Tribal Research and Training Institute (TRTI), Pune

An Autonomous Institute of Govt. of Maharashtra under Tribal Development Department

"Request for Proposal (RFP) for Design and Implementation of a Blockchain and AI-Enabled Caste Validity Certificate Verification System for Tribal Research and Training Institute (TRTI), Maharashtra"

Issued By

Tribal Research and Training Institute (TRTI)

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Tender Notification No.: TRTI/2026/IT/Desk-1/764
Dated- 04/02/2026

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TRTI/2026/IT/Desk-01/764   Date: 04/02/2026

Online Request for Proposal (RFP) for Design and Implementation of a Blockchain and AI-Enabled Caste Validity Certificate Verification System for Tribal Research and Training Institute (TRTI), Maharashtra. Interested bidder having adequate resources and experience can submit their Technical Bid & Commercial Bid online on website https://mahatenders.gov.in/

Name of the Service	Tender Fee (in Rs)	Earnest Money Deposit (EMD) (in Rs)
Request for Proposal (RFP) for Design and Implementation of a Blockchain and AI-Enabled Caste Validity Certificate Verification System for Tribal Research and Training Institute (TRTI), Maharashtra	Rs 20,000/-	Rs 2,00,000/-

1. *The Bidder will be selected based on QCBS selection method.*
2. *Joint Venture, Consortium and sub-contracting is not permitted.*
3. *The Bid document available on website https://mahatenders.gov.in*
4. *The interested bidders will have to register and enroll on website https://mahatenders.gov.in/*
5. *The interested bidders will have to submit all the required documents by online submission only.*
6. *The **Tender fees of Rs. 20,000/-** is required to be deposited online.*
7. *The **EMD of Rs. 2,00,000/-** is required to be deposited online.*
8. *The detailed bid document is also available on TRTI website i.e. https://trti.maharashtra.gov.in*
9. *Interested bidders shall submit their bid on or before **19/02/2026, 17:00 hrs.***
10. *Right to reject any part of the bid or all the bids is reserved by TRTI, Commissioner.*

Notice:

Commissioner, TRTI, Pune

DISCLAIMER

1. The information contained in this **Request for Proposal (the "RFP")** or subsequently provided to Applicant(s), whether verbally or in documentary or any other form, by or on behalf of Tribal Research and Training Institute, Pune, (TRTI) or any of its employees or advisors, is provided to Applicant(s) on the terms and conditions set out in this RFP and such other terms and conditions subject to which such information is provided.

2. This RFP is not an agreement and is neither an offer nor invitation by Tribal Research and Training Institute, Pune, (TRTI) to the prospective Applicants or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in the formulation of their application for qualification and thus selection pursuant to this RFP (the "Application"). This RFP includes statements, which reflect various assumptions and assessments arrived at by TRTI in relation to the work/s. Such assumptions, assessments and statements do not purport to contain all the information that each Applicant may require. This RFP may not be appropriate for all persons, and it is not possible for TRTI, its employees or advisors to consider the objectives, financial situation and particular needs of each party who reads or uses this RFP. The assumptions, assessments, statements and information contained in this RFP may not be complete, accurate, adequate or correct. Each Applicant should therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements and information contained in this document and obtain independent advice from appropriate sources.

3. Information provided in this RFP to the Applicant(s) is on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. TRTI accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.

4. TRTI, its employees and advisors make no representation or warranty and shall have no liability to any person, including any Applicant or Bidder, under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way with selection of Applicants for participation in the Bidding Process.

5. TRTI also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused / arising from reliance of any Applicant upon the statements contained in this RFP.

6. TRTI may, in its absolute discretion but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this RFP.

7. The issue of this RFP does not imply that TRTI is bound to select and shortlist Applications and reserves the right to reject all or any of the Applications or Bids without assigning any reasons whatsoever. The Applicant shall bear all its costs associated with or relating to the preparation and submission of its Application including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by TRTI or any other costs incurred in connection with or relating to its Application. All such costs and expenses will remain with the Applicant and TRTI shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by an Applicant in preparation for submission of the Application, regardless of the conduct or outcome of the Bidding Process.

Section-A: Invitation for Expression of Interest (RFP)

Tribal Research and Training Institute, Pune (here in after referred to as **TRTI**), invites online Request for Proposal (RFP), in two Bid system - (Technical Bid & Commercial Bid) from Registered bidder to Design and Implementation of a Blockchain and AI-Enabled Caste Validity Certificate Verification System for Tribal Research and Training Institute (TRTI), Maharashtra.

Submission of a proposal in response to this notice shall be deemed to have been done after careful study and examination of this document with full understanding of its terms, conditions and implications.

The complete bid document is available on the website https://mahatenders.gov.in/ and https://trti.maharashtra.gov.in/ for the purpose of downloading. The downloaded bid document shall be considered valid for participation in the electronic bidding process (e-Tendering) subject to the submission of online bid and online payment of tender fee and EMD.

To participate in online bidding process, Bidders must procure a Digital Signature Certificate as per Information Technology Act-2000 using which they can digitally sign and encrypt their electronic bids.

Section-2: Key Events & Dates

1. Key Events and Dates

Sr. No.	Event	Date & Time
1	Publish Date	05/02/2026, 11:00 hrs.
2	Document Download / Sale Start Date	05/02/2026, 11:00 hrs.
3	Bid Submission Start Date	05/02/2026, 11:00 hrs.
4	Clarification Start Date	05/02/2026, 11:00 hrs.
5	Clarification End Date	11/02/2026, 13:00 hrs.
6	Pre-Bid Meeting Date	11/02/2026, 15:00 hrs.
7	Bid Submission End Date	19/02/2026, 17.00 hrs.
8	Technical Bid Opening	20/02/2026, 17.00 hrs.
9	Technical Presentation	To be intimated later

2. Other Important Information Related to Bid

Sr No	Item	Remark
1	Earnest Money Deposit (EMD) (To be paid online)	Rs 2,00,000/-
2	Tender Fee – (To be paid online)	Rs 20,000/- (Non-Refundable)
3	Bid Validity Period	One-hundred-and-twenty (120) days from the date of submission of Bid.

This Request for Proposal (RFP) for Design and Implementation of a Blockchain and AI-Enabled Caste Validity Certificate Verification System for Tribal Research and Training Institute (TRTI), Maharashtra.

Glossary of Terms
    a. Tribal Research and Training Institute – TRTI
    b. The term 'Tender' and 'RFP has same meaning in the document

Acronyms:
    1. TRTI- Tribal Research and Training Institute
    2. RFP – Request for Proposal
    3. SoW – Scope of Work
    4. GC – General Conditions
    5. SC – Special Condition
    6. PBG- Performance Bank Guarantee
    7. GST – Goods & Service Tax
    8. EMD – Earnest Money Deposit
    9. SLA – Service Level Agreement

1. Background of TRTI, Pune

Tribal Research and Training Institute, Pune (TRTI, Pune) is an Autonomous Institute of Tribal Development Department, Government of Maharashtra Registered under Bombay Public Trust Act, 1950.The Tribal Research & Training Institute (TRTI) was established in May, 1962 to undertake research studies on various aspects of tribal and to assess the impact of developmental programs/ schemes on the life of the tribal people.

The main objectives of the institute
    ✓ To conduct basic as well as applied research on tribal related issues.
    ✓ To take up evaluation of various schemes aimed at Tribal development and welfare as well as tribal youth.
    ✓ To impart relevant training to different levels of personnel in the tribal department.
    ✓ To provide competence building opportunities to the Tribal.
    ✓ To develop and maintain knowledge base related to the tribes and Tribal development.
    ✓ To preserve and propagate the culture, heritage and traditions of Tribes.
    ✓ To disseminate information about the Tribes and their indigenous knowledge and skills.

The Institute is an Autonomous body which also conducts Youth Leadership Training Programme for tribal youths in Tribal Sub Plan Areas all over the State. It also has a Tribal Cultural Museum consisting of 5 galleries of various tribal art, art crafts etc. It has a well-equipped library cum study hall consisting of books on various subjects like Anthropology, Sociology, Economics, Law, Computer Science, general Encyclopedia etc. The library cum study hall has books required for competitive examinations also and subscribes to periodicals relevant in the areas of tribal development. In all there are about 20,000 books available in the library cum study hall

2. Scope of Work -

Project Background -

Scheduled Caste/ Tribe Certificates are essential for accessing reservations in Education, Service, Election and Other Government schemes. Scheduled Tribe Certificate Verification Committee plays a key role in issuing Tribe Validity Certificates, which are mandatory for availing reserved category benefits. A caste/tribe certificate is an official document that verifies an individual's affiliation with the Scheduled Tribe (ST) community. It is commonly referred to as a community certificate. A caste/tribe validity certificate serves as official confirmation of the authenticity of a caste/tribe

certificate, ensuring that the individual genuinely belongs to the specified category and is not misrepresenting their status to access government benefits. The tribe validity certificate is issued to an applicant that applies and provides substantial proofs of verification which is assessed by the department and issued on the basis of the same.

