

**Request for Proposal (RFP) for Selection of
Software Firm for
Development and Maintenance of
Krushak Odisha - Odisha's Farmer Database**

**Department of Agriculture and Farmers'
Empowerment, Government of Odisha**

RFP No.: OCAC-SEGP-SPD-0010-2021-21012



ODISHA COMPUTER APPLICATION CENTRE

[TECHNICAL DIRECTORATE OF E&IT DEPARTMENT, GOVERNMENT OF ODISHA]

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Tender Reference

Date	05/04/2021
Tender Reference Number	OCAC-SEGP-SPD-0010-2021-21012
Title	Selection of System Integrator (SI) for Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha.

Tender Schedule

Event	Date & Time Venue / Address
Date of Publication	05/04/2021 (www.ocac.in & www.odisha.gov.in)
Last Date of submission of Pre-bid queries	12/04/2021 up to 4:00 PM (Details in Fact Sheet)
Schedule for Pre-bid meeting	15/04/2021, 11:30 AM through Virtual Meeting on MS Teams Platform
Last date for submission of bid documents	28/04/2021, 02:00 PM at OCAC Office
Opening of Pre-Qualification-cum-Technical Bids	28/04/2021, 04:00 PM at Conference Hall, OCAC or through VC using MS Teams
Technical Presentation	30/04/2021, 11:30 AM onwards (Through VC using MS Teams)
Opening of Financial Bids of technically qualified bidders	03/05/2021, 04:00 PM at Conference Hall, OCAC

Fact Sheet

This **Fact Sheet** comprising of important factual data on the tender is for quick reference of the bidder.

Clause Reference	Topic
Section 4.3.1	A pre-bid meeting will be held on 15/04/2021 at 11:30 AM in virtual mode using MS Teams Platform
	Contact Person General Manager (Admin) Email : gm_ocac@ocac.in All the queries should be received on or before 12/04/2021 by 4:00 PM , through email only to gm_ocac@ocac.in (with a copy to subrat.mohanty@ocac.in and manoj.panigrahi@semt.gov.in) at the above mentioned address.
Section 4.4.2	RFP can be Downloaded from www.odisha.gov.in or www.ocac.in . The bidders are required to submit the RFP document Fee of ₹11,800/- (including GST) in shape of Bank Draft in favour of Odisha Computer Application Centre and payable at Bhubaneswar from any of the scheduled commercial banks along with the Proposal (General Bid). The Bid document fess shall be send electronically.
Section 4.4.3	The bidder is required to submit Earnest Money Deposit amounting to ₹8,00,000/- in shape of Bank Draft / Bank Guarantee in favour of Odisha Computer Application Centre, Bhubaneswar or Bank Guarantee issued from any of the Scheduled Banks <u>as per the prescribed format in this RFP.</u>
Section 4.4.4	Bidders must submit a soft copy of the Prequalification & Technical Proposal in a non-editable CD along with original copy. However, One original copy of the Commercial Proposal (only hard copy) is to be submitted.
Section 4.5.2	The Proposal should be filled in by the Bidder in English language only.
Section 4.5.3	The proposal submission address is: General Manager (Admin) Odisha Computer Application Centre N-1/7-D, Acharya Vihar Square P.O.- RRL, Bhubaneswar - 751013 Proposals must be submitted on or before 28/04/2021 by 02:00 PM
Section 4.6.2	Proposals/ Bids must remain valid 180 days from the date of opening of Commercial Bid.

Clause Reference	Topic
Section 5	<p>Quality and Cost Based Selection i.e. QCBS (70:30) method shall be used to select the System Integrator for this tender. The bidder is required to submit the bids General (Pre-qualification), Technical & Financial bid in three separate sealed envelopes which are, in turn, to be put in an outer sealed envelope. Technical bid of those bidders who qualify in General Bid shall be opened. Financial bid of those bidders who qualify in Technical Bid by scoring 70% or above shall be opened. Consortium is not allowed.</p>
Section 5.3	<p>The bidder should quote price in Indian Rupees only. The offered price must be exclusive of taxes and duties. The taxes as appropriate & applicable would be paid at the prevalent rates.</p>
Section 7.25.5	<p>Total project period is <u>42 months</u>. The System Integrator must complete development within <u>6 months</u> from receiving the work order. Post Implementation Support would be provided for a period of <u>36 months</u> after go-live of the Application</p>

1 Request for Proposal

Sealed proposals are invited from eligible, reputed, qualified software application developers and implementers for Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Agriculture and Farmers' Empowerment Department, Government of Odisha. This invitation to bid is open to all bidders meeting the minimum eligibility criteria as mentioned in this RFP Document.

2 Structure of the RFP

This RFP document for Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha comprises of the following.

- a) Instructions on the Bid process for the purpose of responding to this RFP. This broadly covers:
 - i) General instructions for bidding process
 - ii) Bid evaluation process including the parameters for Pre-qualification, Technical Evaluation and Commercial Evaluation for determining bidder's suitability as the system integrator
 - iii) Commercial bid and other formats
- b) Functional Requirements of the project. The contents of the document broadly cover the following areas:
 - i) About the project and its objectives
 - ii) Scope of work
 - iii) Functional Requirements
 - iv) Project Schedule
 - v) Service levels for the implementation partner
 - vi) Timeline of Project implementation

The bidders are expected to respond to the requirements as completely and in as much relevant detail as possible, and focus on demonstrating bidder's suitability to become the Software Development & Implementation partner of OCAC for this project.

