

# **Request for Proposal**

**for**

**Design, Development, Deployment, and Maintenance of AUA-KUA,  
ASA , eKYC and Aadhaar Data Vault (ADV) Solution**

**for**

**Indian Oil Corporation Ltd.**

Indian Oil has implemented a Secondary Dealer Management System and Customer Relationship Management (SDMS and CRM). The SDMS and CRM system forms the core platform on which its vast network of Distributors / Dealers work. This system allows its partners to perform their day-to-day operations. The Distributors carry out their interactions with customers for enrolling, sales and service, stock accounting and the like. The SDMS and CRM system has a Master Data Management System which stores customer registration and service data along with the history all transactions. It also stores the Aadhaar numbers of its customers and their KYC details as part of customer enrolment and DBT subsidy payment.

## **Objective of the Project**

Indian Oil has obtained license for becoming a AUA-KUA and ASA and plans to setup the infrastructure and services required to function as a AUA and ASA/KSA in accordance to the framework as mandated by UIDAI. Indian Oil intends to implement a solution which will allow it to carry out the KYC of the customers (new and existing) in electronic form (eKYC) using various modes such as OTP, Aadhaar numbers, Biometrics etc. and Offline Aadhaar mode through the Web and Mobile Applications.

As per the UIDAI guidelines, the Aadhaar numbers of customers have to be separately stored in an encrypted format in an Aadhaar Data Vault (ADV). The SDMS and CRM system and other systems need to integrate with Aadhaar Data Vault for accessing Aadhaar Nos. of customers as and when needed as a part of transactions with them. Therefore, Indian Oil also needs to implement Aadhaar Data Vault in such a way that it complies with UIDAI's respective guidelines.

The SDMS and CRM system will also be generating DBTL subsidy payment advices for banks in batch mode which will include their Aadhaar numbers, Bank details and amount to be paid on a daily basis. A process needs to be developed and implemented which will accept a file with customer's token id, perform a lookup and generate an output file replacing the customer token id with Aadhaar numbers by accessing the Aadhaar Data Vault. The Aadhaar Data Vault needs to be integrated with the solution so that the operation of subsidy file generation should be completed within 2 hours for 20 Lakh customer records.

Therefore the objectives of this project are to design, develop, deploy and maintain:

1. A solution to enable IOCL to function as AUA-KUA and ASA as mandated by UIDAI
2. Aadhaar Data Vault (ADV) including all APIs for real time and batch integration
3. eKYC Solution which will employ various modes and used through web and mobile apps

This system will be deployed at IOCL Data Center at Bangaluru (Primary site for this solution) and Gurugram (DR Site), and it will provide services to various applications deployed anywhere on Indian Oil network.

M/s CDAC will design, develop, and deploy the entire solution in IOCL Data Centers, including APIs for connectivity with other applications of IOCL which need eKYC functionality and access to Aadhaar numbers. M/s CDAC will also develop various types of auditable reports, billing reports and other statutory reports as required by IOCL and UIDAI. M/s CDAC will maintain the solution a period of 3 years (base) plus 2 years (additional) at IOCL's discretion.

As a part of the solution design M/s CDAC will also provide the technical specifications of hardware, software, operating system, HSM, database, network, security, and all other components required to comply with UIDAI mandates, M/s CDAC will also own the responsibility of security and system audit through Cert-in empaneled agency as required by UIDAI, and ensure compliance.

M/s CDAC will from time to time take all measures required to be implemented in the solution to ensure proper functioning of the solution and compliance with UIDAI guidelines and applicable IT Acts. M/s CDAC will be responsible for the installation, patching, and maintenance of the solution components such as servers, HSM, all the applications developed / deployed.

## **Detailed Scope of Work**

### **1. Design of AUA\_KUA, ASA, eKYC and ADV Solution**

#### **Design Considerations**

- The solution should be compliant with all the regulations / circulars / guidelines /etc. of UIDAI
- The system should be in compliance with UIDAI specifications and standards published from time to time.
- The solution should be capable of delivering high performance as and when transaction volumes / users increases without compromising on the response time and should be designed for no single point of failure.
- The solution should be horizontally scalable to meet the future growth requirements.
- Solution should be scalable to handle load as mentioned in the sizing section below.
- The solution shall run on native browser with additional plug-ins that should be freely downloadable and should support at the minimum IE, Firefox Mozilla Google Chrome
- The designed solution will run in High Availability (HA) mode in DC as well as in DR.
- The Aadhaar Data Vault (ADV) will store aadhaar number. The ADV will comply with UIDAI guidelines.
- The Aadhaar authentication should also carry out Aadhaar OTP Authentication. The Aadhaar authentication should carry out the following Aadhaar Biometric Authentication:
  - The system should route all biometric authentication requests from AUA to CIDR and back;

