional tags must be replaced immediately to ensure 100% functionality across the entire collection.

2. Bibliographic Data Entry

The consultancy service provider is required to carry out comprehensive **bibliographic data entry** tasks for approximately **15,000 books**. This will be done in accordance with internationally accepted standards, ensuring the data is accurately entered into the Integrated Library Management System (ILMS), specifically **Koha**, following the **MARC21 format**.

The scope of bibliographic data entry involves the following key requirements:

3. MARC21 Format Compliance:

The bibliographic records for all materials must be created in MARC21 format, adhering to this globally recognized standard for library data. This ensures consistency, interoperability, and ease of sharing records with other libraries and institutions that use similar systems.

4. Batch Uploading and Copy Cataloging:

The system should support batch uploading of bibliographic and authority records. Additionally, the vendor is expected to utilize **Z39.50 search engines** integrated into Koha for copy cataloging, ensuring faster and more accurate data entry. The copy cataloging feature allows for the retrieval of records from external databases, significantly reducing manual work.

5. Original Cataloging:

In instances where bibliographic records are not available through batch uploading or copy cataloging, the vendor must carry out **original cataloging**. This will include entering all necessary data fields manually to ensure that every item in the library collection has a complete and accurate record.

6. Authority Control:

The service provider must ensure that bibliographic records are linked to authority records. This will aid in maintaining consistency in the use of names, subjects, and other standardized terms across the library's catalog, improving searchability and overall catalog integrity.

7. Cataloging Rules:

Cataloging will follow established rules such as **AACR2 (Anglo-American Cataloging Rules, 2nd edition)** or **RDA (Resource Description and Access)**. These standards govern the format and content of bibliographic records and ensure that data is recorded systematically and consistently.

8. Custom Cataloging Templates:

The consultancy firm should create **custom cataloging templates** with pre-set values for frequently used fields to enhance the efficiency of data entry. This will streamline the process of cataloging

items that have similar attributes, ensuring consistency across records and reducing the chances of error.

9. Metadata Fields:

The bibliographic data entered for each book must include, but is not limited to, the following fields:

- Accession Number
- Title
- Author
- Publisher
- Year of Publication
- Place of Publication
- Edition
- ISBN
- Call Number (if already generated)
- Copy Number
- Total Pages
- Volume
- Price
- Editor
- Series
- Item Type
- Permanent Location
- Current Location

10. Spine and Barcode Labels:

The vendor is responsible for creating **spine and barcode labels** for each book, where applicable.

The labeling must follow the directives of the library authority and should include information such as the **Accession Number** and **Call Number**. This labeling will assist in the efficient management of library materials and inventory control.

11. Batch Modifications:

The service provider should utilize Koha's functionality for **batch modifying and deleting item records**, as necessary. This will ensure flexibility and efficiency in managing large volumes of data.

12. Public Lists Creation:

The vendor is required to create **public lists of records** in the library's catalog to facilitate access for library users. These lists will help categorize books according to themes, subjects, or genres, making it easier for users to discover related materials.

13. Vendor Responsibility:

The vendor must ensure that all bibliographic data is accurately and efficiently entered into Koha, verifying the accuracy of metadata, and linking records to authority files where applicable.

Furthermore, the vendor will be expected to ensure that all books are easily accessible and searchable within the library management system upon the completion of data entry.

14. Cover Image Scanning & Upload to LMS:

As part of the e-library system development, the consultancy firm is responsible for the **scanning and uploading of cover images** for approximately **4,000 books** into the **Library Management System (LMS)**, specifically Koha. This process is crucial for enhancing the visual representation of the library's digital catalog and improving user experience.

The key requirements and processes for **Cover Image Scanning and Upload** are outlined below:

a) **Image Scanning Specifications:**

- The book covers must be scanned at a minimum resolution of **200/300 DPI** (Dots Per Inch). This ensures that the images are of high quality, suitable for both color and black-and-white book covers.
- Scanning should support **Color/B&W OCR** (for English-typed text), ensuring that cover text is clear and readable in digital format.
- The scanning process must incorporate several advanced image processing techniques to maintain the quality and appearance of the cover images. These include:
 - **Adaptive Threshold Processing:** Adjusts the contrast and brightness dynamically to enhance image quality.
 - **Border Adjustment:** Automatic addition or removal of borders to ensure the cover images are uniformly presented.
 - **Fixed Cropping:** Ensures that all images are cropped to fit the size requirements of the LMS.
 - **Auto White Balance:** Adjusts color tones to improve the overall look of the scanned cover images.
 - **Automatic Brightness and Contrast:** Ensures that the cover images are well-lit and have appropriate contrast for visibility.
 - **Color Detection:** Automatically identifies the dominant colors and adjusts them for better visual clarity.
 - **Image Deskewing:** Ensures that all cover images are aligned and straight, eliminating any tilt introduced during scanning.
 - **Background Color Smoothing:** Smoothens the background color to remove imperfections and enhance the readability of any cover text.
 - **Halftone Removal:** Removes any halftone patterns that might distort the visual quality of the cover image.
 - **Image Sharpening and Filtering:** Enhances the sharpness of images and applies filters to remove streaks or other scanning artifacts.

b) **Image Upload to LMS:**

- After scanning, the **cover images must be uploaded** to the Koha Library Management System. The images should be linked to their respective bibliographic records, ensuring seamless integration with the catalog data.
- The vendor must ensure that the images are associated with the correct metadata fields, including **Title, Author, ISBN, and Accession Number**, allowing for proper indexing and display in the catalog.
- The uploaded images must be optimized for display within the OPAC (Online Public Access Catalog), ensuring fast loading times and a smooth user experience.

c) **Quality Control:**

- The consultancy firm must maintain strict quality control standards to ensure that the scanned images are of high quality and correctly formatted for digital display.
- Images should undergo a review process to check for clarity, proper alignment, and color accuracy before uploading them to the LMS.



- Any images that do not meet the quality requirements must be rescanned or adjusted to ensure consistency across the e-library platform.
- d) **Image Metadata Management:**
 - In addition to the image scanning and uploading process, the vendor is responsible for ensuring that each image is correctly tagged with appropriate metadata, including book title, author, and any other relevant bibliographic details. This will improve the searchability and discoverability of books within the system.
- e) **Automation and Efficiency:**
 - Where possible, the vendor is encouraged to use batch processing techniques for both scanning and uploading cover images. This will reduce manual work and improve the overall efficiency of the process.
 - Automation tools should be employed for resizing and optimizing the images to ensure they meet the LMS display requirements.
- f) **Output Specifications:**
 - The final uploaded images should be in a format compatible with Koha, typically **JPEG or PNG**, ensuring the images are lightweight yet maintain visual clarity.
 - The system should allow for easy replacement or updating of cover images if higher-quality versions become available.
- g) **Integration with OPAC:**
 - The cover images must be integrated into the **OPAC (Online Public Access Catalog)** for public viewing. This will enhance user interaction with the library's digital collection by providing visual cues in search results, recommendations, and item details.
 - The OPAC should display the cover images for each book in both the search results and the detailed bibliographic records view, allowing users to visually identify materials.