The bidders are expected to examine all instructions, forms, terms, project requirements and other information in the RFP documents. Failure to furnish all information required as mentioned in the RFP documents or submission of a proposal not substantially responsive to the RFP documents in every respect will be at the bidder's risk and may result in rejection of the proposal.

3 Background Information

3.1 Basic Information

OCAC the Technical Directorate of E&IT Department, Government of Odisha on behalf of Agriculture and Farmers' Empowerment Department, Government of Odisha invites responses ("Tenders") to this Request for Proposals ("RFP") from Software Development / System Integration firms ("Bidders") for Development and Maintenance of Krushak Odisha - Odisha's Farmer Database as described in this RFP, "Terms of Reference".

Proposals must be received not later than time, date and venue mentioned in the Fact Sheet. Proposals that are received late will not be considered in this procurement process.

OCAC will award the Contract to the successful bidder whose proposal has been determined as the best value proposal based on Technical and Financial evaluation criteria and accepted by the Tender Accepting Authority.

3.2 Project Background

3.2.1 About the Department

Odisha is a state in which majority of its population is dependent on agriculture for livelihood. It is essential that the state has a transparent view of all farmers of the state including cultivators and sharecroppers. This is important for various reasons, from streamlining schemes and service delivery to long-term farmers' welfare, among others. In 2018, with the launch of KALIA (Krushak Assistance for Livelihood and Income Augmentation) Scheme, database of around 56 lakh Small and Marginal Farmers and Landless Agricultural Households was prepared.

Since the database have a common user base i.e. farmers, it is possible that the database may have duplicate records. Due to which it becomes difficult to identify an authenticated farmer who is eligible to avail benefits listed under various schemes by the department.

Department of Agriculture and Farmers' Empowerment (DA&FE), Government of Odisha has desired creation of a Unified Farmers' Database to have all the farmer related information into a single database who are availing benefits under the different schemes implemented by the state government. Unified farmer Database would help in removing redundancies, verifying discrepancies and reducing duplicity in records as well as fields within the records for the state as one of the activities outlined under the Hon'ble Chief Minister's vision of 5T – Technology, Teamwork, Transparency, Time and Transformation.

Current IT Interventions by the department are as follows:

- a) **Krushak Odisha Database** is formed with 81,22,838 unique Aadhaar numbers by consolidating the below mentioned farmer list:
 - KALIA: 56 Lac Farmers
 - PMFBY: 25 Lac Farmers
 - PPAS: 15 Lac Farmers
 - Seed DBT: 25 Lac Farmers
- b) **Agri Extension App**- an android based mobile app that is being used by 4000+ the village agricultural workers (VAW) for farmer verification
- c) **Decision Support Report**- an integrated decision support system that has been developed as a powerhouse of all the data points required for decision making. It shall be connected to the Krushak Odisha Database, for reporting, review and decision making.

However, the applications are running in silos and the department wishes to create an integrated Krushak Odisha Portal comprising of all three systems mentioned above.

3.2.2 Project Objective

Department of Agriculture and Farmer Empowerment (DA&FE) aims at creating a Unified Farmer Database in the name of Krushak Odisha Portal which will help in achieving the below mentioned objectives:

- a) Provided unified database for scheme delivery
- b) Ease in policy formulation and decision making due to availability of consolidated farmer level information at the state level
- c) Reduction in time, cost and error to estimate the number of beneficiaries for a scheme
- d) Facilitating centralized mechanism to check eligibility for a particular scheme / service to ease Farmer authentication with lesser documents requirements to prevent any leakages in the system
- e) Providing centralized advisory information to farmers on the services such as Ama Krushi and m-Kisan

3.3 Existing Applications

Below mentioned functionalities are available in the existing application:

3.3.1 Krushak Odisha Database

Following data are captured from the Krushak Odisha database:

- The Basic information (unique keys) of all the verified farmers
- Documents uploaded by the farmer
- Basic transactional information

The created profiles undergo 100-day field verification. Once verified all farmers are given a Farmer ID i.e., a 10 character randomly generated alpha-numeric code (with first 2 alphabets and last 8 numbers) called Krushak Parichay Patra.

3.3.2 Agri-extension Application

The Agri-extension App is used for farmer verification by GP officers. It works in offline mode and is compatible with Odia language. The application has the below mentioned functionalities:

- a) Mark geo-tagged attendance of the GP Officer
- b) Real-time visibility into the current status of scheme for the GP officers and provision to tag beneficiaries against specific schemes
- c) All farmer related issues can be raised by GP officers with the concerned senior officers, through the issue resolution mechanism module
- d) Each officer can view his/her overall performance across the various parameters of Dakshyata Program - Department's Employee Performance Management System.
- e) The Tutorial Videos, Instructional Manual and other training material are available in the Help Section of the application
- f) Option to view of Department's twitter and YouTube channels
- g) Facility to connect with department's support team through WhatsApp

3.3.3 Decision Support System (DSS)

3.3.3.1 Agri-Operations

- a) This module captures the weekly progress/status of various agricultural operations including:
 - Rainfall status,
 - Reservoir status,
 - Supply of Seeds,
 - Supply of Fertilizers,
 - Crop Loan Disbursement,
 - Crop Insurance Enrolment and Claim Disbursement
 - Crop Coverage status

- Ama Krushi customized Agro-advisory
- b) Data-sets for different operations are uploaded and visualized on DSS, which is thereafter used during weekly Crop Weather Watch Group (CWWG) meetings.