- The system should implement Authentication API
- The system should support all biometric modalities offered as part of UIDAI API specification.
- The system should also support Offline Aadhaar mode for operations of the above services.
- The authentication application (eKYC) platform must be forward compatible with any service and security standards proposed by UIDAI.
- All requests and responses should be logged as per the UIDAI guidelines. The logs shall capture details of authentication transaction but not corresponding Personal Identity Information (PID).
- The system should maintain a log and report for all transactions for audit purpose. M/s CDAC will develop user friendly relevant reports based on logs.
- The system should handle Authentication API errors correctly.
- The solution should have Web and Mobile Interface. Commercial applications should be able to carry out eKYC operation using web browser on desktop and mobile app on iOS and Android based mobile devices.
- A solution for taking backups of all servers / applications / databases should also form part of the entire solution

### **Sizing of the Solution:**

The solution will primarily offer the following three services:

- i. Aadhaar User Agency (AUA)
- ii. Aadhaar Service Agency (ASA) and eKYC Service Agency
- iii. Aadhaar Data Vault services

The solution should be able to carry out minimum 100 eKYC operations per second, and 500 Aadhaar Data Vault operations per second.

### **Deliverables**

- Complete Solution Architecture, Technical Architecture, Network Architecture of the proposed AUA and ASA/KSA, eKYC and ADV solution
- Design of development, test, and production environments as mandated by UIDAI.
- Network Design as mandated by UIDAI.
- Complete Bill of Material (BOM) required to implement the solution.
- Technical specification of all the components required to implement the solution.
- Assistance in terms of preparing RFP, technical specification, , bid evaluation, testing of installed integrated IT infrastructure components in DC and DR after successful commissioning by the vendor and Solution acceptance

## **2. Development of the Solution**

M/s CDAC will:

- Develop the complete solution for AUA and ASA/KSA operations of IOCL as per the UIDAI guidelines

- Implementation of the e-KYC solution to be used through Web and Mobile apps.in conformance with all the rules, regulations, specifications and mandates issued by UIDAI through all its communications in the past as well as from time to time in the future
- Develop Aadhaar Data Vault solution to store Aadhaar number and other information in encrypted format as required by UIDAI.
- Integration of SDMS and CRM application based on Siebel CRM, SAP ERP and other In-house applications with the solution developed.
- Develop all reports required for Audit, Billing and other statutory reports as required for IOCL to function as AUA-KUA and ASA including all reports required for compliance with UIDAI guidelines in this regard.
- Deploy portals / webservers for hosting any part of the solution
- Deployment of the complete solution in IOCL Data center and DR site in active=active High Availability (HA) mode.
- Develop management portal to provide seamless management of the activities. Management portal will provide:
  - Dashboard for viewing the transactions being performed for each type of request
  - View Digital certificate details
  - Download various reports related to AUA-KUA transactions, ASA transactions, and various statistical reports such as quarterly transaction summary.
  - Download reference implementation of connectors, user manuals, integration manuals
  - Role based access to management portal.
- IOCL will also be provided Admin role in management portal.

### **Development considerations**

- The solution will be first developed in test environment and tested with UIDAI in pre-production environment. After successful testing and approval from UIDAI, solution will be moved to production environment.
- The e-KYC solution provided will fully comply with UIDAI guidelines and IT Act 2000 or any other applicable act.
- The e-KYC application will be deployed for web browsers as well as for mobile phones. The application will capture Aadhaar, VID and OTP, biometric of Aadhaar user, encrypt PID data using UIDAI public key, send data to CIDR through an ASA (IOCL has ASA license).
- If e-KYC is successful, response xml received from CIDR will be parsed and stored in Aadhaar Data Vault. On successful e-KYC, information will be validated at app before storing in Aadhaar Data Vault. The application will store some information received from CIDR in commercial database. Aadhaar Data Vault will store encrypted aadhaar number, reference number, transaction number, and time stamp. M/s CDAC will make provision to store authentication log and other logs as per UIDAI guidelines and IT Act 2000 requirements for auditing and audit trail.
- M/s CDAC will also make provision to store authentication logs, query the logs to extract information and retain the logs as mandated by UIDAI.