15. Integration with LMS:

- Each RFID tag must be integrated with the library's **Koha LMS**. This involves assigning a unique identifier (stored on the RFID tag) to each book's bibliographic record in Koha.
- The integration ensures that when a tagged book is scanned using an RFID reader, the LMS can instantly retrieve all relevant data, including the book's location, circulation status, and borrower history.
- This integration also enables automation of several library processes, such as **self-checkout, inventory control, and security**, ensuring smoother library operations.

16. Inventory Management:

- The RFID tags will play a vital role in **automating inventory management**. By scanning multiple RFID tags simultaneously, library staff can perform rapid inventory audits, checking the status and location of books without manually handling each item.
- The RFID system will also allow for **real-time tracking** of library materials, helping staff to monitor which items are borrowed, available, or overdue.

17. Security and Anti-Theft Measures:

- The RFID tags will be integrated into the library's **security system**, preventing unauthorized removal of books from the premises. If a tagged book is taken through the library's RFID gates without being properly checked out, the system will trigger an alert.

- This **anti-theft functionality** will reduce the risk of material loss and ensure better protection of library assets.

18. Vendor Responsibilities:

- The consultancy firm is responsible for procuring RFID tags that meet the specified standards and ensuring timely and efficient installation across the entire library collection.
- The vendor must work closely with library authorities to ensure that all tagging procedures are followed correctly, ensuring that the RFID tags integrate seamlessly with the existing library processes and systems.
- After the installation and testing of the tags, the vendor must provide a final report, detailing the number of books tagged and the results of the functionality tests.

19. Post-Installation Support:

- After the RFID tag installation is completed, the vendor must offer **support services** to address any issues related to the tags or their integration with the LMS.
- The vendor should be prepared to conduct additional training for library staff on how to manage and maintain the RFID tagging system, ensuring that they are comfortable using the system for circulation, inventory, and security.

20. Library Management System (Koha) Upgradation:

The **Koha Library Management System (LMS) Upgradation** is a crucial component of the e-Library project for BARC. The consultancy firm will be responsible for upgrading, customizing, and implementing Koha to the latest version, ensuring that it meets the current and future needs of the library. The upgraded system will provide a fully integrated, user-friendly solution for managing library collections, patrons, circulation, acquisitions, and reporting. The following outlines the scope of the **Koha LMS Upgradation**:

a) System Architecture and Deployment:

- Koha LMS is a **100% browser-based, open-source, integrated library system** that provides staff and public access through any web browser. There is no need for desktop client installations, which simplifies deployment and access across multiple devices and locations.
- The vendor will upgrade the current Koha system to the **latest available version** at the time of the project, ensuring that all new features, security patches, and performance improvements are incorporated.
- The upgraded system must be customized based on the specific requirements of BARC, ensuring that it aligns with the library's workflows and operational needs.

b) OPAC (Online Public Access Catalog):

The OPAC will provide a **public-facing interface** where users can search, view, and access library materials. The upgraded system must include:

- A **fully responsive theme** that adjusts to all devices, including smartphones, tablets, and desktops, ensuring a seamless experience for all users.
- **Keyword and advanced search options** that allow users to filter by location, item type, subjects, availability, and more.
- Integration with external services for **cover images**, allowing users to see book covers for easier identification.
- Enhanced OPAC content from external products such as **Open Library, Syndetics, Baker & Taylor, LibraryThing, Novelist Select, and iDream Books**.
- Features such as **tagging, commenting, star ratings**, and social media sharing to improve user engagement and interaction with library materials.
- **Virtual shelf browsing** and availability information, enabling users to browse collections visually and identify what is available for borrowing.

- Personalized features like the ability to **place, suspend, and cancel holds**, view **current and past checkouts**, manage **account history**, and create **private reading lists**.
- c) **Circulation Management:**
The upgraded Koha system will streamline and automate the library's circulation processes, including:
- **Barcode-based check-in and check-out** of library materials.
 - Configurable calendars for calculating **finest and due dates**, with options for book drop modes and fine forgiveness.
 - A system for managing **holds**, including the ability to generate hold pull lists and reserve materials across multiple branches.
 - **Offline circulation** support for times when internet access is unavailable, allowing staff to process check-ins and check-outs without interruptions.
 - **POS (Point of Sale) connectivity** for collecting fines and payments during transactions.
 - Circulation rules tailored to each branch, including **fine settings, hold rules, and checkout limits** based on item types and patron categories.
- d) **Patron Management:**
The vendor must ensure that the upgraded Koha system supports efficient management of **patron records**, including:
- **Bulk uploading** of patron data and **patron images**.
 - The creation of **patron cards** and the ability to batch modify patron details.
 - **Search and browse functions** for patrons based on phone numbers, email addresses, and names.
 - Connecting **children's records to guardian accounts** for family-based management of checkouts and fines.
 - Customizable patron fields and rules to manage **age-based restrictions** on borrowing certain types of materials.
- e) **Cataloging:**
The upgraded Koha system must offer advanced cataloging features, including:
- **Batch uploading and copy cataloging** using the integrated **Z39.50 search engine**, facilitating faster cataloging from external library databases.
 - Support for **MARC21 format** and cataloging rules like **AACR2 or RDA**, ensuring international standards compliance.
 - Custom cataloging templates with **pre-set values** to improve efficiency and reduce errors during the cataloging process.
 - Built-in links to **Library of Congress cataloging resources** for quick reference and help.
 - Tools for **batch modifying or deleting records**, and the ability to create **spine and barcode labels** for new items.
- f) **Reports and Analytics:**
Koha's upgraded reporting tools must provide complete access to all library data stored in the LMS. The vendor must configure the system to allow:
- **Custom report generation** based on specific library needs, such as circulation statistics, acquisitions, patron activity, and more.
 - Grouping reports by **branch, category, item type, and patron category** for better insights into library usage.
 - **Real-time data analysis** for decision-making, including advanced filters for narrowing down reports to specific criteria.
- g) **Acquisitions and Serials Management:**
Koha's upgraded acquisitions module will allow for:
- The management of **budgets, vendor information, and funds**, including tracking expenditures and encumbrances.