3.3.3.2 Scheme Operations

This module has the following functionalities:

- a) Option to configure schemes and their components
- b) Top-down target allocation from the state to panchayat levels
- c) Bottom-up submission of achievements by ground officers

3.3.3.3 Forums

Below mentioned functionalities are available in this module:

- a) All block level meetings are tracked with the help of a Block Level Technology Team (BTT) meeting form
- b) District wise reports on scheme achievement, agri-operations and other aspects. The report is used for weekly Senior Officers Meeting and District Visits.

3.3.3.4 Issues

Following features are available in this module for the Block, District and State Officers:

- a) The issue regarding the farmers raised by the GP officers on the Agri-Extension App can be viewed in this application
- b) The raised issues can be resolved and escalated through this application

3.3.3.5 Performance Management

The functionalities are:

- a) The Monthly performance of the Group B and the Group C government employees are calculated through this module
- b) Option to view the Monthly specific report cards

3.3.4 Technical Specifications

Following are the technical specification of the existing solution:

Sl #	Existing Applications	Technology & Architecture
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a)	Krushak Odisha database	a) Postgres DB
b)	Agri-extension App	b) Native Android App on Java and Kotlin
c)	Decision Support System	a) Front-end Tool - Angular, b) Back-end Database MySQL and Redis c) APIs and Logging - Php Laravel Framework

The selected vendor will need to be comfortable with the following set of technology components that form the complete tech stack for Krushak Odisha Platform -

#	Component	Application	Description
1	PostgreSQL (PSQL)	Database Management	The entire Krushak Odisha database is maintained on this open-source PSQL application
2	Min.IO	Content Delivery Network (CDN)	All documents/images corresponding to Krushak Odisha Database will be maintained here
3	Hasura (GraphQL)	Configuring APIs	Open-source component to enable a configurable Graph QL API layer
4	NodeJS	Database Models and Migrations	<ul style="list-style-type: none"> To create models for defining data validations For any future changes in the database schema To create APIs that cannot be created through Hasura GraphQL
5	ELK Stack	Logging and Monitoring	To enabled logging and monitoring of system performance
6	PgBarman and Flask	Point-in-time recovery	For data protection and quick recovery of data in the event of a disaster
7	React and Material UI	Frontend	Front-end software component for the Krushak Odisha Portal
8	MySQL	Database Management	The entire Decision Support System and Agri-extension Mobile Application are maintained on open-source MySQL application
9	Angular	Frontend	Open-source component for development of Decision Support System
10	PHP Laravel Framework		In built logging framework used at API level for Decision Support System and Agri-extension App
11	Android App on Java/Kotlin	Mobile App Development	For development of a mobile Application - Agri-extension App
12	Open Data Kit (ODK)	Configurable Form Builder	Open-source component for configuring forms from the front-end
13	Talend (ETL) + Airflow	Data pipelining and scheduling	<ul style="list-style-type: none"> Talend - Open-source ETL(Extract-Transform-Load) tool for data transformations and integration Airflow - Tool to schedule and monitor workflows
14	Superset	Data visualisation	Data exploration and visualization platform for the Decision Support System

15	FusionAuth/Custom Developed ACL	Access Control (ACL)	An open-source and scalable access control layer to authenticate and authorise different users on the basis of available/tagged licenses (data access)
16	Secure Code QR	Ease in offline service delivery	A secure QR code is being generated to enable smooth and hassle free registration for government services in the offline environment
17	Face Recognition / Face Match	Offline farmer authentication and liveness check	A Face match API will be integrated to enable offline authentication of farmers during various transactions with the government (OCAC will provide the API)
18	Phonetic Search	Enhanced search ability in the database	Enhanced search ability in the Krushak Odisha Database to factor in spelling differences
19	Drools/ other open-source application	Configurable rule engine	Open-source rule engine to define business logics and rules
20	WhatsApp Chatbot	Communication Channel	Whatsapp chatbot to manage data requests, FAQs and Queries

4 Instructions to the Bidders

4.1 General

- a) While every effort has been made to provide comprehensive and accurate background information and requirements and specifications, Bidders must form their own conclusions about the solution needed to meet the requirements. Bidders and recipients of this RFP may consult their own legal advisers with regard to this RFP.
- b) All information supplied by Bidders may be treated as contractually binding on the Bidders, on successful award of the assignment by OCAC on the basis of this RFP.
- c) No commitment of any kind, contractual or otherwise shall exist unless and until a formal written contract has been executed by or on behalf of the OCAC. Any notification of preferred bidder status by OCAC shall not give rise to any enforceable rights by the Bidder. OCAC may cancel this public procurement at any time prior to a formal written contract being executed by or on behalf of the OCAC.
- d) This RFP supersedes and replaces any previous public documentation & communications, and Bidders should place no reliance on such communications.