- The ADV application will perform encryption of aadhaar number using key stored in HSM, and generate reference key against each aadhaar number. Aadhaar number will be stored in ADV only. Applications will store reference key in place of aadhaar.
- The ADV application will provide service to applications so that they can check aadhaar number, store aadhaar in ADV, retrieved aadhaar from ADV by sending reference number, and delete aadhaar from ADV.
- Only authenticated applications should be able to access ADV.
- Any application located in any location of Indian Oil can get access to ADV with required approvals.
- Aadhaar Data Vault will store Aadhaar number in an encrypted format and the encryption keys shall be stored within HSM to ensure security.
- Each Aadhaar number will be mapped to a unique reference key and encrypted Aadhaar number shall be stored corresponding to the unique reference key.
- The unique Reference key so generated shall be such that it wouldn't be possible to reengineer the Aadhaar number using the key.
- The following features with respect to Aadhaar storage must be implemented:
  - Storing Aadhaar number and with a reference key
  - Retrieving Aadhaar number based on reference key
  - Updating the status of Aadhaar number
  - Deleting aadhaar from ADV
- Aadhaar Data Vault shall have functionality for first time batch migration, which migrates the existing Aadhaar details to vault in an efficient manner.
- ADV application will generate UID token for existing Aadhaar numbers through UIDAI and store UID token along with Aadhaar in ADV.
- Aadhaar Data Vault shall have functionality for Bulk Aadhaar Query, which accepts list of reference key as input and return its respective Aadhaar number as output.
- Aadhaar Data Vault shall have functionality for Bulk Aadhaar Update, which updates the status list of Aadhaar number in Aadhaar Data Vault database. Aadhaar Data Vault shall interface with HSM to perform encryption/decryption functions on Aadhaar data with the mapped keys.
- Aadhaar Data Vault System shall be scalable enough to support clustered deployment for high availability. Solution should also have DR provisions.
- Since Aadhaar number is basis of multiple business transactions which happen in real time, Aadhaar Data Vault system shall respond fast enough to allow other systems to complete real time transactions without any noticeable time lag/delay
- The application software platform for Aadhaar based Authentication and e-KYC services should be compatible with all the standard operating systems such as Windows, Linux, UNIX, etc. Major Software for ASA and AUA-KUA along with any auxiliary components such as Web Server, Application Server etc must also be compatible / smoothly work with Windows, Linux, UNIX, etc.
- Ownership of complete solution as envisaged in the RFP/developed as the part of this project will be with IOCL.

- M/s CDAC will share all source codes with IOCL. IOCL will have the right to modify/update/change source code as per its discretion during and after the contract period.

### **3. Deployment of the Solution**

M/s CDAC will:

- Install and configure all the supplied hardware, operating system, HSM, security and network devices, databases, and storage as per requirement.
- Create network zones as mandated by UIDAI.
- Deploy the solution in IOCL Data Center at Bangalore and DR site in Gurugram in HA mode.
- Integrate the solution with SDMS-CRM, Centralized Indsoft, SAP, and other applications used by IOCL.
- Test the functionality and performance of the solution.
- Test the solution with UIDAI in pre-production environment.
- Get the overall solution audited by Cert-in certified auditor as required by UIDAI, and get the solution approved by UIDAI.
- Transport development / changes to the solution to production environment.

#### **Deployment Considerations**

- Supply and install all updates and upgrades as mandated by IOCL including new versions of all the software licenses during the entire contract period.
- M/s CDAC will carry out the testing of deployed solution majorly covering performance, security, load test and other tests as mandated by UIDAI.
- M/s CDAC will install all digital certificates on all systems required for the operation of AUA / ASA solution.
- Installation, commissioning and integration with the other components of the solution.
- Implementation and Integration of eKYC Solution for use with Siebel CRM, SAP, Home grown applications etc.
- Retention of Authentication logs as mandated by UIDAI.
- Oracle Database software for implementation of Aadhaar data vault will be provided by IOCL. M/s CDAC will install and configure the database as per the need of the solution.
- Deployment of client applications, support and maintenance of the applications during the warranty and AMC support period.
- Integration of minimum 4 applications (Epic SDMS, Central Indsoft, SAP, and e-KYC application deployed on portal and mobile app) with ADV and keys in HSM.
- Provide user and admin manual of each solution.
- Source code of the applications.
- Roll-out/Commission (Go-Live) the proposed solution.