The issuance and verification of Caste/Tribe Validity Certificates are essential administrative processes to facilitate access to reserved benefits in Education, Service, Election and Other likes Government schemes for Scheduled Tribe (ST) communities. Currently, the verification workflow is largely manual and involves multiple departments mainly such as Revenue Department, State Common Entrance Test Cell, BARTI (Dr Babasaheb Ambedkar Research & Training Institute, Pune) etc.

This has led to challenges in handling high volumes of applications, managing document verification efficiently, and maintaining consistent data across departments. Furthermore, a significant portion of historical records is in scanned and handwritten formats, making data extraction and validation time-consuming. To address these operational challenges, the proposed solution aims to implement an integrated system powered by Blockchain and Artificial Intelligence (AI). AI will assist in document digitization, data extraction, and validation, while Blockchain will provide a secure, tamper-evident system for maintaining records and enabling real-time verification.

This project seeks to streamline workflows, improve data accuracy, and enhance the overall efficiency of caste certificate processing. This SOW applies to e Tribe application & will extend to further Tribal Development Department in case of any newly form by Government resolution /instruction without any additional cost. The current system holds documents related to close to 7.5 lac applications & each application is having approx. 15 pages per application.

Challenges

Below are the some of the challenges that arise during scrutiny as follows:

Variety of documents: Submitted proofs receives from multiple department's and are available physically in various divisions that need to be contacted and requested whenever required.

Non-digital records: Some documents are handwritten and issued on paper, lacking digital versions or records.

References to other certificates: Some documents refer to information from other certificate holders such as for affinity, making verification more complex.

Difficult accumulation of proofs: Gathering required documents from different sources for cross verification is challenging and time-consuming.

Plain scanned documents: The collected documents that are stored in the records are in a scanned format, lacking deeper associations or links to existing records.

Duplicate submissions: If an applicant has applied in multiple divisions(regions), the same documents may be submitted multiple times, leading to redundancy.

Pseudo Claims by applicants: Given the complex and dis-joint systems and databases, identifying applications with pseudo claims becomes challenging and requires a lot of time and effort

Objective of the Project –

The objective of the project is to improve the efficiency, transparency, and reliability of the Tribe Validity certificate verification and issuance process.

The system should aim to address existing operational gaps by organizing information, enabling structured workflows, and providing actionable insights to decision-makers.
The focus is on creating a secure, well-organized, and easy-to-navigate system that supports officials and stakeholders in performing their roles effectively.

The following are the key objectives the system seeks to achieve:

1. Reducing document verification time through linkage and reference checks.
2. Maintaining clear traceability of actions taken during verification and approval.
3. Streamlining information flow between various stakeholders.
4. Facilitating easy access and linking of historical and current records.
5. Providing structured visibility into applicant records for informed decision-making.
6. Establishing a centralized repository for digitized and categorized documents.
7. Supporting organized storage and retrieval of applicant-related documents.
8. Enabling structured comparison of related applications to identify inconsistencies.
9. Building transparent audit trails to support review and oversight functions.
10. Ensuring secure and tamper-resistant storage of final validated records.
11. Capturing and associating relevant metadata to each document for context clarity.
12. Simplifying review processes by highlighting relevant supporting documents.
13. Reducing delays through clear routing of applications for each verification step.

AI-Powered Forgery Detection (New)

- Image forensics using AI to detect pixel level manipulation, mismatched fonts/seals, and doctored images.
- Real-time comparison with official templates and TRTI records.
- Alerts generated for officer review in case of suspected forgery.

IPFS-Based Secure Document Storage (New)

- Certificates and documents stored on the Inter Planetary File System (IPFS).
- Each file linked with a content-addressable hash, ensuring immutability.
- Blockchain stores only the hash; encrypted files are on IPFS with RBAC access.
- Future-proof, decentralized storage aligned with MeitY's standards.

Key Benefits -

Sr No	Benefit	Description
1	**Improved Verification Efficiency**	Streamlines internal caste validity certificate processing, reducing the time and effort required for manual document review and approvals.

2	**Centralized Access to Records**	Unified repository of historical and current records, enabling quick access to relevant documents and related applicant data for officials.
3	**Secure and Tamper-Proof Records**	Blockchain-backed systems ensure that issued certificates and associated records are protected from unauthorized changes and tampering.
4	**Transparent Verification Workflow**	Role-based access and detailed action traceability provide visibility into each step of the verification and approval process.
5	**Reduced Redundancy and Duplication**	Identifies previously issued certificates and linked applications to avoid duplicate verifications and false claims, improving accuracy.
6	**Data-Driven Decision Support**	Enables cross-referencing of applicant information and supporting documents to assist in consistent and informed verification decisions.
7	**Regulatory Compliance and Auditability**	Maintains detailed logs and compliance-ready records to support regulatory, audit, and review requirements efficiently.
8	**Resource Optimization**	Reduces repetitive manual interventions and paper-based processes, allowing efficient allocation of verification resources and minimizing

This project aims to develop a digital system that modernizes and secures the certification process using AI and blockchain. The new system will ensure transparency, accuracy, and efficiency while minimizing human intervention, thereby reducing errors and pseudo/fraudulent certification claims.

The scope includes the Design, development, testing and deployment of an automated and integrated web-based system that will be used by the department to enhance the Validity certificate verification and issuance process.

The proposed system should improve the caste validity certification assessment process by leveraging AI for document verification and historical data analysis and association building while ensuring security and immutability using blockchain technology. This initiative should eliminate unauthorized modifications, aim to highlight fraudulent claims conducted by applicants, and enhance the accessibility of caste validation data. The solution should also be able to extract and validate the information on historical records written in the local language/scripts. The solution should leverage advanced AI-driven validation techniques and decentralized ledger technology, ensuring a seamless, error-free, and tamper-proof certification process.

The vendor will also be responsible for user training, documentation, and technical support for a defined period. The vendor must provide:
Project Plan Development: Create a comprehensive project plan outlining the project's objectives, timelines and key milestones. This plan should provide a clear roadmap for the project's execution.

Functional Requirements –

The system should provide the following key functional capabilities and modules:

Automated Document Verification (AI-driven): The solution shall automatically verify applicant-submitted documents using AI technologies. This includes using Optical Character Recognition (OCR) and text extraction from scanned documents (such as caste certificates, identity proofs, affidavits, etc.), and Natural Language Processing (NLP) and machine learning algorithms to analyze the extracted data. The system should be able to extract data in the native language/script in cases of older/historical documents. The system must cross-verify information (e.g., names, dates, certificate numbers) against authoritative databases (such as government records and legacy caste certificate data, access to which will be facilitated through TRTI) through API integrations. Any discrepancies or inconsistencies (e.g. mismatched personal details, signs of document tampering) should be flagged for manual review by officers. This automated verification will speed up the scrutiny process and improve accuracy by catching errors or fraudulent documents early.

AI-driven Optical Character Recognition (OCR) and Text Extraction for Document Digitization

Document Upload and Preprocessing

- Users' uploaded supporting documents in various formats (JPEG, PNG, PDF, etc.) should be processed.
- AI-based image preprocessing techniques (denoising, binarization, contrast enhancement, noise reduction, language/script detection) to improve readability.
- The system should detect the document type (identity card, caste certificate, affidavit, etc. as well as scanned, digital, handwritten, hybrid) using **AI-based categorization algorithms**.

Optical Character Recognition (OCR) and Text Extraction

- The system should extract printed and handwritten text.
- The system should also be able to extract the text in the documents' language and script if the document is in the native language/script.
- The system should recognize text and convert using Named Entity Recognition algorithms into structured data, maintaining field-wise segregation (e.g., Name, Date of Issue, Certificate Number, Issuing Authority, etc.).
- Extracted text should be cross-checked with known templates and official database structures. The extracted information is expected to align with the structured data formats currently maintained by MAHA-IT and other relevant departments for caste certificate issuance and validation. These formats represent both the field-level data and the standardized digital structure of such documents. TRTI will facilitate access to these systems through secure APIs, along with necessary technical specifications to ensure accurate cross-verification.

Validation and Cross-Referencing with Central Database

- The extracted data should be verified against historical records.
- Discrepancies should be flagged for manual review.
- Anomalies such as altered fonts or mismatched data are to be detected.
- The historical records exist in various states, some of them are digital copies, some exist as scanned copies of original digital or handwritten texts associated with the applicant submitted. The bidder will have to use these documents as their base to perform the necessary extractions.