4.2 Compliant Proposals/ Completeness of Response

- a) Bidders are advised to study all instructions, forms, terms, requirements and other information in the RFP documents carefully. Submission of the bid shall be deemed to have been done after careful study and examination of the RFP document with full understanding of its implications.
- b) Failure to comply with the requirements set out in this RFP may render the Proposal noncompliant and the Proposal may be rejected. Bidders must:
 - i) Include all documentation specified in this RFP;
 - ii) Follow the format of this RFP and respond to each element in the order as set out in this RFP
 - iii) Comply with all requirements as set out within this RFP.

4.3 Pre-Bid Meeting & Clarifications

4.3.1 Pre-bid Conference

- a) OCAC shall hold a pre-bid meeting with the prospective bidders on **15/04/2021 at 11:00 AM in virtual mode using MS Teams Platform.**
- b) The Bidders will have to ensure that their queries for Pre-Bid meeting should reach to General Manager (Admin) only by email (gm_ocac@ocac.in) with a copy to subrat.mohanty@ocac.in and manoj.panigrahi@semt.gov.in on or before **12/04/2021 by 04:00 PM.**

- c) The queries should necessarily be submitted in the following format (**Soft copy in MS Word or MS Excel file to be attached**):

<i>Sl#</i>	<i>RFP Document Reference(s) (Section & Page Number(s))</i>	<i>Content of RFP requiring Clarification(s)</i>	<i>Points of clarification</i>

- d) OCAC shall not be responsible for ensuring receipt of the bidders' queries. Any requests for clarifications post the indicated date and time may not be entertained by OCAC.

4.3.2 Responses to Pre-Bid Queries and Issue of Corrigendum

- a) The Nodal Officer notified by the OCAC will endeavour to provide timely response to all queries. However, OCAC neither makes representation or warranty as to the completeness or accuracy of any response made in good faith, nor does OCAC undertake to answer all the queries that have been posed by the bidders.
- b) At any time prior to the last date for receipt of bids, OCAC may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the RFP Document by a corrigendum.
- c) The Corrigendum (if any) & clarifications to the queries from all bidders will be posted on www.ocac.in and www.odisha.gov.in.
- d) Any such corrigendum shall be deemed to be incorporated into this RFP.
- e) In order to provide prospective Bidders reasonable time for taking the corrigendum into account, OCAC may, at its discretion, extend the last date for the receipt of Proposals.

4.4 Key Requirements of the Bid

4.4.1 Right to Terminate the Process

- a) OCAC may terminate the RFP process at any time and without assigning any reason. OCAC makes no commitments, express or implied, that this process will result in a business transaction with anyone.
- b) This RFP does not constitute an offer by OCAC. The bidder's participation in this process may result OCAC selecting the bidder to engage towards execution of the contract.

4.4.2 RFP Document Fees

RFP document can be downloaded from www.ocac.in or www.odisha.gov.in. The bidders are required to submit the document Fee of **₹11,800/-** (including GST in shape of Bank Draft in favour of Odisha Computer Application Centre and payable at Bhubaneswar from any of the scheduled commercial banks along with the General Bid Proposal. Proposals received without or with inadequate RFP Document fees shall be rejected. The fee may also paid through electronic mode to the following financial

Bank A/c No. : 149311100000195
Payee Name : Odisha Computer Application Center
Bank Name & Branch : Union Bank of India, Acharya Vihar, Bhubaneswar
Account Type : Savings
IFSC : <u>UBIN0814938</u>

4.4.3 Earnest Money Deposit (EMD)

a) Bidders shall submit, along with their Bids, EMD of **₹8,00,000/-** in the shape of Bank Draft **OR** Bank Guarantee (in the format specified in this RFP) issued by any scheduled bank in favour of Odisha Computer Application Centre, payable at Bhubaneswar, and should be valid for 180 days from the due date of the tender / RFP. The EMD should be submitted in the General Bid.

b) The EMD may also paid through electronic mode to the following financial

Bank A/c No. : 149311100000195
Payee Name : Odisha Computer Application Center
Bank Name & Branch : Union Bank of India, Acharya Vihar, Bhubaneswar
Account Type : Savings
IFSC : <u>UBIN0814938</u>

c) EMD of all unsuccessful bidders would be refunded by OCAC within 60 days of the bidder being notified as being unsuccessful. The EMD, for the amount mentioned above, of successful bidder would be returned upon submission of Performance Bank Guarantee.

d) The EMD amount is interest free and will be refundable to the unsuccessful bidders without any accrued interest on it.

e) The bid / proposal submitted without EMD, mentioned above, will be summarily rejected.

f) The EMD may be forfeited:

i) If a bidder withdraws its bid during the period of bid validity.

ii) In case of a successful bidder, if the bidder fails to sign the contract in accordance with this RFP.