- Automated **ordering and claiming** processes using **EDI** and integration with vendor databases.
- **Tracking order statuses** and generating reports for late orders or items on hold.
- The ability to create **'on order' items** that patrons can place holds on, even before they are physically available in the library.
- The **serials management** system will handle subscriptions, **prediction patterns**, and **barcode generation** for serials and magazines.

h) Administration and Customization:

The vendor will ensure that library administrators have full access to all **administrative functions** within Koha, including the ability to set:

- **Circulation rules**, fine structures, and **hold limits** for each branch.
- **Custom pull-down menus** for cataloging, patron management, and other modules.
- **Over 400 system preferences** to fine-tune the system's behavior to match the library's specific workflows and preferences.

i) System Integration and SIP2 Compatibility:

- The upgraded Koha system must support **SIP2 connections**, allowing seamless integration with external services like **self-checkout machines**, RFID systems, and other third-party tools used by the library.
- **LDAP integration** will allow for user authentication using existing directory services, enhancing security and access management.

j) Data Migration:

- The vendor is responsible for migrating the **existing data** from the current Koha system to the upgraded version, ensuring data integrity and compatibility.
- This process includes migrating **bibliographic records, patron data, circulation history**, and any other essential information.

k) Maintenance and Support:

- The vendor must provide **post-implementation support and maintenance** for a period of **three years**, which includes regular system health checks, bug fixing, and updates to newer versions of Koha.
- A separate service level agreement (SLA) (**without monetary involvement**) will be signed for **version updates, bug fixes**, and addressing any **critical or minor issues** that arise during the support period.

l) Training and Documentation:

- The vendor must provide **comprehensive training** to library staff on the upgraded Koha system, ensuring they are proficient in managing all system functions.
- Training should cover all modules, including OPAC, circulation, cataloging, patron management, and reporting.
- **Technical documentation** must be provided, along with a **user manual**, to assist the library staff with system usage and troubleshooting.

21. DSpace Upgradation

The upgradation of the **DSpace Digital Repository System** is a critical component of the e-Library project for BARC, aimed at enhancing the management and accessibility of digital content such as research papers, articles, e-books, video, audio files, and other educational materials. DSpace is a widely-used, open-source platform designed for institutional repositories, and this project requires the vendor to upgrade the existing system to the latest version, ensuring it meets modern digital repository standards and the specific needs of BARC.

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The following are the detailed requirements for the **DSpace Upgradation**:

a) **System Architecture:**

- The DSpace system will be a **user-friendly, SEO-optimized digital platform** that allows users to access various types of content, such as **PDF leaflets, research papers, videos**, and more.
- The upgraded DSpace platform must provide a **front-end web interface** for users and a **database storage manager** for back-end data handling. The system architecture must include a configurable data model with **metadata schemas, workflows**, and **search/browse functionalities**.
- The upgraded version must be **the latest available version** of DSpace at the time of the upgradation, ensuring the latest features, security updates, and performance optimizations.

b) **Content Management & Metadata:**

- **Metadata:** The DSpace repository will use a **Qualified Dublin Core (QDC)** based metadata schema by default. However, BARC must be able to extend this schema or add custom QDC-like schemas based on its specific needs.
- The upgraded system must support the import and export of metadata from other major schemas, including **MARC, MODS**, and others, enabling seamless integration with other library systems.
- The vendor must configure the system to support various **file types**, including video, audio, articles, newspapers, and books. The system should also have the capability to **auto-recognize common file formats**.

c) **Built-in Workflows:**

- The upgraded DSpace system must include **built-in workflows** designed for libraries and archives, ensuring that the data model and approval processes are familiar to BARC's library staff.
- The vendor must configure workflows for content ingestion, review, approval, and publishing, allowing for the efficient management of digital assets.

d) **Search and Browse Functionality:**

- The upgraded DSpace system must offer powerful **search and browse functionalities** for users to quickly locate materials within the repository.
- The system must have an integrated **full-text search engine**, enabling users to search within the text of common file formats (PDF, DOC, etc.) in addition to metadata-based searches.
- **Browse interfaces** must be configurable by content type, date, title, author, subject, and more, providing users with flexible ways to discover materials.

e) **Technical SEO Features:**

- The upgraded system must be optimized for **search engine visibility**, ensuring that repository content is easily indexable by search engines.
- **SEO-friendly URLs**, structured data (Schema.org), and auto-generated **sitemaps** should be included to enhance the discoverability of BARC's repository content on the web.
- **Image alt attributes** must be provided for all visual content, ensuring accessibility and better search engine ranking.

f) **File Storage and Scalability:**

- The upgraded DSpace system must support **configurable file storage options**, allowing BARC to store files using either a **local file system** or a **cloud-based solution**, depending on its needs.
- The system must be scalable, designed to handle **increased traffic and content uploads** as BARC's digital repository grows over time.
- The repository must support **disaster recovery options**, allowing BARC to export system content as **Archival Information Packages (AIPs)**. These AIPs can be used to restore the entire repository or individual communities, collections, or items if necessary.

g) **Permissions & Security:**

- The upgraded DSpace system must include a robust **permissions management system**, allowing for **role-based access control**. Administrators should be able to define permissions



for communities, collections, items, and files, ensuring that only authorized users can modify or access specific content.

- The system must offer the ability to delegate **administrative permissions** per community or collection, allowing BARC to decentralize management of different sections of the repository.
- **Authentication and authorization** should integrate with BARC's existing systems, including options for **LDAP** integration or using DSpace's own built-in systems.

h) Data Integrity & Backup:

- The system must ensure **data integrity** by calculating and storing a checksum for each file upon upload. The vendor must configure the system to regularly verify these checksums to ensure that files remain uncorrupted over time.
- **Regular backups** of the repository and its contents should be part of the system's infrastructure to prevent data loss in case of technical failures.

i) API and Protocol Support:

- The DSpace system must comply with standard protocols and best practices for access, ingest, and export, including **OAI-PMH**, **SWORD (v1 and v2)**, **OpenAIRE**, and **Driver**.
- The upgraded system must include a **RESTful API**, enabling integration with other systems and providing external access to repository data.

j) DSpace User Experience Enhancements:

- The upgraded DSpace system must include a **responsive design**, ensuring a seamless user experience across mobile devices, tablets, and desktops.
- **Video content** must support different resolution options (480p, 720p, 1080p, 4K), and the system should use **adaptive bitrate streaming** to ensure smooth playback based on users' internet connection speeds.
- **Multi-language support** for video captions and metadata fields will be included, allowing for the broadest possible reach to users in different regions.

