PART II: Scope of Work

Document Management System, Product Lifecycle Management, Digitization of Integration Activities and Quality Management System in Integrated Application

1 Introduction

BrahMos Aerospace Private Limited, a joint venture between India's Defence Research and Development Organization (DRDO) and Russia's NPO Mashinostroyeniya, is a leading aerospace and defence corporation specialized in Design, Development and Production of Supersonic Cruise Missile Systems. BrahMos Missile, a versatile weapon deployable from multiple platforms, the company plays a critical role in enhancing India's defence capabilities and is actively pursuing advancements in missile technologies, solidifying its position as a key player in the global defence sector.

BrahMos Aerospace is seeking proposals from qualified Firms for the supply, implementation, and support of a comprehensive Document Management System, Product Lifecycle Management, Digitization of Integration Activities and Quality Management System in integrated application.

The goal is to streamline document handling, improve collaboration, ensure regulatory compliance, streamline product development processes, enhance data management across the entire product lifecycle and provide secure document storage and retrieval through Document Management System.

There is a requirement to modernize and integrate the operational flow and operational efficiency by implementation of a Production Automation Software System / PLM for our organizational standards. The aim is to digitize, manage, and automate organizational processes with approvals, Meta Data/ Text workflow, reporting etc.

1.1 Objective

This includes, but is not limited to:

- a. Study of existing processes and migrate legacy data, in all formats.
- b. Multilingual Support
- c. Production Management software along with source code, for multi-location access, with all features for Day-to-Day flow, versioning, access, offline data transfer, secured access,
- d. Customising the workflow system
- e. Customising Form builder and rules engine
- f. Customising Role-based access and approval
- g. ERP/HRMS integration and offline Basic data provision.
- h. Dashboards and alerts
- i. Document management with security access
- j. Hosting and support within Intranet and no online internet facility, with 3-year warranty

2   Scope of Work

a.   Supplying unlimited licenses web-based product-based software (with source code) for deploying implementing, and maintaining Multi configuration

b.   Workflow Automation

c.   User Access Rights

d.   Requirement integrating Production and Quality documentation along with Meta and Text data with version controlling

e.   Store Control System

f.   Product Pricing Generation

g.   Generating MIS and documentation in definable formats

h.   Having Dash Board, Standard scan read in Store and Documents.

i.   Hardware based file security with implementation in multi locations within India, maintain the same and extend onsite support.

j.   Migrating legacy data

k.   Establishing fallback mechanism

l.   Maintain entire software including OS and relevant software applicable

m.   And not limited to the above, additional features desired to be delivered

3   Document Management System (System Configuration)

Document Management System is to be deployed at Five (1 Primary + 4 Secondary) location connected over MPLS (Multiprotocol Label Switching) Line. The Document Management System (DMS) is to work in Primary-Secondary Server Configuration in redundant mode.

Metadata is to be maintained at Primary and Secondary Server. Metadata need to be synchronised in soft real-time.

Separate encrypted vault (folder) is to be maintained at each location which will fetch the documents from the vault.

3.1   System requirements (Software-Application):

Some of the most salient features required in the DMS/PLM are as follows:

a.   Maintaining the repository of all technical documents in both Native Application Format and readable PDF format.

b.   Capacity to handle about 120 different Document types (Placed in separate genealogies) and Multiple revision levels of the same documents.

c.   Handle documents in Multiple Languages and English (Unicode enabled).

d.   User friendly search and view of the documents without compromising security (no 'save as' / 'print' option).

e.   Provision to define access control for Individuals and Group users for viewing, printing, modifying etc.,

f.   Upload of documents into respective genealogy by deciphering the filenames of the softcopy.

g.   Creating and maintaining Product structure (BOM) and managing BOM–Material BOM & Standard BOM. Documents should be made viewable from the Product Structure View.

h. Provision for creation of Item Code (Item Part numbers) based on the user defined logic.
i. Provision for Archival of all Production and Quality records (Scan, OCR &Upload).
j. Seamless Integration with the current ERP system using API.
k. Integration/Interface with internal mailing system for dissemination of documents related information

4 Functional Requirements

The DMS should support the following core functionalities:

4.1 User Management

a. About 300 + users using the Document Management System. Users will have their unique User ID and password. Based on the requirement, the access rights for the users should be definable.
b. Import of existing user credentials. The legacy system has the records and credentials about 300 + users, these user credentials and records have to be migrated into the new system and the same credentials to be activated.
c. Creation of new users, blocking of existing users, grouping of users and assigning of user rights.