- iii) If found to have a record of poor performance such as having abandoned work, having been black-listed, having inordinately delayed completion and having faced Commercial failures etc.
- iv) The Bidder being found to have indulged in any suppression of facts, furnishing of fraudulent statement, misconduct, or other dishonest or other ethically improper activity, in relation to this RFP
- v) A Proposal contains deviations (except when provided in conformity with the RFP) conditional offers and partial offers.

4.4.4 Submission of Proposals

- a) The bidders should submit their responses as per the format given in this RFP in the following manner
 - i) Response to Pre-Qualification Criterion: (1 Original in hard copy+ 1 CD) in first envelope
 - ii) Technical Proposal - (1 Original in hard copy + 1 CD) in second envelope
 - iii) Commercial Proposal - (1 Original in hard copy) in third envelope
- b) The Response to Pre-Qualification criterion, Technical Proposal and Commercial Proposal (as mentioned in previous paragraph) should be covered in separate sealed envelopes superscripting "Pre-Qualification Proposal", "Technical Proposal" and "Commercial Proposal" respectively.
- c) Please Note that Prices should not be indicated in the Pre-Qualification Proposal or Technical Proposal but should only be indicated in the Commercial Proposal.
- d) The three envelopes containing copies of Pre-qualification Proposal, Technical Proposal and Commercial Proposal should be put in another single sealed envelope clearly marked "Response to RFP for Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha"- RFP Ref No.: OCAC-SEGP-SPD-0010-2021-21012 and the wordings "DO NOT OPEN BEFORE **28/04/2021 by 4 PM**."
- e) The outer envelope thus prepared should also indicate clearly the Name, Address, Telephone Number, Email Address and Fax Number of the bidder to enable the Bid to be returned unopened in case it is declared "Late".
- f) All the pages of the proposal must be sequentially numbered and must contain the list of contents with page numbers. Any deficiency in the documentation may result in the rejection of the Bid.
- g) The proposal/ bid shall be prepared in indelible ink. It shall contain no interlineations or overwriting, except as necessary to correct errors made by the bidder itself. Any such corrections must be initialed by the person (or persons) who sign(s) the proposals.

- h) All pages of the bid shall be initialed and stamped by the authorized person or persons who sign the bid.
- i) In case of any discrepancy observed by OCAC in the contents of the submitted original paper bid documents with respective copies, the information furnished on original paper bid document will prevail over others.
- j) Bidder must ensure that the information furnished by him in respective CDs is identical to that submitted by him in the original paper bid document. In case of any discrepancy observed by OCAC in the contents of the CDs and original paper bid documents, the information furnished on original paper bid document will prevail over the soft copy.

4.4.5 Contents of the technical bid

The bidder should give details of the project methodology to be followed, technology architecture, project plan, resource plan, application support, operation management plan with team structure in technical bid document.

4.5 Preparation and Submission of Proposal

4.5.1 Proposal Preparation Costs

The bidder shall be responsible for all costs incurred in connection with participation in the RFP process, including, but not limited to, costs incurred in conduct of informative and other diligence activities, participation in meetings/ discussions/ presentations, preparation of proposal, in providing any additional information required by OCAC to facilitate the evaluation process, and in negotiating a definitive contract or all such activities related to the bid process.

OCAC will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

4.5.2 Language

The Proposal should be filled by the Bidder in English language only. If any supporting documents submitted are in any language other than English, translation of the same in English language is to be duly attested by the Bidders. For purposes of interpretation of the Proposal, the English translation shall govern.

4.5.3 Venue & Deadline for Submission of Proposals

Proposals, in its complete form in all respects as specified in the RFP, must be submitted to OCAC at the address specified below:

Addressed To	General Manager (Admin) Odisha Computer Application Centre,
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	N-1/7-D, Acharya Vihar P.O.- RRL, Bhubaneswar – 751013, Odisha, India
Submission Schedule	28/04/2021 by 02:00 PM

4.5.4 Late Bids

- a) Bids received after the due date and the specified time (including the extended period if any) for any reason whatsoever, shall not be entertained and shall be returned unopened.
- b) The bids submitted by telex/ telegram/ fax/ e-mail etc. shall not be considered. No correspondence will be entertained on this matter.
- c) OCAC shall not be responsible for any postal delay or non-receipt/ non delivery of the documents. No further correspondence on the subject will be entertained. It is the responsibility of the bidder to ensure that its bid/proposal is received by OCAC within the prescribed timeline.
- d) OCAC reserves the right to modify and amend any of the above-stipulated condition / criterion depending upon project priorities vis-à-vis urgent commitments.

4.6 Evaluation Process

- a) OCAC will constitute a Proposal Evaluation Committee to evaluate the responses of the bidders
- b) The Proposal Evaluation Committee constituted by OCAC shall evaluate the responses to the RFP and all supporting documents / documentary evidence. Inability to submit requisite supporting documents / documentary evidence, may lead to rejection of the bid.
- c) The decision of the Proposal Evaluation Committee in the evaluation of responses to the RFP shall be final. No correspondence will be entertained outside the process of negotiation/ discussion with the Committee.
- d) The Proposal Evaluation Committee may ask for meetings with the Bidders to seek clarifications on their proposals, if required.
- e) The Proposal Evaluation Committee reserves the right to reject any or all proposals on the basis of any deviations.
- f) Each of the responses shall be evaluated as per the criteria and requirements specified in this RFP.