k) Data Migration:

- The vendor will be responsible for migrating all **existing data** from the current version of DSpace to the upgraded system. This includes migrating all **metadata, digital objects**, and associated files without any data loss or corruption.
- The migration process must ensure that all existing metadata and relationships within the repository are preserved and correctly transferred to the new system.

l) Maintenance and Support:

- The vendor will provide **three years of maintenance and support** for the upgraded DSpace system. This includes ongoing system health checks, bug fixing, version updates, and addressing any critical or minor issues that arise during the support period.
- A separate **Service Level Agreement (SLA)** will be signed to define the scope of maintenance services, including support for system upgrades and troubleshooting.

m) Training and Documentation:

- The vendor must provide comprehensive **training** for the BARC staff to ensure they are proficient in using the upgraded DSpace system. This includes training on managing digital content, metadata, workflows, and user permissions.
- Detailed **technical documentation** must be provided, including instructions for managing the repository, using the API, and performing administrative tasks.
- A **user manual** must be provided for day-to-day operations and troubleshooting, ensuring that library staff can efficiently manage the repository without external assistance.

22. Book Digitization (4000 books, 400,000 pages)

As part of the e-Library project, the consultancy firm will be responsible for the **digitization** of approximately **4,000 books** with an estimated total of **400,000 pages**. This process will transform the physical collection into a digital format, making it accessible through the e-library system. The digitization process must be conducted with a high level of accuracy and quality, ensuring that the digital versions of the books are searchable and easy to read.

The following outlines the scope of the **Book Digitization** task:

a) **Digitization Parameters:**

- The digitization process must use state-of-the-art technology to ensure the best possible image quality, without compromising the integrity of the original materials.
- Each book will be scanned at a resolution of at least **200/300 DPI** (Dots Per Inch), depending on the condition and size of the books. This ensures that both text and images are captured clearly and can be easily read in the digital format.
- The books must be scanned in **color or black and white** depending on the content and quality of the originals. Color should be used for books where illustrations or charts are important, while black and white can be applied to text-only books.

b) **Image Processing:**

The vendor must apply various **image processing technologies** to optimize the quality of the scanned images. These processes will ensure that the resulting images are clean, legible, and free from visual defects. The key image processing tasks include:

- **Adaptive Threshold Processing:** Dynamically adjusts the brightness and contrast for each image to ensure clear readability.
- **Fixed Cropping:** Cropping the images to remove unnecessary borders while maintaining a consistent format across all pages.
- **Auto White Balance:** Adjusts the color tones to ensure that background areas (like the white pages) appear natural and consistent.
- **Automatic Brightness/Contrast:** Optimizes the brightness and contrast settings to enhance the visibility of the text.
- **Content-Based Blank Page Removal:** Detects and removes any blank pages automatically to reduce file size and improve user experience.
- **Deskewing:** Corrects any misalignment of the pages during scanning, ensuring that all pages are straight and properly aligned.
- **Background Color Smoothing:** Ensures that the background of the pages appears uniform, removing any artifacts like shadows or uneven lighting.
- **Image Edge Fill & Hole Fill:** Corrects issues such as torn page edges or holes in the original documents to create clean, usable digital pages.
- **Streak Filtering and Noise Removal:** Filters out any streaks or visual noise introduced during the scanning process.

c) **Dual Stream Scanning (if required):**

- The vendor may be required to use **dual stream scanning** technology, where appropriate. This method allows for scanning both the color version (for visually critical information) and a text-optimized version for OCR (Optical Character Recognition) and searchability.
- Enhanced color management and color adjustment will be applied to ensure that all visual elements in the book, such as images and illustrations, are preserved accurately.

d) **Special Handling of Old/Delicate Books:**

- Some books may be **old or fragile** but not brittle. The vendor must use specialized scanning equipment, such as **V-shaped book scanners**, which can scan books without opening them fully, preserving the condition of delicate bindings.
- **Face-up scanners** may also be used to scan pages without damaging the book spines or bindings.
- Books that cannot be scanned using automated scanners should be handled manually to avoid any damage during the process.

e) **OCR – English and Bangla:**

- Once the books are scanned, the vendor will be responsible for executing **Optical Character Recognition (OCR)** in both **English and Bengali**, making the digitized content fully searchable.
- The vendor should use the latest version of **Google's Tesseract OCR engine** (or a better model) to achieve a high level of accuracy, particularly for the Bengali language, which can have complex script forms.

- OCR will be applied to ensure that all textual content is recognized and can be searched using keyword searches within the library system.
 - The resulting output must be in **PDF/A format**, which is optimized for long-term archiving and searchability.
- f) **Output Specifications:**
- The final digitized output will be in **PDF/A format**, with each book producing a **fully searchable PDF**. These PDFs must include both the text (thanks to OCR) and images (scanned pages), ensuring that users can both view the book and search its content.
 - The digitized books should be stored in a way that maintains the quality of the images, while also ensuring that the file sizes are optimized for fast loading and access in the e-library system.
- g) **Scanning and Work Environment:**
- All scanning work will be performed in **shifts, 6 days a week**, at the designated space within the **BARC premises**. The books must not be taken off-site to ensure their safety and security.
 - The vendor must ensure that the documents are handled with the utmost care and that no physical damage or degradation occurs to the books during the scanning process.
 - Scanning will be carried out on **Professional V-Shaped Book Scanners** (with two DSLR-based cameras) for fragile books, and **Production Scale ADF Scanners with Intelligent Document Protection (IDP)** technology for faster, automated scanning of more robust documents.
- h) **Metadata and Indexing:**
- After the books are digitized, the vendor will be responsible for assigning key **metadata** to each digital book. This metadata will include fields such as **title, author, publication year, ISBN, language, and subject**, ensuring the books are easily searchable within the e-library system.
 - The vendor must ensure that metadata is entered according to the established guidelines of BARC, and the digitized books must be integrated into **Koha** and **DSpace** for public access.
- i) **Quality Control:**
- The vendor must implement a **quality control process** to ensure that all scanned images are of high quality, readable, and free of defects. This includes checking the clarity of the scanned text, the alignment of pages, and the accuracy of the OCR output.
 - Any errors detected in the scanning or OCR processes must be corrected immediately, and books may need to be re-scanned if the initial results do not meet the required quality standards.
- j) **Training and Support:**
- The vendor must provide **in-house training** to BARC staff on how to manage the digitization process and ensure smooth operation of the entire system. This includes training on how to use the scanners, manage digital files, and maintain the system.
 - In addition to basic training, the vendor must provide **advanced training on automation and digitization** at the **OEM premises** to enhance the library's ability to continue digitization efforts independently in the future.
- k) **OCR – English/Bangla**
- As part of the e-Library system project for BARC, the consultancy firm is tasked with performing **Optical Character Recognition (OCR)** on the digitized content to make it fully searchable and accessible in both **English** and **Bengali** languages. OCR is essential for converting scanned images of books and other documents into machine-readable text, enabling full-text search capabilities and enhancing the usability of the digitized materials. The following outlines the scope of the **OCR – English/Bangla** requirements:
- i. **OCR Process Overview:**
- OCR will be applied to all digitized materials, including approximately **4,000 books** (totaling 400,000 pages), leaflets, and other textual documents scanned during the digitization process.
 - The OCR process will convert scanned images into **searchable PDF/A format**, ensuring that users can search for specific words or phrases within the content of the documents.