Natural Language Processing (NLP) for Data Analysis

1: AI-Based Contextual Analysis

- . The system should read the extracted text that might be present **in multiple scripts/languages**, recognizing key entities (e.g., applicant names, caste groups, geographical locations, historical references), and flag the ones that cannot.

2: Cross-Referencing for Accuracy

The system should compare extracted data with validated records in centralized indexed databases. the validated records are already digitized and maintained in structured formats by the respective departments. The system is expected to perform cross-verification of the extracted data against these existing records. Creation of a new database for these reference records is not required.

Anomaly Detection and Document Authenticity Validation

1: Pattern Recognition for Forgery Detection

Tampering, overwriting, and unauthorized alterations are to be detected. The system is expected to perform cross-verification by interfacing with multiple authoritative databases, including but not limited to those maintained by MAHA-IT for caste certificate issuance and other relevant government-maintained Electronic Systems. TRTI, in coordination with relevant authorities, will facilitate access to these databases through secure APIs. The integration will follow standard data exchange formats to ensure seamless interoperability, with necessary technical documentation and support made available to the selected bidder.

2: Historical Record Verification

- ✓ The system should analyze previous applications, identifying duplicate or fraudulent claims by analyzing past submissions and changes in applicant details.
- ✓ Cross-checking with existing caste validity certificates to prevent false claims.
- ✓ Retaining a record of all the new cases by an applicant to be relayed across different departments through the centralized system to ensure coherence.
- ✓ The historical records exist in various states, some of them are digital copies, some exist as scanned copies of original digital or handwritten texts associated with the applicant submitted. The bidder will have to use these documents as their base to perform the necessary extractions. The estimated size of the data is 64 TB.

We understand that the proposed AI-based solutions, including OCR, NLP, and anomaly detection, are subject to inherent limitations related to accuracy, contextual interpretation, and data consistency. Variations in document quality, language, script, handwriting styles, and database discrepancies may affect the performance of text extraction, contextual analysis, and anomaly detection. The bidder must ensure that the AI tools used are tested for robustness and reliability across diverse data sets, with adequate fallback mechanisms for manual verification in cases of uncertain or ambiguous results. The system should be capable of identifying and flagging ambiguous or potentially inaccurate results. The bidder is expected to incorporate mechanisms within the solution to address and resolve such cases to the extent possible using technical methods. Only unresolved or critical anomalies may be routed for manual verification to the department.

Immutable Ledger of Certificates (Blockchain Module)

The system should include a **Blockchain-based ledger** to record updates of caste validity certificates in a tamper-proof manner. The system should ensure that only authorized personnel (such as designated government officials and caste scrutiny committee members) can add or update records.

All of the data extracted from the applicant's submitted document must be verified using blockchain to ensure only authentic data is entered in the system.

The validation process of cross-verifying the data of applicants' submitted data to its equivalent data extracted from proof documents from other government database sources, facilitated by TRTI.

The blockchain's scaling and provisioning must support future inclusion of final proof of issuance on the blockchain, with the capability to encode this proof as QR codes on the validity certificate for verification if required.

Secure and Tamper-Proof Record Storage

1: Blockchain Ledger

✓ Use an appropriate blockchain to store and verify extracted applicant data for cross-verification, ensuring immutability.
✓ Restrict write access to authorized personnel (e.g., government officials, caste scrutiny committee) via secure access control and cryptographic primitives.
✓ Log each entry as an immutable record.

Cross-Verification Logging

Data Validation

✓ The caste validity certificate verification process must include an integrated mechanism to cross-verify the extracted applicant data, stored on the blockchain, against corresponding data in government databases through TRTI.
✓ Log verification actions with timestamps and authorized personnel details for auditability.

Access Control

1: Role-Based Access

● Implement smart contracts to manage access: Authorized TRTI stakeholders should be able to update and verify the data on the blockchain.

The bidder must ensure that the proposed public or private blockchain solution falls under a well-established, cost-effective blockchain framework. The solution must avoid overly complex or unreasonably expensive technologies. In case of public chains, TRTI can bear the gas fees associated with on-chain transactions, provided such fees are reasonable and justifiable, based on standard network conditions at the time of deployment.

In case a private or permissioned blockchain (e.g., Hyperledger Fabric, Quorum) is used, and all costs related to node operation and infrastructure can be borne by TRTI, given that such is reasonable and justifiable.

The scope defined in the RFP is final and not subject to reduction. Both blockchain and AI components are integral to the solution and must be implemented as specified. Bidders are expected to propose a blockchain architecture—public or private—based on their technical

assessment and domain expertise, ensuring it is capable of supporting large-scale verification with high scalability, throughput, and operational reliability

Preference will be given to platforms and services with proven scalability, active community support, and clear documentation. The proposed blockchain should be appropriate for the use case and avoid unnecessary overhead.

Dashboard

Logs and audit Trail: Audit trails should be visible to maintain transparency and accountability for administrators.

Applicant Family Mapping and Historical Data Analysis:

The system should explore the feasibility of creating family linkages using existing and upcoming data to assist in verifying the authenticity of claims. As part of this exploration, the solution should assess the viability of maintaining a persistent historical record of all past applications submitted by the same individual or family unit, including decision outcomes (approved or rejected) and contextual notes, to strengthen future evaluations and traceability.

Case Tracking and Evaluation

Real-Time Applicant History Display

- Case officers should be able to access a **timeline of past applications**, allowing them to review trends in document submission.

Risk Analysis

- The system should be able to create a minimum applicant profiling to flag cases requiring manual review by highlighting risk patterns (e.g., applicants with prior rejections attempting resubmission under different details).

Integration with External systems

The solution should be capable of securely integrating with other government systems and services for cross-verification.

All data exchange must occur over secure channels with proper authorization. Integration should ensure that the verification process has access to accurate, up-to-date information and can validate applicant claims without requiring manual checks of physical records from multiple departments. All required external system integrations will be facilitated through available APIs, as maintained by the respective departments, the exact number will be provided during stakeholder consultations.

Secure API-Based Database Interactions

1: API Integration with Official Records

- The system should validate data from all the corresponding government agencies for caste certificate validation. All required external system integrations will be facilitated through available APIs, as maintained by the respective departments, the exact number will be provided during stakeholder consultations. But as on today we have 4 databases.

2: AI Cross-Referencing for Discrepancy Detection

- AI highlights inconsistencies between the submitted uploaded document and government data.

*These functional requirements are indicative. The bidder is expected to study the current manual process and propose a robust solution addressing all functional needs. The system should be **user-friendly**, with intuitive interfaces for both applicants (front-end portal) and officials (back-end modules). Responsive design for access via desktop and mobile devices is desired.*

Non-Functional Requirements

In addition to functionality, the system must meet various **non-functional criteria** to ensure it is secure, high-performing, and maintainable in a government environment:

Scalability & Performance

The application should be scalable to handle a high volume of transactions and users. The design should support scaling up (and out, if cloud-based) to accommodate increasing load.

The system should have an optimized performance – typical user actions (like loading a case or searching the repository) should happen within acceptable time frames. Bidders should propose an architecture that can handle processing large historical data sets (for AI analysis) without performance degradation of the live system.

Security

Given the sensitive personal data involved, security is paramount. The system must adhere to strict security standards:

- ✓ Implement end-to-end **encryption** for data at rest and in transit. All communications between client, server, and integrated services should use HTTPS/SSL or other secure protocols.
- ✓ **Role-Based Access Control (RBAC):** Ensure fine-grained access control so that users (officers at various levels, administrators, etc.) only see and do what their role permits. Each user action (view, edit, approve, etc.) should be authorized. The principle of least privilege must be applied. The clause allows for flexibility in selecting appropriate blockchain technologies and is not limited to any specific platform. Bidders are encouraged to propose a technically sound and commercially feasible blockchain architecture—whether domestic or international, public or private—best suited to the objectives and functional requirements of the project.
- ✓ **Audit Trail:** Maintain comprehensive audit logs for all actions (login, data access, changes, approvals, etc.). Audit logs should be tamper-evident (and storing critical events on blockchain can aid this) to ensure non-repudiation. The logs will help in forensic analysis if any misuse or breach is suspected.
- ✓ **Data Privacy:** The design must comply with applicable data protection laws and government guidelines (e.g., the Information Technology Act 2000 and rules thereunder, any state-specific data privacy directives). Personal data collected and stored should be used only for the intended purpose and retained/disposed of as per policy.
- ✓ **Secure Development & Testing:** Follow secure coding best practices (to prevent SQL injection, XSS, CSRF, etc.). All identified vulnerabilities must be resolved prior to production deployment.
- ✓ **Authentication:** Implement robust user authentication mechanisms for all user logins. This should include **multi-factor authentication** for administrative and highly privileged accounts. Password policies (minimum length, complexity, expiration) must be enforced for all user accounts if password-based auth is used. If integration with single sign-on (SSO) or government e-authentication systems is possible, it should be considered.