4.6.1 Tender Opening

The Proposals submitted up to **28/04/2021 by 02:00 PM** will be opened on **28/04/2021 at 04:00 PM** by Proposal Evaluation Committee, in presence of those Bidders or their representatives who may be authorized by the bidder to be present

at the time of opening. The representatives of the bidders should be advised to carry the identity card or a letter of authority from the tendering firms to be identified as bona-fide for attending the opening of the proposal.

4.6.2 Tender Validity

The offer submitted by the bidders should be valid for minimum period of 180 days from the date of submission of Tender. However, validity of the price bid of selected bidder will be for 180 days from the date of opening of Commercial bid.

4.6.3 Deviations

The Bidder may provide deviation to the contents of the RFP document in the format prescribed format in this RFP.

The Proposal evaluation committee would evaluate and classify them as “material deviation” or “non-material deviation”. In case of material deviation, the committee may decide to “monetize” the value of the deviations, which will be added to the price bid submitted by the Bidder OR declare the bid as non-responsive.

The Bidders would be informed in writing on the committee’s decision on the deviation, prior to the announcement of technical scores. The Bidders would not be allowed to withdraw the deviations at this stage; the Bidder would not be allowed that to withdraw the deviations submitted without the prior consent of the Purchaser.

OCAC have the right to accept or reject any deviation(s) furnished by the bidder. The decision of OCAC in such case is final.

4.6.4 Tender Evaluation

- a) Initial Bid scrutiny will be held and incomplete details as given below will be treated as nonresponsive if Proposals:
 - i) are not submitted as specified in the RFP document
 - ii) received without the Letter of Authorization (Power of Attorney)
 - iii) are found with suppression of details
 - iv) with incomplete information, subjective, conditional offers and partial offers submitted
 - v) submitted without the documents requested in the checklist
 - vi) with lesser validity period

- b) All responsive Bids will be considered for further processing as below:

OCAC will prepare a list of responsive bidders, who comply with all the Terms and Conditions of the Tender. All eligible bids will be considered for further evaluation by a Committee according to the Evaluation process defined in this RFP document. The decision of the Committee will be final in this regard.

4.6.5 Intellectual Property Rights (IPR)

The source code of entire applications along with necessary documentations developed under this RFP / Contract should be shared with OCAC after Go-live of the application.

5 Criteria for Evaluation

Tenders for this contract will be assessed in accordance with **QCBS - Quality & Cost Based Selection (70:30)** i.e. the bidder who will secure highest Composite Score will be awarded the work. All bids will primarily be evaluated on the basis of Prequalification Criteria. The Proposal Evaluation Committee will carry out a detailed evaluation of the proposals, only those who qualify all Prequalification criteria, in order to determine whether the technical aspects are in accordance with the requirements set forth in the RFP Documents. In order to reach such a determination, the Proposal Evaluation Committee will examine and compare the technical aspect of the proposals on the basis of information provided by the bidder, taking into account the following factors:

- a) Overall completeness and compliance with the requirement
- b) Proposed solution, work-plan and methodology to demonstrate that the bidder will achieve the performance standards within the time frame described in RFP documents
- c) Any other relevant factors, if any, listed in RFP document or the OCAC deems necessary or prudent to take into consideration

In order to facilitate the technical proposal evaluation, the technical criteria laid down along with the assigned weights have been presented in subsequent section. The marking scheme presented here is an indication of the relative importance of the evaluation criteria. Bidders securing a minimum of eligible marks in the technical evaluation will only be considered for further financial bid evaluation. Bids of Tenders which don't secure the minimum specified technical score will be considered technically non-responsive and hence debarred from being considered for financial evaluation.

5.1 Prequalification Criteria (General Bid)

Keeping in view the complexity & volume of the work involved, following criteria are prescribed as pre-qualification criteria for the Bidder interested in undertaking the project. Consortium is not allowed. Technical Bids of only the successful pre-qualifiers will be opened for evaluation.

Sl#	Criteria	Documents Required
a)	The bidder must be registered in India under the Companies Act, 1956, for last 10 years, as on date of submission of bid.	- Certificate of Incorporation - EPF Registration Certificate - GST
b)	The bidder must have an annual average related turnover of Rs. 20 Crores from Software Development only (excluding COTS) and positive net worth in the last three financial years i.e. FY 2017-18, 2018-19 & 2019-20.	Extracts from the audited Balance sheet and Profit & Loss; OR Certificate from the statutory auditor
c)	The bidder must possess a valid CMMi Institute (erstwhile SEI) recognized and published CMMi DEV/5 certificate as on date of submission of this RFP.	Copy of Certificate
d)	The bidder must have 50 technical resources having minimum educational qualification B.E/ B.Tech/ MCA/MBA with at least 2 years of experience in its payroll.	Certificate from Head-HR
e)	The bidder must have successfully completed at least following numbers of e-Governance project for any Government Department / Government Agency / PSU in India during last 5 years as on 31/03/2020 and value specified below. - 1 project not less than ₹3.6 Cr. OR - 2 projects not less than ₹2.4 Cr. each OR - 3 projects not less than ₹1.6 Cr. each	Copy of Work Order + project completion certificate
g)	Experience in implementing Mobile App project for any Government Department/ Government Agency/PSU in India during last 5 years	Copy of Work Order + Project completion certificate
i)	The bidder should not be blacklisted by any Government Department / Government Agency / PSU in India as on date of submission of bid	Self-declaration duly signed by authorized bid signatory
j)	Tender Fee of ₹11,800/- and EMD of ₹8,00,000/- in favor of OCAC payable at Bhubaneswar	Tender Fee in shape of Bank Draft & EMD in shape of Bank Draft or Bank Guarantee