4.2 User Authentication & Access Control

a. Role-based access (admin, editor, viewer) with fine-grained permissions (read, write, delete) and robust security features.

4.3 Access Control & Permissions

a. Role-based access control
b. User, group, and department-level permissions
c. Document-level sharing and access restrictions

4.4 Document Storage & Capture

a. Uploading of Documents.
b. Bulk Import of Document from legacy system.
c. Documents are to be categorized into different documents genealogy/ types (about 120 type) and different version are also maintained.
d. Deciphering the filename structure having the details of the Document nomenclature, Document type, Sheet no: Version number etc., System should be capable of understanding the file name and automatically update the documents in the correct genealogy and version number.
e. Dissemination of Document upload related Information.
f. Centralized repository supporting multiple formats (PDF, Word, Excel, CAD), with document scanning/OCR for digitizing physical files.
g. CAD Drawings need to be open in Native Format. Rights can be granted for Native / Viewing / Specter to user as per CVC guidelines
h. Multiple Languages Support

4.5 Product Lifecycle Management features required in Document Management System

a. Parts and Product Structure Creation of Parts and Product structures
b. Standard of Preparation (SOP)
c. Migration of Parts and BOM
d. Change Control Mechanism
e. Master Bill of Materials is to be generated through DMS only and subsequently uploaded to ERP.
f. DMS will allow multiple instances of BOM to be generated for development activities. Cost Estimation is to be done using BOM for assemblies and sub-assemblies.
g. Item code uniqueness is also to be maintained through DMS.

4.6 Version Control

a. Automatic versioning of documents. Ability to view, compare, and restore previous versions. Audit trail of changes

4.7 Document Retrieval & Search

a. Advanced search with keywords, tags, and metadata
b. Folder-based and taxonomy-based organization
c. Recently viewed, bookmarked, and frequently accessed lists

4.8 Document Retention & Archiving

a. Configurable retention schedules
b. Automatic archival or deletion based on policies
c. Compliance with document retention laws/regulations

4.9 Audit & Activity Logs

a. User activity tracking (upload, view, download, delete)
b. Exportable logs for audits
c. Timestamped entries with user ID

4.10 Search & Retrieval

a. Advanced search options: full-text, metadata-based, filters, OCR-enabled

4.11 Workflow Automation & Collaboration

a. Automated approvals, routing, notifications, annotations, and co-authoring features for efficient document processing.

4.12 Integration Capabilities

a. API support and built-in integration with ERP, Email Systems

4.13 Migration of Existing DMS Data

a. Exiting Metadata and Vault data need to be migrated in to Document Management System. Documentation related to same will be provided.

5 Non-Functional Requirements

5.1 Performance & Scalability

a. Fast response times, capability to handle growing data and user volumes, with scalable storage (cloud or hybrid).

5.2 Reliability, Backup & Disaster Recovery

a. High availability, scheduled backups, redundant storage (on-site and off-site), and smooth recovery processes.

5.3 Security & Compliance

a. TPM 2.0 to enhance security, Encryption (AES-256/TLS), secure access controls, audit logging, and compliance with regulations

5.4 Usability & Accessibility

a. Intuitive user-friendly UI/UX adaptable to different size of screens. Additionally for Digitization of Integration activities screen should support palm held devices.

5.5 Maintainability & Support

a. Clear documentation, ease of system updates, vendor support, regular maintenance, and training resources.