- ✓ **Network & Infrastructure Security:** If the system is hosted in a government data center or cloud, the bidder should coordinate for necessary security clearances for the system before go-live.

Interoperability

The solution should use open standards and interoperable protocols to the extent possible. Data formats (for import/export) should be in common standards (JSON, XML, CSV, etc.) so that the system can interface with other e-governance applications in the future.

Availability & Reliability

The system should be designed for high availability, minimizing downtime. It should support backup and recovery mechanisms for data (regular backups of databases, blockchain ledger state, and documents). In case of any component failure, there should be failover measures to prevent data loss and quickly restore service. If cloud deployment is used, multi-zone replication is desirable; if on-premises, consider redundant servers.

- ✓ A **Business Continuity/Disaster Recovery (BC/DR)** plan must be in place as per the mutually agreed
SLA.

- ✓ **Usability:** The application should have an intuitive UI/UX, help instructions, tool-tips, and validation messages should guide users through the process. Accessibility standards should be considered so that people with disabilities can use the system.

- ✓ **Maintainability & Extensibility:** The solution should be modular, with well-documented code and design, allowing future enhancements or changes (such as accommodating new verification rules or integrating new data sources). The vendor is expected to provide comprehensive technical documentation (architecture design, database design, API specifications, user manuals, etc.). This will enable knowledge transfer and ease of maintenance by the department or a third party in the future.

Note: *The bidder shall be responsible for comprehensive maintenance and support of the system for a period of 36 (Thirty-Six Months) months following the Go-Live date. Accordingly, the cost of post-implementation maintenance shall be factored into the overall financial bid. Maintenance and support of the system for a period of 36 (Thirty-Six Months) months with coverage of 24 X 7 remotely ONLY & not onsite.*

Technical Specifications

This section details the technical environment, standards, and specifications that the proposed solution must adhere to.

Bidders should address each aspect in their technical proposal to demonstrate how their solution meets or exceeds these specifications.

Architecture

The system should be built on a **modern, multi-tier architecture** that separates the presentation layer, application logic, and data storage. The system should be either monolithic or microservice-based. A web-based architecture accessible via standard browsers is preferred for the user interface. The application should be developed using proven frameworks and languages that are supported long-term. The bidder is free to propose an appropriate tech stack (programming language, web framework, database, blockchain platform, AI/ML libraries, etc.), but it should align with industry best practices and suit the requirements. Open-source technologies are encouraged where feasible, to avoid vendor lock-in, but the solution must be fully supported and secure.

Blockchain Technology

The bidder must specify the **blockchain platform** they intend to use. The blockchain should be access-controlled and highly trusted for its decentralization. It should support smart contracts or chain code that will encapsulate the business logic for adding/verifying records. Transaction throughput and latency should be sufficient for the use case. The solution should also provide a user-friendly interface or API for retrieving blockchain-stored data. All blockchain transactions must be finalized and replicated across nodes to ensure no single point of failure or tampering.

AI/ML Components

The proposal should outline the AI components being incorporated – for example, the OCR engine (could use libraries like Tesseract or cloud OCR APIs, or custom-trained models for handwritten text if needed), **NLP tools for text analysis** (like **Python's NLP** libraries or ML models for entity recognition), and any machine learning models for anomaly detection (such as classification or anomaly detection models). The bidder should ensure these models can be trained on available data and tuned over time. The system should allow periodic updates or retraining of AI models as new data/better techniques become available. Bidders should also mention if any specialized hardware is needed for AI tasks (e.g., GPU servers for model training) and include provisions for the same in their solution. The approach outlined in the RFP, including the use of OCR and AI for document verification, has been defined after thorough analysis of existing systems and identified gaps. While alternate methods like digital attestation are acknowledged, bidders are required to adhere to the specified solution framework, which is aligned with the Department's operational requirements and feasibility considerations.

Software Requirements

All software (system software, middleware, and application software) required for the solution must be specified. This includes the operating system, application servers, web servers, database systems (SQL/NoSQL databases to store application data and metadata), etc. If the bidder proposes use of any COTS (Commercial off-the-shelf) products or third-party licenses (including any API usage costs, or AI services), these must be clearly identified and the costs for the same included in the financial bid. The system should be compatible with standard operating environments of the Government – for example, if it's to be hosted in the **State Data Center**, it should run on the servers/VMs provided there and be compatible with their virtualization, storage, and network setup. Web applications must be compatible with common web browsers (Chrome, Firefox, Edge, etc.) in use by government offices and support a reasonable range of versions.

Hardware/Infrastructure Requirements

Bidders should provide recommended hardware specifications and infrastructure setup for hosting the application. This includes server specifications (CPU, RAM, storage) for the application server, database server, and any additional components like blockchain nodes or AI processing servers. The bidder is required to supply hardware or hosting infrastructure. The bidder is responsible for defining the detailed technical specifications of the required infrastructure—both hardware and system software—based on the solution architecture. The bidder will make provision the necessary infrastructure, either on-premise or on cloud, as per those specifications during the deployment & maintenance phase. The infrastructure design should ensure high availability (for example, use of load balancers, clustering of critical components, etc.). All environments required for the project should be accounted for: at minimum Development, Testing/UAT, and Production environments (and possibly a Disaster Recovery environment). If the bidder is expected to supply hardware, it should be explicitly mentioned; otherwise, the focus is on specifying the requirements for the Department   to   provision.

Integration Capabilities

The system must expose or utilize APIs/Web Services for integration. For example, to fetch data from other databases, the system should connect through secure API calls (using authentication, logging of requests). Internally, modular design should be used so that components like the AI verification engine or the blockchain ledger can communicate via APIs or message queues. Use of standard data exchange formats like JSON/XML is required.

Standards and Compliance

The solution should comply with Government of India IT standards and guidelines. This includes adherence to guidelines for Quality and Security. If the department requires compliance with frameworks/standards as mentioned in the Pre-Qualification Criteria in this document, the bidder should support audits/certifications as needed. Additionally, the system should be designed keeping in mind standards for data exchange such as JSON/RESTful APIs, and it should comply with IT Act 2000 (and amendments), particularly with respect to data security and privacy.

Testing and Quality Assurance

The bidder must perform thorough testing of the system. This includes unit testing, integration testing, system testing, performance/load testing, and security testing. The Department may choose to do an independent third-party audit (TPA) or code review; the bidder is expected to support any such review.

Maintenance and Support Tools

The bidder should propose tools and mechanisms for monitoring and maintaining the application post-deployment. This may include application performance monitoring tools, error logging systems, and helpdesk/ticketing tools for support.

1. Bid Process:

The Bidder has to submit a Bid on line in two envelope system containing Technical Bid & commercial Bid for "Request for Proposal (RFP) for Design and Implementation of a Blockchain and AI-Enabled Caste Validity Certificate Verification System for Tribal Research and Training Institute (TRTI), Maharashtra ".

2. Tender Fee (Non-Refundable)

The bidders are requested to deposit the Tender fee of **Rs.20,000/-** online through Internet Banking. Proof of the same should be attached with the Technical Bid. It is to be noted that the Tender Fee is non- refundable, however, tender fee will be refunded in case of cancellation of overall tender process by TRTI, Pune.

3. Earnest Money Deposit

The Earnest Money Deposit (EMD) of **Rs 2,00,000/-**is required to be deposited online through / Net Banking. Proof of the same should be attached with the Technical Bid.
a) No interest will be payable to the bidder on the Amount of the EMD.
b) The EMD shall be denominated in Indian Rupees only
c) Bids submitted without adequate EMD will be liable for rejection.
d) EMD of unsuccessful bidders will be refunded after completion of Bid process.
e) EMD of successful bidders will be returned after successful completion of Bid process/AOC/Empanelment.
f) EMD shall be non-transferable.
g) The EMD may be forfeited:
    i.   If a Bidder withdraws his bid or revises/ increases agreed prices during the period of bid

validity or its extended period, if any.

ii. If successful bidder fails to sign the Contract within time specified by TRTI, PUNE.

iii. If during the bid process, a bidder indulges in deliberate act that would jeopardize or unnecessarily delay the process of bid evaluation and finalization. The decision of the TRTI, PUNE regarding forfeiture of the EMD shall be final and binding upon bidders.