SI#	Criteria	Documents Required
		(Tender Fee and EMD may also be submitted through NEFT/RTGS)

5.2 Technical Evaluation Criteria

The Proposal evaluation committee will evaluate the proposals submitted by the bidders with a detailed scrutiny. During evaluation of proposals, OCAC, may, at its discretion, ask the bidders for clarification of their Technical Proposals. Only those proposals meeting the above qualification criteria will be evaluated as per the criteria mentioned below:

SI#	Criteria & basis of evaluation	Max. Mark	Documents attached
1.	The bidder must have an annual average turnover from IT/ICT only (excluding hardware & COTS) in the last three financial years i.e. FY 2017-18, 2018-19 & 2019-20. - ≥ 20 Crores & < 30 Crores: 2 Marks - ≥ 30 Crores & < 40 Crores: 3 Marks - ≥ 40 Crores & < 50 Crores: 4 Marks - ≥ 50 Crores: 5 Marks	5	Copy of statutory auditor certificate
2.	The bidder should have development centre in Odisha with minimum 50 IT resources engagement as on 31st March 2020.	5	Lease agreement and EPF challan
3.	The bidder should have experienced resources in Min.IO/ Hasura/ ELK Stack/ PgBarman and Flask/React and Material UI/ Laravel Framework/ Open Data Kit/ Superset/ Airflow/ WhatsApp Chatbot/Angular/ FusionAuth Each resource carries 0.5 mark and maximum two resources per technology	10	HR Declaration with employee name and the name of the project where technology has been used
4.	The bidder should have experience in software application development & maintenance services for any Government Department / Government Agency / PSU in India with minimum value of at least Rs. 4 crore (excluding hardware) within last 5 years as on 31/03/2020.	15	Work Order + Go-Live Certificate

SI#	Criteria & basis of evaluation	Max. Mark	Documents attached
	<i>(5 marks will be awarded for each project)</i>		
5.	The bidder should have experience in implementation of projects including Design, Development & Implementation of software in the field of agriculture and allied sector (Agriculture, Horticulture, Fisheries and Animal Husbandry) for any Government Department / Government Agencies in India. (Value of each project should be at least ₹20 lakhs) <i>(5 marks will be awarded for each project)</i>	20	Work Order + Go-Live certificate
6.	The bidder should have experience in implementation of projects including design, development & implementation of software covering beneficiary registration, DBT and Data unification (all components mandatory) for any Government institution/department in India	15	Copy of work order
7.	Technical Presentation - Approach & Methodology - Risk & Mitigation - Work plan - Exit Mechanism	10	
8.	Prototype Demonstration - Farmer registration - Beneficiary approval - Data Normalization/Deduplication - DBT Transfer	20	

Formula

- All the bidders who secure a Technical Score of **70%** or more will be declared as technically qualified
- The bidder with highest technical bid (H1) will be awarded 100% score
- Technical scores of other than H1 bidders will be evaluated using the following formula
- Technical Score of a Bidder =

$$\{(\text{Technical Bid score of the Bidder} / \text{Technical Bid Score of H1}) \times 70\} \%$$

(Adjusted up to two decimal places)

- e) The Commercial bids of only the technically qualified Bidders will be opened for further processing.

5.3 Financial bid Evaluation Criteria

- a) The Financial Bids of the technically qualified bidders (those have secured equal or more than 70% of mark in technical evaluation) will be opened on the prescribed date in the presence of bidders' representatives
- b) The bid with lowest Financial (L1) i.e. "lowest price quoted" will be awarded 100% Score
- c) Financial Scores for other than L1 Bidders will be evaluated using the following formula

Financial Score of a Bidder=

$$\frac{\{\text{Financial Bid of L1} / \text{Financial Bid of the Bidder}\} \times 30}{100} \%$$

(Adjusted up to two decimal Places)

- d) Only fixed price financial bids indicating total price for all the deliverables and services specified in this bid document will be considered.
- e) The bid price will be exclusive of all taxes and levies and shall be in Indian Rupees.
- f) Any conditional bid would be rejected
- g) Though cost quoted in Software Enhancement Service and Support resources will be added in total cost and will be considered during financial bid evaluation, payment will be made based on total man-month consumed/number of resources engaged as per actual. These two items will be considered as price discovery items.
- h) Errors & Rectification: Arithmetical errors will be rectified on the following basis: "If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If there is a discrepancy between words and figures, the amount in words will prevail".