#### **4. Maintenance of the Solution (Services, Support and Warranty)**

- 24 x 7 Support should be provided for the implemented solution for a period of 5 years since the date of acceptance of the solution by IOCL.
- M/s CDAC will provide training on implementation and operation of entire solution including components of the solution viz HSM and server.
- Vulnerability Assessment by Cert-in certified auditors and Coordination with UIDAI for Pre-production and Production integration leading to final certification for Go-Live
- The solution should have an uptime of 99.0% and should adhere to the Service Level Agreements (SLAs) as per the terms and conditions.
- M/s CDAC will monitor network (including WAN link), servers and complete solution.
- M/s CDAC will ensure that any application complaints will be resolved within one working day.
- M/s CDAC will be responsible for any security and network breach or failure to comply with regulatory requirement for five years from the date of acceptance of the solution, and take corrective actions for the deployed solution.
- M/s CDAC will arrange for audit by Cert-in certified auditor every year for next four years and ensure that the solution complies with UIDAI guidelines, IT Act 2000, and other relevant acts.

#### **Responsibilities of IOCL**

- a) IOCL will provide server rack, power supply, and network uplinks in DC and DR.
- b) Hardware required for the solution along with OS, SAN Storage, Database licenses, Backup software
- c) IOCL will provide connectivity between IOCL DC /DR and UIDAI CIDR DC and DR.
- d) IOCL will also provide any other administrative support required to implement the solution
- e) IOCL will provide interface details required to integrate the solution with existing applications such as SAP, SDMS, and Centralized Indsoft.

#### **Performance Bank Guarantee (PBG)**

M/s CDAC needs to submit a Performance Bank Guarantee valuing 10% of the total order value valid for a period of 63 months from the date of acceptance by IOCL.

#### **Payment Terms**

<b>Sr No.</b>	<b>Project Milestone</b>	<b>Payment</b>
1	Solution Design	15% of Total Contract Value (without taxes)
2	Assistance with procurement of hardware, network and security	5% of Total Contract Value (without taxes)



	devices, support, and licenses	
3	Development, testing, implementation of the solution, getting the solution approved by UIDAI and commissioning for production use	80% of Total Contract Value (without taxes)
4	Monitoring and maintenance of solution	Quarterly payment in arrears based on SLAs achieved
5	New development against change request after the final acceptance (commissioning of the solution)	Unit Manpower rate to be quoted.

Note: If the vendor fails to submit the PBG IOCL will hold back 10% of order value for the period of 63 month.

### **Price Adjustment for Delay in Completion of Job:**

For each week of delay in completion of jobs, 0.1% of undelivered scope which includes (limited to maximum 10% of total contract value) will be deducted as compensation for delay. This amount will be deducted from the bills submitted for payments.

### **Price Adjustment for not meeting SLA**

- The availability of the application software (separate from OS / HW / Network and other infrastructure components) shall be minimum 99.0% for 24X7X365
- Proper logs on availability from a monitoring software to be certified by vendor and submitted to IOCL every quarter.
- Every downtime scheduled, unscheduled and failures to be reported to IOCL.
- The application availability shall be calculated as:

$$((\text{Total Duration} - \text{Outage Time}) \times 100) / (\text{Total Duration})$$

- The availability of the application software for purpose of price adjustment shall be calculated on a quarterly basis and should be 99% for the duration of the quarter.
- If the availability of the software falls below the specified 99.0% calculated for the quarter, Price adjustment as detailed below shall be imposed on the quarterly payment.
- Vendor will need to ensure a minimum uptime of 99.0%, calculated on a quarterly basis as per the details given below.

<b>Availability Calculated on Quarterly basis (A) (%)</b>	<b>Price Adjustment Applicable on Quarterly Payment due (%)</b>
$\geq 99.0\%$	0
$99.0\% \geq A < 98\%$	1%
$98\% \geq A < 97\%$	2%
$97.0\% \geq A < 0\%$	10%

1. The uptime percentage would be calculated on quarterly basis on the quarterly payment due.
2. The calculated amount would be adjusted from every consequent quarter payment.
3. The penalty charges will be subject to an overall cap of 10% of the quarterly Maintenance Charges and thereafter, Indian Oil has the discretion to cancel the contract.
4. If penalty calculation is 10% of quarterly maintenance charges for two (2) consecutive quarters, Indian Oil will have the right to terminate the contract. If the amount payable by IOCL is not sufficient to adjust the penalty, then the Performance Bank Guarantee may be invoked to recover the above amount of penalty.