4. Transfer of Bid

The Bid / RFP Document is not transferable. The bidder who downloads the Bid document and submits the Bid shall be the same. *__All documents submitted by bidders in the online technical envelop must be in the same name in which the bid is submitted__*.

5. Consortium, Joint Ventures and Sub-Contracting

Bids of joint venture / consortium / subcontracting will not be accepted.

6. Completeness of Response

a) The Tender Document may not contain all the information as Bidder(s) may require. It may not address the needs of all Bidders. They should conduct due diligence, investigation, and analysis, check the information's accuracy, reliability, and completeness, and obtain independent advice from appropriate sources. Information provided in the Tender Document to the Bidder(s) is on a wide range of matters, some of which may depend upon interpreting the law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The TRTI, its employees and other associated organization accept no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.

b) The TRTI, its employees and other associated organization make no representation or warranty for the accuracy, adequacy, correctness, completeness or reliability, assessment, assumption, statement, or information in the Tender Document. They have no legal liability, whether resulting from negligence or otherwise, for any loss, damages, cost, or expense that may arise from/ incurred/ suffered howsoever caused to any person, including any Bidder, on such account

c) Bidders are advised to study all instructions, forms, Annexures, terms, requirements and other information in the Bid documents carefully. Submission of bid shall be deemed to have been done after careful study and examination of the Bid document with full understanding of its implications.

d) The response to this RFP should be full and complete in all respects. Failure to furnish all information required by the RFP document or submission of a proposal not substantially responsive to the RFP document will be at the Bidder's risk and may result in rejection of their Proposal.

7. Place of opening of RFP

The RFP will be opened online in the Office of Tribal Research and Training Institute, Maharashtra State, Pune, 28, Queen's Garden, Near Old Circuit House, Pune-411001 on the scheduled dates.

8. Bid Preparation Costs

The bidder shall submit the bid at their own cost and TRTI, PUNE or any associated organization shall not be held responsible for any cost incurred by the bidder. Submission of a bid does not entitle the bidder to claim any cost and rights over TRTI, Pune and TRTI, Pune shall be at liberty to cancel or modify any or all bids without giving any reason thereof. The Bidder(s) shall bear

all direct or consequential costs, losses and expenditure associated with or relating to the preparation, submission, and subsequent processing of their Bids, including but not limited to preparation, copying, postage, delivery fees, expenses associated with any submission of samples, demonstrations, or presentations which the Procuring Entity may require, or any other costs incurred in connection with or relating to their Bids. All such costs, losses and expenses shall remain with the Bidder(s), and the Procuring Entity shall not be liable in any manner whatsoever for the same or any other costs, losses and expenses incurred by a Bidder(s) for participation in the Tender Process, regardless of the conduct or outcome of the Tender process.

9. Amendment of RFP Document

a. The Commissioner, TRTI reserve the rights to revise any part of this RFP or to issue additional data to clarify an interpretation of provisions of this RFP it may issue supplements / corrigendum to this RFP. Any such corrigendum shall be deemed to be incorporated by this reference into this RFP.

b. All the amendments made in the document would be published on the website of Government of Maharashtra https://mahatenders.gov.in/ and or also on TRTI, PUNE website https://trti.maharashtra.gov.in and shall be part of the RFP document.

The bidders are advised to visit the mentioned website on regular basis for checking latest updates of this RFP document. TRTI, PUNE also reserves the rights to amend the dates mentioned in this RFP for successful bid process.

10. Pre- Bid Meeting

Pre- Bid meeting is open to all prospective bidders. The same will be held on ***Wednesday, 11/02/2026, 15:00 hrs***., in the Office of Tribal Research and Training Institute, Maharashtra State, Pune,28, Queens Garden, Near Old Circuit House, Pune – 411001.

11. TRTI, PUNE's right to terminate the process

TRTI, PUNE may terminate the RFP process at any time and without assigning any reason and tender fees paid will be refunded. TRTI, PUNE shall not be held responsible for any cost incurred by the bidder in bid preparation. TRTI, PUNE reserves the right to amend/edit/add delete any clause of this bid document. However, this will be informed to all and will become part of the bid.

12. Language of Bids

This bid should be submitted in English language only. If any supporting documents submitted are originally in Marathi or Hindi language than that will be accepted as it is. However, the language of any printed literature furnished by Bidder in connection with its bid are written in any other language than the notarized translation of the same should be submitted along with bid in the bid language. For purposes of interpretation of the bid, translation in the language of the bid shall prevail.

Communications

1) All communications under the contract shall be served by the parties on each other in writing, in the contract's language, and served in a manner customary and acceptable in business and commercial transactions.

2) The effective date of such communications shall be either the date when delivered to the recipient or the effective date mentioned explicitly in the communication, whichever is later.

3) No communication shall Amount to an amendment of the terms and conditions of the contract, except a formal letter of amendment of Contract, so designated.

13. Bid Submission Format

The entire proposal shall be submitted strictly as per the format specified in this bid document. Bids with deviation from this format are liable for rejection.

14. Submission of Bids

The bidder should submit the Bid online, which shall comprise of the following two envelope (Two envelope system shall be followed for the bid).

15. Technical Bid

"Technical Bid" shall include inter-alia the original or scanned copies of duly signed or digitally signed copies of the following documents in pdf format. Pdf documents should not be password protected. The Technical Bid should consist of all details as per Annexure- I.

a) Pre-qualification Requirements is as under:

Sr. NO	Criteria	Supporting Documents
1	The bidder shall be a company in India registered under the Companies Act 1956/2013, Proprietorship or a registered Partnership firm or a registered Limited Liability Partnership/Proprietorship / registered societies under Co-operative Societies Act, 1960 or trust and having experience of _minimum last 5 Years from the date of registration_.	Certificate of Incorporation/ Registration /Partnership Deed/Shop act. **Note** - Period before the date of registration of the institute will not be considered.
2	The bidder must have an aggregate turnover of at least INR 5 Crores (Five Crores only) during the last three audited financial years i.e. FY 2022-23, FY 2023-24, FY 2024-25	Copy of the Audited Balance Sheet and Profit & Loss Statement of the company duly certified by statutory auditor/chartered accountant & CA Certificate clearly citing the aggregate turnover from last 3 financial years from last five years i.e. FY 2022-23, FY 2023-24, FY 2024-25 & Income Tax Return for the year for which the turnover certificate is submitted to certify the criteria of _aggregate annual turnover requirement from IT/ITES Services_
3	The bidder must have a minimum of 5 (five) years of experience in providing IT/technology solutions	Copy of Work Order/ Contracts from relevant Government department /Private organization with which the work is executed.
4	The bidder must have ISO ✓ ISO 9001:2015 ✓ ISO/IEC 27001: 2022 ✓ CMMI Level 5 (Capability Maturity Model Integration)	Copy of valid ISO certificates.
5	The bidder must have successfully completed at least 5 (five) projects related to blockchain-based solutions or secured digital credentials for government departments, universities, educational institutions, or other reputed organizations in India or abroad	Copy of Work Order/ Contracts from relevant Government department /Private organization with which the work is executed

21. Commercial Bid:

Bidder need to submit commercial bid through online BOQ only as per Annexure VIII. Please enter the basic rate of total work only & taxes will be extra.

22. Disqualification:

The bidder should ensure that all the required documents, as mentioned in this RFP / bidding document, are submitted along with the bid. Non submission of the required documents may lead to the rejections of the bid submitted by the bidder. Besides other conditions and terms highlighted in the tender document, bids may be rejected / disqualified under following circumstances:

a. In case the Bidder fails to meet the bidding requirements as indicated in this RFP

b. or not submitted in accordance with the procedure and formats prescribed in this document.

c. During validity of the Bid, or its extended period, if any, the Bidder increases sanctioned price.

d. Incomplete Bid or failure to furnish all information required as per tender document and failure to furnish proofs for information provided.

e. Bid is received after due date and time.

f. Bid is not accompanied by all the requisite documents.

g. Bids submitted without or with improper *Tender Fee and EMD*

h. Bids without signature of person (s) duly authorized on require pages of the bid.

i. Bids without power of authorization and any other document consisting of adequate proof of the ability of the signatory to bind the Bidder.

j. If the information provided by the Bidder is found to be incorrect / misleading at any stage / time during the Tendering Process.

k. The Bidder not conforming to unconditional acceptance of full responsibility of providing services in accordance with the Agreements of this tender.

l. If the bid does not conform to the timelines indicated in the bid.

m. If the purchaser of the bid (i.e., who pay Tender Fee and EMD) and submitter of the bid is different.

n. Any effort on the part of a Bidder to influence the bid evaluation, bid comparison or contract award decisions by unlawful/corrupt/fraudulent means at any point of time during the Bid process.

o. Bidder fails to enter into a Contract within 15 Days from the date of issue of Letter of Selection/ award of contract or within such extended period, as may be specified by the TRTI, PUNE.

p. While evaluating the proposals, if it comes to the TRTI, PUNE knowledge expressly or implied that some Bidders may have colluded in any manner whatsoever or otherwise joined to form an alliance resulting in delaying the processing of Proposal then the Bidders so involved are liable to be disqualified for this contract as well as for a further period of three years from participation in any of the RFP floated by the TRTI, PUNE.

q. Bidder doesn't agree to accept the Terms and Conditions of the RFP.