ii. **OCR Engine and Technology:**

- The vendor is required to use **Google's Tesseract OCR engine (version 5)** or a **better model** to perform OCR on both English and Bengali content. The OCR engine must be **custom-tuned** to handle the nuances of both languages, ensuring high accuracy in text recognition.
- The OCR system must support **adaptive thresholding, character segmentation**, and advanced **language-specific processing** to handle complex scripts, especially for Bengali, which has intricate characters and conjuncts.
- The goal is to achieve the highest possible accuracy in text extraction, accounting for variations in font, size, and layout that are typical in printed books and older documents.

iii. **OCR for English Text:**

- English OCR will be applied to all content written in English. This includes modern and historical documents, which may have varying font styles, sizes, and layouts.
- The OCR system must be capable of accurately recognizing **standard English characters** and symbols, as well as handling **multiple column formats** and **tables** if present in the documents.
- The OCR engine should also be able to recognize **footnotes, page numbers**, and other common document elements that are typically found in academic and research materials.

iv. **OCR for Bengali Text:**

- Bengali OCR presents a unique challenge due to the **complexity of the script**, which includes multiple character shapes, vowel signs, and conjunct characters. The vendor must ensure that the OCR engine is **custom-tuned** for the Bengali language, providing accurate recognition of its intricate structure.
- The OCR process must handle variations in **Bengali fonts**, which may include older styles or handwritten characters. The vendor must ensure that these variations are accurately captured in the OCR output.
- The OCR engine must be capable of recognizing and processing **Bengali punctuation, diacritical marks**, and the **complex ligatures** that are common in the Bengali script.
- High accuracy is required to ensure that Bengali content is properly searchable, as it is crucial for BARC's target audience, particularly for researchers and readers looking for materials in the native language.

v. **Post-Processing and Text Correction:**

- After the OCR process, the vendor must perform **post-processing** to correct any errors that may arise during OCR. This includes identifying and correcting misrecognized characters, formatting inconsistencies, and ensuring that the final output is clean and accurate.
- Post-processing must also account for language-specific nuances in both English and Bengali. For Bengali, the vendor must be vigilant about correcting character misinterpretations that commonly occur due to the script's complexity.

vi. **OCR Accuracy and Quality Control:**

- The vendor must strive to achieve a **high level of accuracy** for both English and Bengali OCR outputs. The acceptable accuracy rate must be at least **95%** for English and **90%** for Bengali, considering the complexity of the Bengali language.
- A rigorous **quality control** process must be in place to verify the accuracy of the OCR output. Random sampling of the OCR-processed text must be performed, with any errors identified being corrected manually.
- The quality control process must ensure that all digitized documents are free from OCR errors, especially those that could affect searchability or readability.

vii. **Searchable PDF Output:**

- The final output of the OCR process will be a **fully searchable PDF** that retains the original formatting of the scanned document. This includes retaining page layout, images, and other visual elements while enabling users to search within the text.
- The PDF files must be produced in **PDF/A format**, ensuring they are suitable for long-term digital preservation and are compatible with most PDF readers.



- The OCR-processed documents must allow users to perform **full-text searches** within both English and Bengali documents, retrieving relevant pages or sections based on search queries.
- viii. System-Level User Privileges:**
- The OCR functionality must be integrated into the e-Library system, allowing system-level users (such as library staff or administrators) to have **specific privileges** to access, manage, and run OCR processes on newly scanned documents.
 - Users must be able to initiate OCR for both new and existing scanned materials, as well as review and correct the OCR output before finalizing the searchable PDFs.
- ix. Experience and Certification:**
- The vendor must have **previous experience** working with OCR engines, particularly for complex scripts like Bengali. Demonstrated experience in handling OCR for languages with non-Latin scripts will be a significant advantage.
 - **Certification** in OCR technologies, particularly in Tesseract or equivalent engines, will be preferred. The vendor should provide evidence of past OCR projects and their success in handling multilingual OCR tasks.
- x. Performance and Efficiency:**
- The OCR process must be efficient, with the ability to handle large volumes of pages in a timely manner. The vendor must implement processes to streamline OCR and reduce the time required for processing 400,000 pages of content.
 - Batch OCR processing should be employed for large volumes of material, ensuring that the OCR process is scalable and can meet the project's deadlines.
- xi. Vendor Responsibilities:**
- The vendor must ensure that the OCR process is completed on time and meets the accuracy and quality standards defined in this document.
 - The vendor will provide support for troubleshooting any OCR-related issues that arise during or after the implementation process. This includes fixing any OCR errors found after deployment or during user searches.
 - Ongoing **technical support** for the OCR process will be required, ensuring that newly digitized content can continue to be processed with OCR for future additions to the e-Library.

l) Uploading Format/Indexing Field

As part of the e-Library system development for BARC, the consultancy firm will be responsible for ensuring that all digitized content, including books, research papers, leaflets, and other materials, is properly uploaded and indexed within the **Koha** and **DSpace** systems. Proper indexing and metadata assignment are critical for making the content searchable and easily accessible to users.

The following outlines the scope of the **Uploading Format and Indexing Field** requirements:

a. Uploading Format:

- The digitized books and other materials must be uploaded in formats that are compatible with both the **Koha Library Management System (LMS)** and **DSpace**. The primary format for uploading will be **PDF/A** (for searchable PDFs), ensuring long-term digital preservation and full-text searchability.
- The system must support the following file formats for uploading metadata and content:
 - **CSV** (Comma-separated values)
 - **TXT** (Text file)
 - **XLS/XLSX** (Excel file)
- These formats will be used for batch uploading of metadata and content, facilitating the quick addition of large volumes of digitized material into the library's systems.

b. Metadata and Indexing Fields:

- The vendor is responsible for assigning and populating the necessary **metadata fields** for all digitized books and content uploaded into Koha and DSpace. The metadata will serve as the primary method for categorizing, searching, and retrieving content within the library systems.