5.6 Auditability & Data Integrity

a. Strong logging mechanisms that preserve metadata and version history, ensuring data integrity and compliance tracking.

5.7 Customization & Adaptability

a. Ability to tailor workflows, metadata fields, retention rules, and UI according to government-specific processes.

6 Digitization of Integration Activities and Quality Management System

Technological passports are the documents generated to keep in Track of every stage of work to be carried out in the process of complete integration of the article, testing and delivery.

In the current process these documents are manually entered and verified by the inspection agencies. After the completion of the total integration process before the articles are delivered to the user, these documents are handed over for archival facility. However, it is proposed to digitize this process and bring an online system where all the entries and transactions shall be carried out through the document management system.

Passport Digitalization will require live inventory data of stores to be fetched from ERP. It should have inventory module to manage inventory and is to be synchronized with ERP. Subsequently has to provide dashboard for viewing latest updates of all the running process of workorders and availability/ non-availability of Items in stores. Cost Estimation of Article based on workorder and items utilized is to be implemented which will include cost of

manpower utilized also. Barcode is to be implemented in inventory module as per quality requirement, for the same barcode stickers, printers and reader need to be catered.

Quality Management System related requirements are also need to be addressed in each and every process of digitalization. Timestamp-based report is to be recorded, in order to know the metrics of the operation time execution and also to evaluate the performance. There must be feature to capture the photos of the defects and provide a hyperlink to access the operation related drawings, SOP's and Standards. Provision required for upload of all Test reports (Entest & STF) and also vendor related reports (I-notes, and other documents) of all items.

Office Management system required to address the communication with all the stakeholders involved in the Integration Activities.

Data analytics dashboard required to monitor all running processes, inventories and updates.

MIS Report (Management Information System Report): 100 MIS structured report required and need to be provided from time to time.

MRO (Maintenance Repair Operations) with Instrument/Tool Calibration Management.

6.1   Software features: Overview

The proposed new software should possess the following salient features:

a. The data generated during the integration activities are to be seamlessly captured in a digital format and be available for analysis on a click of a button.

b. The software should help in improving the integration process and increasing the output efficiency, knowledge sharing and real-time information sharing.

c. The software should have functions to analyse the data collected and generate reports as per the requirement.

d. The software should minimize the paper trail and have all the required information available in digital format in real time.

e. Cost Estimation based on BOM and Configuration Control.

7   Licensing

A perpetual license for one-time purchase which will allow the customer to use a software product indefinitely (forever), which will include offline updates in air-gapped environment and support under AMC.

Ownership Duration: Lifetime (use the software forever)

Server based License with no restriction of number of Concurrent User.

8   Source Code

Source Code of final implementation of comprehensive Document Management System, Product Lifecycle Management, Digitization of Integration Activities and Quality Management System in integrated application is to be shared to BAPL and is to be part of delivery. Wherever applicable if third party library/ DLLs utilised need to be informed with licensing obligation.

9   Warranty and AMC Support

3 Years warranty along with manpower support for all the five location is mandatory. Escalation Matrix is to be shared.

10 Eligibility Criteria

    a.   Product Software Company

    b.   Perpetual Server based License with no restriction of number of Concurrent User.

    c.   Source Code Delivery after Completion

    d.   Registered legal Entity in India with Local Office Address in Hyderabad

    e.   Minimum Two orders of similar type to this RFP requirement with mentioned features in RFP, in last 5+ years, in Defence and Aerospace related Organization/ Industries.

    f.   Technical Team (of minimum 3 members) should have more than five years' experience in related domain.

    g.   Not blacklisted by any Government of India Entity.

    h.   Implementation, Installation and Testing in Phase Manner in three months' time

    i.   Firm should have running operations in India

11 Submission Details

Submit the following along with Techno-Commercial bid:-

    a.   Company profile

    b.   Project experience

    c.   Brief Technology Proposal

    d.   Client references

    e.   Declaration of eligibility