23. Opening of Bid

a. Envelope No. 1 containing the Technical Bid shall be opened online in the office of TRTI, PUNE, on mentioned date and time specified in the RFP.

b. The bidders, who have been qualified in the Pre-Qualification shall only be called for presentation in the office of TRTI, Pune in the presence of Bid Evaluation Committee.

24. Evaluation of Technical Bid:

Bid Evaluation Committee formed by Commissioner, TRTI will evaluate the Technical Bid &

submit its recommendation to Commissioner, TRTI. Decision of the Commissioner, TRTI would be final and binding upon all the Bidders.

A. Evaluation of Technical Bid

The evaluation of the Technical Bid will be carried out in the following manner:

a. The Bidder's Technical Bid will be evaluated as per the requirements and evaluation criteria as mentioned in this Bid Document. The Bidders are required to submit all required documentation in support of the evaluation criteria.

b. At any time during the Bid evaluation process, the Committee may seek written clarifications from the Bidders. The Committee may seek inputs from their professional and technical experts in the evaluation process.

c. The Committee reserves the right to do a reference check of the past experience stated by the Bidder. Any feedback received during the reference check shall be taken into account during the technical evaluation process.

Technical Evaluation Criteria

Sr. No.	Criteria	Marking Criteria	Max. Marks	Documents to be Provided
1	**Legal Entity & Establishment in India** Bidder must be a legal entity registered in India and operational for at least the last 5 years and Average turnover ≥ INR 5 Cr in any 3 of 4 years (FY 2021–22 to 2024–25)	>5 Cr: 05 Marks	05	CA Certificate along with Audited Balance Sheets + Profit & Loss Statements with UDIN and certificate of incorporation
2	**Relevant Project Experience** The bidder must have Implemented similar projects related to blockchain-based digital credentialing, digital certificate issuance, or secure document verification / secured digital credential issuance. These Projects must have been **developed or customized** or Implemented for a government organization, municipal corporation or private organization within the last five (5) financial years (**2020-21, 2021-22, 2022-23, 2023-24 or 2024-25**).	<5 Projects: 05 Marks 5 to 10 Projects: 10 Marks >10 Projects: 15 Marks	15	Copies of Work Orders / Purchase Orders / Client Certificates / Agreements + Completion Certificates

3	**Relevant Project Experience** The bidder must have Implemented similar projects related to blockchain-based digital credentialing, digital certificate issuance, or secure document verification / secured digital credential issuance. These Projects must have been **developed or customized** or Implemented for a government organization, municipal corporation or private organization within the last five (5) financial years (**2020-21, 2021-22, 2022-23, 2023-24, 2024-25**)	- 1 project of more than Rs. 50 Lakh to 1 crore **- 05 Marks** -1 project of more than Rs. 1 crore to 3 crore **-10 Marks** -1 project of more than Rs. 3 crores **-15 Marks**	15	Copies of Work Orders / Purchase Orders / Client Certificates / Agreements + Completion Certificates
4	The bidder must have issued a minimum of 5,00,000 (Five Lakh) blockchain-based certificates or secured digital certificates cumulatively."(in a single year)	>= 500000 Certificates = 05 Marks	05	Invoice copy / Completion Certificate
5	a) ISO 9001:2015 (Quality Management System) b) ISO/IEC 27001 (Information Security Management System) c) CMMI Level 5 (Capability Maturity Model Integration) d) Patent	ISO 9001:2015 – 5 Marks ISO/IEC 27001 – 5 Marks CMMI Level 5 – 5 Marks Patent – 10 Marks	25	Copy of Valid Certificate(s)
6	**Approach and Methodology**	Document covers: Technical Presentation: -20 Marks Working POC: - 05 Marks All Features MVP: - 05 Marks Commercial Product available: - 05 Marks	35	Bidders are required to submit a printed presentation covering key aspects of their technical proposal. Marks will be awarded based on the submitted hard copy. No in-person or virtual presentation will be conducted.
		Total Marks	**100**	

The minimum qualifying marks required in technical criteria is 70 Marks (i.e., 70 %). The bidders who score is equal or more than 70 Marks shall be considered for financial evaluation. The bidders who do not score minimum qualifying marks of 70 %, their bids shall be rejected and will not be considered for next evaluation.

25. Award of contract

Bid Evaluation Committee formed by the Commissioner, TRTI will evaluate the Technical & commercial Bid as stated above. Decision of the Commissioner, TRTI would be final and binding upon all the Bidders. TRTI will notify the acceptance of Bid to the successful Bidder.

As per Quality and Cost Based Selection (QCBS) process, the contract is awarded to the bidder with the highest combined score, calculated by weighting technical and financial scores. If a tie occurs, the bid with the higher technical score is typically selected.

The selection of the bidder shall be based on QCBS method in which weightage of technical score shall be 80% and weightage of financial score shall be 20%.

Selection Method: Quality Cost Based System (QCBS)

The Bidder criteria for awarding the contract will be calculated based on the QCBS methodology. The weightage of Technical Score to Financial Score would be in the ration of 80: 20. Kindly refer the illustration below for understanding of the evaluation process.

ILLUSTRATION

The following is the procedure for evaluation for the award of tender:
The technical and financial scores secured by each bidder will be added with weight of 80:20 respectively and a Cumulative Bid Score arrived at, using the formula:

$$CS = (TS * 0.8) + (FS * 0.2)$$
Where
CTFS is Combined Technical and Financial Score;
TS = Technical Bid Score;
FS = Financial Bid Score

The bidder with highest Combined Technical and Financial Score (CTFS) will be the successful bidder and be eligible to become the service provider.

Stage 1: Technical Bid Evaluation (TS)

Bidder Details	Technical Marks obtained	Technical Score (X) = [Technical Marks gained by Respective Bidder / Higher Technical Marks secured by Bidder) X 100	Applying weightage of 80% to the TS (X)
Bidder 1	95	X = [95/95] X 100 = 100.00	100* 0.8 = 80.00
Bidder 2	87	X = [87/95] X 100 = 91.58	91.58 * 0.8 = 73.26
Bidder 3	65	X = [65/95] X 100 = 68.42	Will not be assessed
Bidder 4	79	X = [79/95] X 100 = 83.16	83.16 * 0.8 = 66.53

* Since the eligible Technical Score should be 70 and hence Bidder No. 3 will be rejected.

Stage 2: Conversion of Financial Bid Amount to Score (FS)

Bidder Details	Financial Sanctioned Amount	Financial Score= (LFB/F*100)	Financial Score after applying 20% weightage (FS * 0.2)
Bidder 1	Rs 50,000	50000/50000* 100 = 100.00	100.00* 0.20 =20.00

Bidder 2	Rs 50,000	50000/50000* 100 = 100.00	100.00* 0.20 =**20.00**
Bidder 4	Rs 50,000	50000/50000*100= 100.00	100.00 * 0.20 = **20.00**

LFB – Lowest Financial Bid F – Quoted Amount

Stage 3: Combined Technical and Financial Score (CTFS) with weightage of TS:FS as 80:20

Bidder Details	Technical Score after applying 80% weightage	Financial Score after applying 20% weightage	CTFS = TS+FS
Bidder 1	80.00	20.00	94.67 (H1)
Bidder 2	73.26	20.00	90.19 (H2)
Bidder 4	66.53	20.00	86.53 (H3)

Stage 4: Composite Score of the Bidders

Composite score of the Bidders for the Bid shall be worked out as under:

Bidder	Technical Score (X)	Financial Score (Y)	Weighted Technical Score (80% of X)	Weighted Financial Score(20% of Y)	Composite Score (F=D+E)
A	B	C	D	E	F
1					
2					
3					

The selection of bidder will be done for only who qualified in Technical Bid & got highest Composite Scores in QCBS & priority will be given to the bidder/bidders having highest Composite Score.