- The minimum required fields for metadata indexing include:
 - **Title:** The title of the book or material.
 - **Author:** The name of the author or authors.
 - **Publisher:** The organization or individual responsible for publishing the material.
 - **Year of Publication:** The year the material was published.
 - **Place of Publication:** The location where the material was published.
 - **Edition:** The specific edition of the material, if applicable.
 - **ISBN:** The International Standard Book Number for uniquely identifying books.
 - **Accession Number:** A unique identifier assigned to each book or material in the library system.
 - **Call Number:** The classification number used to identify and locate the material within the library's shelving system.
 - **Copy Number:** Indicates whether there are multiple copies of the same material.
 - **Total Pages:** The total number of pages in the book or material.
 - **Volume:** The volume number, if the material is part of a multi-volume set.
 - **Price:** The purchase price or estimated value of the material.
 - **Series:** The series name, if the material is part of a larger series.
 - **Subject/Keywords:** Relevant subjects or keywords that describe the content of the material.
 - **Language:** The language in which the material is written.
 - **Item Type:** The type of material (e.g., book, journal, leaflet).
 - **Permanent Location:** The physical or digital location where the material is permanently stored.
 - **Current Location:** The current location of the material within the library (if checked out or in transit).
- c. **Batch Uploading and Indexing:**
 - The vendor must use **batch uploading techniques** to efficiently add large sets of metadata and digital content into the Koha and DSpace systems. This will involve preparing metadata in bulk using the appropriate file formats (CSV, TXT, XLS, etc.) and ensuring that all relevant fields are properly populated before the upload.
 - **Batch indexing** should be performed to ensure that all materials are correctly classified and can be retrieved easily through search queries in both Koha and DSpace.
 - The metadata and digital content must be linked to ensure that users can access the full-text materials directly from search results, without the need for additional manual searches.
- d. **Metadata Guidelines:**
 - The vendor must adhere to established **metadata standards** such as **MARC21** for bibliographic data in Koha and **Qualified Dublin Core (QDC)** in DSpace. These standards will ensure that the metadata is consistent, interoperable, and easily sharable with other systems if needed.
 - The vendor will work closely with BARC to ensure that the metadata complies with the library's specific guidelines and requirements, ensuring that users can search, browse, and access materials in a user-friendly manner.
 - For books and materials that lack sufficient existing metadata, the vendor must create new entries following the library's metadata rules, ensuring that no material is left uncategorized.
- e. **Search and Retrieval Optimization:**
 - The metadata and indexing must be configured to optimize the **search and retrieval** capabilities of the Koha and DSpace systems. This includes ensuring that all relevant fields are indexed and that users can search using **multiple criteria** (e.g., title, author, subject, keyword, publication year).
 - The system must allow for **advanced search options**, enabling users to refine searches using filters such as publication date, language, item type, and location.

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- **Full-text search** functionality should be supported for all digitized books and materials, with the OCR data ensuring that users can search for specific terms within the content of the materials themselves.
- f. **Public Access and OPAC Integration:**
 - Once the materials are uploaded and indexed, the vendor must ensure that they are **fully accessible through the OPAC (Online Public Access Catalog)** in Koha. Users should be able to view metadata and access the digitized content through the public interface, with links to download or view PDFs as needed.
 - **Permanent URLs** must be generated for all digital content, ensuring that users can access the materials from any location with a stable link.
 - The DSpace repository should allow public access to digitized research papers, leaflets, and other materials through its web interface, with **SEO-friendly URLs** and optimized metadata for search engine indexing.
- g. **Testing and Validation:**
 - After the upload process, the vendor must perform **testing and validation** to ensure that all metadata fields are correctly populated and that all digitized content is linked properly in Koha and DSpace.
 - The system must be tested for **search accuracy** to ensure that users can retrieve the correct materials based on various search parameters. Any issues identified during testing must be addressed immediately.
- h. **Vendor Responsibilities:**
 - The vendor will be responsible for the **accurate and timely upload** of all digitized content and metadata into the Koha and DSpace systems. This includes ensuring that all metadata fields are properly populated, and the content is accessible and searchable by users.
 - The vendor must also provide support for troubleshooting any issues related to the upload and indexing process and ensure that all materials are accessible and discoverable by library staff and users alike.

23. Training

As part of the e-Library system development for BARC, the consultancy firm is responsible for providing comprehensive **training** to BARC staff to ensure smooth and efficient operation of the newly implemented systems. This includes training for the **Koha Library Management System (LMS)**, **DSpace**, and the processes related to digitization, OCR, and content management. The training program will be structured to ensure that BARC staff are fully equipped with the knowledge and skills necessary to manage and operate the e-Library systems independently. The following outlines the key elements of the **Training** program:

i) **Scope of Training:**

- The training will focus on the practical use of the **Koha LMS**, **DSpace**, and associated digitization technologies, as well as overall system administration.
- Training will cover both the **technical and operational aspects** of managing the e-Library system, ensuring that staff can effectively handle the day-to-day functions of the digital repository, as well as troubleshoot and resolve issues when they arise.

ii) **Training Modules:**

The training program will be divided into the following key modules:

Koha LMS Training:

- **Cataloging:** In-depth training on how to catalog books and other materials, including bibliographic data entry using MARC21 format, batch uploading, copy cataloging with Z39.50, and original cataloging.
- **Circulation:** Training on how to manage book check-in/check-out processes, placing holds, managing fines, and using barcodes for inventory and circulation management.
- **Acquisitions:** Guidance on managing book purchases, budgets, and vendor information within the system.
- **Reporting:** Teaching staff how to generate and customize reports, including circulation reports, acquisition summaries, and patron activity reports.
- **System Administration:** Training on setting up and managing system preferences, user permissions, and security configurations in Koha.

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DSpace Training:

- **Content Ingestion:** Training on how to upload digital content such as PDFs, videos, and other materials into DSpace, with a focus on metadata creation using the Dublin Core format.
- **Metadata Management:** Guidance on managing and editing metadata records to ensure consistency and searchability across the digital repository.
- **Search and Retrieval:** Training on how to configure and optimize the search and browse functionalities for DSpace, ensuring users can easily locate and retrieve content.
- **User Management and Access Control:** Teaching how to manage user roles, permissions, and administrative privileges within DSpace.

Digitization and OCR Processes:

- **Scanning Techniques:** Training on the use of professional book scanners, including V-shaped and production-scale scanners, to digitize physical materials. This includes instructions on scanning fragile documents without damage, image quality control, and batch scanning.
- **OCR (Optical Character Recognition):** Training on how to execute OCR processes for both English and Bengali texts, ensuring that digitized documents are fully searchable. This includes hands-on guidance on using OCR software like **Tesseract** and managing post-OCR text correction and validation.
- **Content Management and Upload:** Training on how to manage the upload process of digitized books and materials, including ensuring that metadata is correctly assigned and indexed in both Koha and DSpace.

iii) Training Format:

- **Formal Classroom Training:** The primary training sessions will be delivered in a classroom setting at BARC premises. This will include instructor-led, hands-on exercises with real-time demonstrations of system functionality and processes.
- **Practical Sessions:** In addition to theoretical training, practical sessions will be conducted to allow trainees to directly engage with the systems, including performing cataloging, running reports, managing content, and using the digitization equipment.
- **On-the-Job Training:** To reinforce the learning process, staff will be guided through **on-the-job training**, where they will apply their new skills in real-world tasks under the supervision of trainers.

iv) Training Duration:

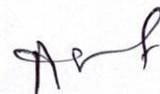
- The formal training program will be conducted over **5 days** for a total of **10 staff members**. This includes full-day sessions covering all aspects of Koha, DSpace, digitization, and OCR.
- Advanced training on system customization, troubleshooting, and optimization may be extended for specific technical staff who will be responsible for managing the system long-term.

v) Training Materials:

- **Training Manuals:** Each participant will receive a **detailed training manual** that covers all the topics discussed during the sessions. This manual will serve as a reference guide for system operation, troubleshooting, and advanced functions.
- **Hands-on Exercises:** The training sessions will include practical exercises that replicate real-life scenarios. Participants will be asked to complete these tasks to ensure they can confidently manage the systems post-training.
- **Video Tutorials:** Where applicable, the vendor may provide **video tutorials** to support learning and provide ongoing access to demonstrations of key tasks and processes.

vi) Advanced Training on Automation and Digitization:

- The vendor will also provide **advanced training on automation and digitization processes** at the **OEM premises** (if applicable). This will be focused on system optimization, automation of routine tasks, and handling large-scale digitization projects.
- This training will be directed at technical staff who will be responsible for overseeing future digitization efforts and maintaining the systems.



24. Evaluation and Certification:

- At the end of the training program, participants will undergo an **evaluation** to test their understanding of the material. This will involve completing practical tasks related to cataloging, system management, and digitization.
- Participants who successfully complete the training program will be awarded a **Certificate of Completion**, validating their proficiency in using the Koha and DSpace systems, as well as managing digitization projects.

25. Post-Training Support:

- The vendor must provide **post-training support** to ensure that BARC staff can reach out for assistance when needed. This includes a **helpdesk service** or **online ticketing system** where staff can report issues or request help with specific tasks.
- **Refresher Training:** If needed, the vendor will offer **refresher training sessions** to help reinforce key concepts or assist with advanced tasks after the initial training period has ended.

26. Vendor Responsibilities:

- The vendor will be responsible for designing and delivering the training program, including customizing the content to match the specific needs of BARC.
- The vendor will ensure that all training sessions are conducted professionally and that participants are fully equipped with the skills and knowledge needed to operate the systems independently.
- The vendor will provide all necessary **training materials**, including manuals, tutorials, and reference guides, to ensure that staff have ongoing support after the training is completed.

27. SPECIFIC DELIVERABLES OF THE ASSIGNMENT:

Combined Deliverables for All Components

SN	Name of the Deliverables	Duration
1.	<ul style="list-style-type: none">• Inception report including finalized methodology/engineering process, detail work plan, Gantt Chart etc.	Within 15 days from signing of the contract agreement. 01 (One) hard copy and one soft copy in DVD and pen drive.
2.	<ul style="list-style-type: none">• Software requirement specifications (SRS) report with proposed SRS for the system.• UI/UX Design report with proposed UI/UX• Database architecture design report (for web-based software).• Design and develop security plan.	Within 01 month 15 days from signing of the contract agreement. 02 (Two) hard copies along with one soft copy in DVD and pen drive.
3.	<ul style="list-style-type: none">• Beta version of the software according to the approved specifications (SRS). (if anything, missing, will be added during SRS).	Within 02 months 15 days from signing of the contract agreement. 02 (Two) hard copy and one soft copy in DVD and pen drive.
4.	<ul style="list-style-type: none">• Fully functional web-based software according to the approved specifications IoT devices etc. (if anything missing, will be added during SRS).• Install, configure systems and technology integration to the provided server under specific domain/IP.• BARC will provide at live server and integration with administration support for complete the task.	Within 04 months from signing of the contract agreement. 01 (One) final software installation
5	<ul style="list-style-type: none">• Digital user manual (Help manual).	Within 04 months 15 days from signing of the contract agreement.

SN	Name of the Deliverables	Duration
		02 (Two) hard copies and one soft copy in DVD and pen drive.
6.	<ul style="list-style-type: none"> Scanning Assignment of 4000 Books (4,00,0000 Pages) should be done and relevant report should be submitted. 	<p>Within 05 months from signing of the contract agreement.</p> <p>02 (Two) hard copies and one soft copy in DVD and pen drive.</p>
7.	<ul style="list-style-type: none"> Final report/ Project completion report including all technical documentation with source code should be provided in DVD and pen drive. 	<p>Within 05 months from signing of the contract agreement.</p> <p>02 (Two) hard copies and one soft copy in DVD and pen drive.</p>

28. Reporting Arrangement

The Consulting firm will report to the BARC and will work closely with relevant BARC officials as well as with the technical team of the BARC. The assigned officials of the work will assume the responsibility to communicate the progress to the involved parties and the BARC will provide all assistance to the consulting firm in terms of:

- Review of the subsequent drafts to be developed by the Consulting firm;
- Meeting regularly with the Consulting firm to follow up the progress of activities;
- Receiving all deliverables and give written approval on deliverables provided by the Consulting firm

29. Client Input

Following input will be given/ provided by the BARC:

- BARC will provide necessary information and project related documents & files to the Consulting firm which are relevant with project implementation.
- BARC will provide necessary administrative, management and reasonable logistics support during the project implementation.