A. Signing of Contract/MoU

Once TRTI notifies the successful Bidder that it's Bid / proposal has been accepted and the work order is issued by TRTI, the successful bidder will have to enter into a separate MoU with TRTI incorporating the conditions of the Bid / RFP and its amendments and any special conditions as may be required by TRTI. TRTI will also issue Letter of Intent/Letter of Award/Work Order with any special conditions as may be required by the respective organization, which will be binding on the successful bidders. In case the successful Bidder is unable to execute contract within 15 days or within time period as may be specified by the respective organization, TRTI shall forfeit the Earnest Money Deposit (EMD) and cancel its Bid.

Section D- General Conditions of Contract

1. Conditional Bid (RFP) are liable for rejection.

2. Intending bidders can have detailed information from the office of TRTI, Pune, during office hours.

3. The Bid Evaluation Committee formed by Commissioner, TRTI will shortlist the bidder and will recommend to the Commissioner, TRTI.

4. The Commissioner, TRTI reserves the right to reject RFP without assigning any reason.

5. Bidder need to submit all relevant documents mentioned in pre-qualification and technical qualification criteria.

6. Initially MoU will be done with the selected bidder on a non-judicial stamp paper of Rs. 500. MoU need to sign within 15 days from the receipt of written communication of letter of Selection to this effect, failing which the EMD will be forfeited.

7. **Payment Schedule -**
   Project Tenure will consist of two phases i.e. development phase (90 days) & Support & Maintenance phase will consist of 3 years from the Go LIVE.

SN	Milestone	Timelines T = Date of Date of MOU Signed	Payment in % of the total work order value
1	Completion of UAT	T+ 45 days	30%
2	Security Audit & Go-Live	T+ 90 days	30%
3	Support & Maintenance	T + 270 days	5%
4	Support & Maintenance	T + 450 days	5%
5	Support & Maintenance	T + 630 days	5%
6	Support & Maintenance	T + 810 days	5%
7	Support & Maintenance	T + 990 days	5%
8	Support & Maintenance	T + 1170 days	5%
9	After the Handover of code	T + 1170 days	10%
	Total		**100%**

(**Important Note**: - *Commissioner, TRTI reserve the right to change the percentage of installments to be paid to the Service provider and also to change the terms and conditions associated with the payment installments.*)

Important Note

a) Payment of Service Provider shall be made after deducting all statuary deductions (TDS) in lieu of the taxes levied by the State Government, Central Government and other authorities.

b) The Selected Bidder should submit their GST invoice / bill for each installment, in duplicate with the list of candidates. The payments shall be made within 10 working days of receipt of invoice. If, due to any reasons, payment delayed, no interest is payable.

26. Failure to abide by the Agreement:

The conditions stipulated in the agreement shall be strictly adhered to and violation of any of the conditions will entail termination of the contract without prejudice to the rights of the respective organization from which work order is issued with such penalties as specified in the Bidding document and the Agreement.

27. Jurisdiction and applicable Law

In case of any dispute arising out of the terms and conditions of contract or assignment, the matter shall be governed by the laws of India (both substantive and procedural) at that time being in force and shall be subject to exclusive jurisdiction of the Courts at Pune City.

28. Performance Bank Guarantee (BG):

Successful Bidder has to submit performance bank guarantee/Demand Draft of 3% of the awarded contract value from any scheduled bank in India, within 15 days of award of work order or within time period as specified in the work order to the respective organization from which work order is received. Performance Bank Guarantee (BG) shall be retained by TRTI till the end of the contract and shall be released on successful completion of Contract period.

29. Fraud & Corrupt Practice

It is required that the bidder submitting bid and bidder selected through this tender process must observe the highest standards of ethics during the process of selection and during the performance and execution of project.

For this purpose, definitions of the terms are set forth as follows:

a. "**Corrupt Practice**" mean offering, giving, receiving, or soliciting of anything of value to influence the action of TRTI or its personnel while executing this work.

b. "Fraudulent Practice" means a misrepresentation of facts, in order to influence a Selection process or the execution of a Work Order, and includes collusive practice among Agency (prior to or after Proposal submission) designed to establish Proposal prices at artificially high or non-competitive levels and to deprive TRTI of the benefits of free and open competition.

c. "Unfair trade practice" means supply of services different from what is ordered on, or change in the Scope of Work.

d. "Coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the selection process or execution of the Work Order.

TRTI has rights to reject a proposal even after the award and blacklist the bidder, if it is found that the bidder is engaged in corrupt, fraudulent, unfair, or coercive practices.

30. Force Majeure:

If, at any time, during the continuance of the agreement, the performance in whole or in part by either party of any obligation under this agreement shall be prevented or delayed by the reason of any war, hostility, acts of public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restriction, Lockdown, strikes, or act of God (hereinafter referred to as

"event"), provided notice of happening of any such eventuality is given by either party to the other within 21 days from the date of occurrence thereof, neither party shall by the reason of such event, be entitled to terminate this agreement nor shall either party have any claim for damages against the other in respect of such nonperformance or delay in performance; and service under the agreement shall be resumed as soon as practical after such event has come to an end or ceased to exist, and the decision of the TRTI as to whether the service have been so resumed or not shall be final and conclusive.

Provided further that if the performance in whole or part of any obligation under this agreement is prevented or delayed by reason of any such event by a period exceeding 120 days, either party may at its option terminate the agreement. The successful bidder shall not be liable for forfeiture of its Performance Security, liquidated damages, or termination for default if and to the extent that it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure. Force Majeure shall not cover the price fluctuation of components / service.

For purposes of this Clause, Force Majeure means an event or situation beyond the control of bidder, that is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of the Bidder.

If a Force Majeure situation arises, the bidder shall promptly notify TRTI in writing of such condition and the cause thereof. Unless otherwise directed by TRTI in writing, the Bidder shall continue to perform its obligations under the Contract as far as it is reasonably practical and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

Annexure – I

(To be submitted on bidder's letter head)
"Request for Proposal (RFP) for Design and Implementation of a Blockchain and AI-Enabled Caste Validity Certificate Verification System for Tribal Research and Training Institute (TRTI), Maharashtra"

To,

Hon'ble Commissioner,
Tribal Research and Training Institute,
28 Queens Garden, Pune -411001
Maharashtra State

Subject: *Request for Proposal (RFP) for Design and Implementation of a Blockchain and AI-Enabled Caste Validity Certificate Verification System for Tribal Research and Training Institute (TRTI), Maharashtra*

Reference: Tender No   Dated ......

Respected Sir,

I / Whereby offer to submit the Technical Bid for Request for Proposal (RFP) for Design and Implementation of a Blockchain and AI-Enabled Caste Validity Certificate Verification System for Tribal Research and Training Institute (TRTI), Maharashtra.

I / We have read, and understood the contents of the RFP and further state that I /We unconditionally accept and abide by the terms & conditions specified therein.

I / We submit the Technical Bid as under:

Sr. No	Description	Remark
1	Name and address of the head office of the Bidder	
2	Name of Head / Chairperson / President/Partner /Director/Owner	
3	Name of Secretary/Chairperson /MD /Owner/Proprietor	
4	Contact Person's Name and Designation	
5	Mobile Number and Email Address	
6	Date of Establishment of Institute as per Documents of establishment/ Registration of the institute	
7	a) Whether the Institution is registered? (Yes/No)	
	b) If Yes, under which act. Institution is registered (Legal status)	
	c) Registration Number	
	d) Date of Registration	

Sr. No	Description	Remark	
	e) Date of Expiry		
8	a) Whether GST payee? (Yes/No)		
	b) Mention GST number		
9	a) Whether Income tax payee? (Yes/No)		
	b) Mention Permanent Account Number (PAN/TAN)		
10	The Bidder should have *minimum aggregate turnover of at least INR 5 Crores* from any 3 financial years from last five years i.e. FY 2020-21, FY 2021-22, FY 2022-23, FY 2023-24, FY 2024-25 **_Note_** - *Minimum aggregate turnover will be considered from IT/ITES Projects ONLY.*	FY 2020-21	
		FY 2021-22	
		FY 2022-23	
		FY 2023-24	
		FY 2024-25	
11	Total no. of years of experience of the Bidder. (Period before the date of registration of the bidder is not considered)		

Date:
Place:

Name, Designation and Signature of authorized representative of the Bidder

Annexure – II

(Pre-Bid Queries Format)

Name of the Bidder (Organization):

Name and designation of Person(s) Representing the Bidder:

Contact Number:

Email Id:

RFP: Request for Proposal (RFP) for Design and Implementation of a Blockchain and AI-Enabled Caste Validity Certificate Verification System for Tribal Research and Training Institute (TRTI), Maharashtra

Sr. No.	Tender document page number	Clause, Section, point serial number (Tender Ref. No)	Query/ Clarification required	Suggestion
1				
2				
3				
4				

Date:
Place:

Name, Designation and Signature of authorized
representative of the Bidder

Annexure- III

(Declaration to be given on Bidder letterhead)

Date:

To,

Hon'ble Commissioner,
Tribal Research and Training Institute,
28 Queens Garden, Pune -411001
Maharashtra State

Subject: *Request for Proposal (RFP) for Design and Implementation of a Blockchain and AI-Enabled Caste Validity Certificate Verification System for Tribal Research and Training Institute (TRTI), Maharashtra*

Reference: Tender No   Dated ......

Respected Sir,

I/We ....do hereby submit RFP for *for Design and Implementation of a Blockchain and AI-Enabled Caste Validity Certificate Verification System for Tribal Research and Training Institute (TRTI), Maharashtra.*

We do accept the mentioned in all respects in accordance with the terms and conditions as mentioned in the Bid Document.

I/We have paid an Amount of Rs. 2,00,000/- towards EMD and I/We are aware that the EMD will not bear any interest.

We are aware that Tender fee of Rs 20,000/- is **_non refundable_**

If this tender is accepted, I/We agree to abide by and fulfill all the terms and conditions of the contract.

I/We hereby distinctly and expressly declare and acknowledge that before submission of this tender; I/We have carefully followed the instructions.

I/We distinctly agree that I/We would hereafter make no claim or demand upon the Commissioner, TRTI, Pune based upon or arising out of any alleged misunderstanding or misconceptions or mistake on my / our part of the said contract, agreements, stipulations, restrictions and conditions.

Any notice required to be served on me / us shall be sufficiently served on me / us by post (registered or ordinary) or email or courier or left at my / our address given herein.

I / We fully understand the terms and conditions of the contract to be entered into between me/us and the respective organization specified in the bid document and the written agreement shall be the foundation of the rights of both the parties and the contract shall not be deemed to be complete until an agreement has been signed by me/us and the respective organization specified in the bid document

Date:
Place:

**Name, Designation and Signature of authorized
representative of the Bidder**

Annexure- IV

(Declaration for Proprietor/Partner/Director/Trustee is not blacklisted by any Government agency, on their letter head)

To,

Hon'ble Commissioner,
Tribal Research and Training Institute,
28 Queens Garden, Pune -411001
Maharashtra State

Subject: Self Declaration of not Blacklisted by any Government agency / Department / Autonomous Institute of any state Government and or Central Government

Reference: Tender No   Dated ......

I/We .... do hereby submit declaration/ undertaking that our Company Name (Name)...and any other company in which I am or any of my partner/director/trustee is a Proprietor/partner/director/trustee is not Blacklisted by any Government agency / Department / Autonomous Institute of any state Government and or Central Government.

I/We have read the Tender documents and related matters carefully and diligently and that I / We have uploaded the tender having studied, understood and accepted the full implications of the agreement.

Date:
Place:

Name, Designation and Signature of authorized representative of the Bidder

Annexure- V

(Declaration / Undertaking of the Bidder to be submitted along with Technical Bid, on its letter head)

Date:

To,

Hon'ble Commissioner,
Tribal Research and Training Institute,
28 Queens Garden, Pune -411001
Maharashtra State

Subject: *Request for Proposal (RFP) for Design and Implementation of a Blockchain and AI-Enabled Caste Validity Certificate Verification System for Tribal Research and Training Institute (TRTI), Maharashtra*

Reference: Tender No......   Dated ......

Respected Sir,

I/We.. do hereby submit declaration/ undertaking that any of the Governing Member, Director, Partner, Managing Director, CEO of our Company (Name).. is not having Criminal Case against them.

I/We have read the Tender documents and related matters carefully and diligently and that I / We have uploaded the tender having studied, understood and accepted the full implications of the agreement.

Date:
Place:

Name, Designation and Signature of authorized representative of the Company

Annexure- VI

Financial Turnover Certificate
(Need to submit on CA Letter head)

This is to certify that, we have verified the annual financial turnover of the Company/firm/Agency/... named...having head office at (Address)...from the **_IT / ITES Services_** and it is as mentioned below:

Particulars	Annual Financial Turnover from the **_IT / ITES Services ONLY_**
FY 2020-21 Amount (Rs) in both figures and words	
FY 2021-22 Amount (Rs) in both figures and words	
FY 2022-23 Amount (Rs) in both figures and words	
FY 2023-24 Amount (Rs) in both figures and words	
FY 2024-25 Amount (Rs) in both figures and words	
Total Financial Turnover	
Average Financial Turnover	
Aggregate Financial Turnover	

Name of CA Firm:

Name of Signing Partner:

Membership Number:

Unique Document Identification Number (UDIN)

Signature:

Office Seal:

Date:

Annexure- VII
Checklist for Bidder

Name of Bidder:

Sr	Eligibility Criteria	Supporting Document	Eligible (Yes/No)	Supporting document page number /Remark (if any)
1.	The bidder shall be a company in India registered under the Companies Act 1956/2013, Proprietorship or a registered Partnership firm or a registered Limited Liability Partnership/ registered societies under Co-operative Societies Act, 1960 or trust **_Minimum last 5 Years_**	Certificate of Incorporation/ Registration /Partnership Deed/Shop act. **Note** - Period before the date of registration of the institute will not be considered.		
2.	**Legal Entity & Establishment in India** Bidder must be a legal entity registered in India and operational for at least the last 3 years and Average turnover ≥ INR 5 Cr in any 3 of 4 years (FY 2021–22 to 2024–25)	CA Certificate along with Audited Balance Sheets + Profit & Loss Statements with UDIN and certificate of incorporation. Income Tax Return for the year for which the turnover certificate is submitted to certify the criteria of turnover requirement from IT/ITES Projects Only (Annexure VI)		
3	**Relevant Project Experience** The bidder must have Implemented similar projects related to blockchain-based digital credentialing, digital certificate issuance, or secure document verification / secured digital credential issuance. These Projects must have been **developed or customized** or Implemented for a government organization, municipal corporation or private organization within the last five (5) financial years **(2020-21, 2021-22, 2022-23, 2023-24** or 2024-25)	Copies of Work Orders / Purchase Orders / Client Certificates / Agreements + Completion Certificates		
4	The bidder must have ISO a) ISO 9001:2015 (Quality Management System) b) ISO/IEC 27001 (Information Security Management System) c) CMMI Level 5 (Capability Maturity Model Integration) d) Patent	Copy of valid ISO certificates & Patent.		

Sr	Eligibility Criteria	Supporting Document	Eligible (Yes/No)	Supporting document page number /Remark (if any)
5	Demonstration of Previous Blockchain & AI Use Cases	Live demonstration or evidence of previous Blockchain & AI use cases like document verification, dashboards, etc.		
6	Annexure I	Annexure I		
7	Annexure III	Annexure III Declaration to be given on Bidder letterhead		
8	Annexure- IV	Declaration for Proprietor/Partner/ Director/Trustee is not blacklisted by any Government agency, on their letter head		
9	Annexure V	Annexure V		
10	Annexure VI	Financial Turnover Certificate		
11	Annexure VII	Checklist for Empanelment of Bidder		

Date:
Place:

Name, Designation and Signature of authorized representative of the Bidder

Annexure- VIII
BOQ

Item Rate BoQ

Validate **Print** **Help**

Tender Inviting Authority: Tribal Research and Training Institute (TRTI), Pune

Name of Work : Request for Proposal (RFP) for Design and Implementation of a Blockchain and AI-Enabled Caste Validity Certificate Verification System for Tribal Research and Training Institute (TRTI), Maharashtra

Contract No: 020-26362871, 020-26360941

Name of the Bidder Bidding Firm / Company :							

PRICE SCHEDULE

(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)

NUMBER #	TEXT #	NUMBER #	TEXT #	NUMBER #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Quantity	Units	BASIC RATE In Figures To be entered by the Bidder Rs. P	TOTAL AMOUNT Without Taxes	TOTAL AMOUNT With Taxes	TOTAL AMOUNT In Words
1	2	4	5	13	53	54	55
1	Design and Implementation of a Blockchain and AI-Enabled Caste Validity Certificate Verification System for Tribal Research and Training Institute (TRTI), Maharashtra						
1.01	Design and Implementation of a Blockchain and AI-Enabled Caste Validity Certificate Verification System for Tribal Research and Training Institute (TRTI), Maharashtra with development phase (90 days) & Support & Maintenance phase will consist of 3 years from the Go LIVE	1.000	Nos		0.000	0.000	INR Zero Only
Total in Figures					0.000	0.000	INR Zero Only
Quoted Rate in Words		INR Zero Only					