30. INSTITUTIONAL ARRANGEMENT OF THE SERVICES:

The consulting firm would be expected to commence of service as soon as possible, but no later than One (01) week after signing of contract, and would report to BARC, who will be responsible for coordinating and supervising the consulting firm. BARC will also make available to the consulting firm all information, files and documents relevant to their tasks.

QUALIFICATIONS/EXPERIENCES OF THE CONSULTING FIRM:

The firms must meet the following minimum eligibility criteria:

- Legally established professional consulting firms or entity with minimum 10 (ten) years of working experiences in ICT business as a registered Company/ Entity with Register of joint stock & companies (RJSC) in Bangladesh;
- Must submit valid (updated) Trade License, TIN, VAT, Incorporation & updated income tax Certificate, BASIS Membership, CMMI Level 3 or higher.
- Must have ISO 27001 Certificate.
- BACCO, BCS Membership are also preferable.
- Must be a local company of having minimum 10(ten) years of experience in Software development business in Bangladesh or overseas.
- The firm must have experience of managing at least two (02) web-based applications with GOB/Donor or with large scale corporate sector. Experience in Government sector will be given preference. *URL of live applications needs to be provided.*

7. Firm must demonstrate its management capacity (website link or brochures and other documents describing similar assignments, experience, availability of appropriate professional staff and experience among applicant's staff, resources to carry out the assignment).
8. Firm should demonstrate its' logistical capability (well-equipped office space at Dhaka with necessary facilities etc.).
9. Must submit completion certificates of the services completed within the last 5(five) years with details of issuing authorities;
10. The firm should have yearly turnover minimum 2.0 Crore. Must submit last 3 (Three) year's financial audit report.
11. List (Name, designation, Number, years or experience, number or projects, expertise) of personnels (Project Manager, System Analyst, Business Analyst, Database Administrator, Information Security Expert, Interoperability Expert, Sr. Software Engineer, Software Engineer, Quality Assurance Engineer, System Administrator, Network Engineer, Trainer, Technical Documentation Expert, Support & Maintenance Engineer) who can be engaged and performed the assigned task. **Key Experts will not be evaluated at the shortlisting stage.**
12. Experience developing bi-lingual (English, Bangla) software accessible across multiple devices like mobile, desktop PC, laptop.
13. Must have proven experience in mobile app development & should have apps published in any global online marketplace (e. g. App Store, google play, etc.)
14. Firm should have at least one web application/ software testing certificate, SQTC given by BCC.

List Of Key Professional Positions Who's Cvs and Experiences Would Be Evaluated

The consulting firm will have to deploy the following key staff, whose CVs will be Evaluated for the purpose of Evaluation of the Technical proposal:

Qualification and Experiences of the Key experts:

SN	Designation	Quantity in Person	Minimum Educational Qualification	Experience, Skill & Other Qualification
01	Project Manager	1	<ul style="list-style-type: none"> o MSc in Computer Science and Engineering/MSc. In Computer Science or any other ICT/IT related discipline from any reputed university. o Must have PMP Certification. 	<ul style="list-style-type: none"> o At least 10 (Ten) years of work experience in the ICT field. o Minimum 05 (Five) years ICT related project management experience. o Must have national and international professional membership of any professional body like Bangladesh Computer Society (BCS) or Asia Research Forum (ARF), etc. o IOT/Block chain/Big Data/ AI/ Machine Learning (4IR) related R&D publications at reputed journal will be highly preferable.
02	System Analyst/Business Analyst	1	<ul style="list-style-type: none"> o BSc or MSc in Computer Science and Engineering/ BSc or MSc In Computer Science or any other ICT/IT related discipline from any reputed university. 	<ul style="list-style-type: none"> o Minimum 8 (Ten) years of professional experience in ICT field including Software Requirement Specification, UML and Information Management. o Experience in Government and Donor Funded project like The World Bank, UN, GIZ, Danida, USAID etc. will be preferable.

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SN	Designation	Quantity in Person	Minimum Educational Qualification	Experience, Skill & Other Qualification
03	System Architect	1	o BSc or MSc in Computer Science and Engineering/ BSc or MSc In Computer Science or any other ICT/IT related discipline from any reputed university.	o Minimum 7 (Seven) years' experience in Software Development & programming field having experience in team management, project management, and operation.
04	Database Administrator	1	o BSc or MSc in Computer Science and Engineering/ BSc or MSc In Computer Science or any other ICT/IT related discipline from any reputed university.	o Minimum 10 (Ten) years of professional experience in ICT field including Database Design. o Experience in RDBMS is mandatory.
05	Sr. Software Engineer & Software Engineer	4	o BSc or MSc in Computer Science and Engineering/ BSc or MSc In Computer Science or any other ICT/IT related discipline from any reputed university.	o Minimum 04 (Four) years' experience in Software development and programming related field.
06	Information Security Expert	1	o BSc or MSc in Computer Science and Engineering/ BSc or MSc In Computer Science or any other ICT/IT related discipline from any reputed university.	o Minimum 02 (Two) Years' experience in Information Security related job.
07	SQA	2	o BSc or MSc in Computer Science and Engineering/ BSc or MSc In Computer Science or any other ICT/IT related discipline from any reputed university.	o Minimum 02 (Two) years' experience in Software QA & QC related field.
08	System Administrator/Network Engineer	1	o BSc or MSc in Computer Science and Engineering/ BSc or MSc In Computer Science or any other ICT/IT related discipline from any reputed university.	o Minimum 02 (Two) years' experience in System Administration or related field.
09	Interoperability Expert	1	o BSc or MSc in	o Minimum 02 (Two) years' experience in System Administration or related field.

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SN	Designation	Quantity in Person	Minimum Educational Qualification	Experience, Skill & Other Qualification
			Computer Science and Engineering/ BSc or MSc In Computer Science or any other ICT/IT related discipline from any reputed university.	
10	Technical Documentation Expert	1	o BSc or MSc in Computer Science and Engineering/ BSc or MSc In Computer Science or any other ICT/IT related discipline from any reputed university.	o Minimum 02 (Two) years' experience in Technical Documentation or related field.
11	Scanning Specialist	6	o Diploma in Computer Science	o Minimum 02 (Two) years' experience in related field.

31. Duration of the Assignment

The duration of the consultancy services shall be **05 (five) months** from the date of contract agreement signing and make it fully operational. It is expected that the consulting firms will provide the timeline breakdown with the Gantt chart during the RFP stage.

Note: Expressions of interest (EOI) containing one original and one copy of the original with a soft copy in CD/pen drive must be delivered in written form duly signed, to the PE address and clearly marking on the envelope Selection of Consulting Firm for e-Library Management Software under package no.: SD/PARTNER/BARC-14