5.4 Combined evaluation of Technical and Financial Bids

- a) The technical and financial scores secured by each bidder will be added to compute a composite Bid Score.
- b) The Bidder securing Highest Composite Bid Score will be adjudicated with the Best Value Bidder for award of the project.
- c) In the event the bid composite bid scores are 'tied', the bidder securing the highest technical score will be adjudicated as the Best Value Bidder for award of the project.

6 Appointment of System Integrator or Service Provider

6.1 Award Criteria

OCAC will award the Contract to the successful bidder whose proposal has been determined to be substantially responsive and has been determined as the most responsive bids as per the process outlined above.

6.2 Right to Accept Any Proposal & Reject Any / All Proposal(s)

OCAC reserves the right to accept or reject any proposal, and to annul the tendering process / Public procurement process and reject all proposals at any time prior to award of contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders of the grounds for such action.

6.3 Purchaser's Procurement Rights

Without incurring any liability, whatsoever to the affected bidder or bidders, the Purchaser reserves the right to:

- a) Amend, modify, or cancel this tender and to reject any or all proposals without assigning any reason.
- b) Change any of the scheduled dates stated in this tender.
- c) Reject proposals that fail to meet the tender requirements.
- d) Exclude any of the module(s)
- e) Remove any of the items at the time of placement of order.
- f) Increase or decrease no. of resources supplied under this project.
- g) Should the Purchaser be unsuccessful in negotiating a contract with the selected bidder, the Purchaser will begin contract negotiations with the next best value bidder in order to serve the best interest.
- h) Make typographical correction or correct computational errors to proposals
- i) Request bidders to clarify their proposal.

6.4 Notification of Award

Prior to the expiry of the validity period, OCAC will notify the successful bidder in writing or by fax or email (in shape of issuing Letter of Intent), that its proposal has been accepted. In case the tendering process / public procurement process has not been completed within the stipulated period, OCAC may like to request the bidders to extend the validity period of the bid.

The notification of award will constitute the formation of the contract. Upon the successful bidder's furnishing of Performance Bank Guarantee, OCAC will notify each unsuccessful bidder and return their EMD.

6.5 Contract Finalization and Award

OCAC shall reserve the right to negotiate with the bidder(s) whose proposal has been ranked best value bid on the basis of Technical and Commercial Evaluation to the proposed Project. On this basis the contract agreement would be finalized for award & signing.

6.6 Signing of Contract

After OCAC notifies the successful bidder that its proposal has been accepted, OCAC shall issue purchase order and enter into a contract with the successful bidder taking into account the relevant clauses of RFP, pre-bid clarifications, Corrigenda, the proposal of the bidder in addition to other agreed clauses. The contract stricture will be as follows:

- a) Master Service Agreement (MSA) would be signed for entire project period & value
- b) Work Order will be issued component wise on successful completion of services / obligation of each order.

6.7 Performance Guarantee

- a) OCAC will require the selected bidder to provide a Performance Bank Guarantee (PBG), within 15 days from the date of notification of award.
- b) PBG would be 10% of the work order value (excluding all taxes) and should be valid for a period of 45 months.
- c) The Performance Guarantee shall be kept valid till completion of the particular work order period.
- d) The selected bidder shall be responsible for extending the validity date and claim period of the Performance Guarantee as and when it is due on account of non-completion of the service during the work order period.
- e) In case the selected bidder fails to submit performance guarantee within the time stipulated, OCAC at its discretion may cancel the order placed on the selected bidder and/or forfeit the EMD after giving prior written notice to rectify the same.
- f) OCAC shall invoke the performance guarantee in case the selected bidder fails to discharge their contractual obligations during the period or OCAC incurs any damages due to bidder's negligence in carrying out the project implementation as per the agreed terms & conditions.

6.8 Failure to Agree with the Terms and Conditions of the RFP

Failure of the successful bidder to agree with the Terms & Conditions of the RFP and the Proposal submitted by the successful bidder, despite the deviations submitted by the Bidder are adequately considered and mutually agreed, shall constitute sufficient grounds for the annulment of the award, in which event OCAC may award the contract to the next best value bidder or call for new proposals from the interested bidders. In such a case, the OCAC shall invoke the PBG or the EMD as the case may be, of the most responsive bidder.

7 Scope of Work

As part of the scope of work the System Integrator (SI) will be responsible for carrying out the following tasks.

- Take over the source code and technical documents of the existing applications / modules mention under the Clause No. 3.3 of this document.
- Design, Development (including enhancement) & Implementation of Krushak Odisha Portal as per the modules/sub-modules mentioned in the RFP.
- Post Implementation Support such as Application Maintenance, Application Support, System Support, Operation Support, etc of existing applications and the newly developed Krushak Odisha Portal.
- SSL Certification & Cyber Security Audit of the applications
- Periodic Cyber Security Audit as per OSDC Policy
- Deployment and configuration
- Data Migration (if required)
- Training to end users

7.1 Overview

The scope of work for the SI includes Requirements Study, Solution Design, Solution Development, Testing, Implementation and Maintenance of the solution.

The SI shall be entirely responsible for proposing the solution which satisfies all features, functions and performance as described in the document. The SI shall be responsible for design, development, and implementation of the proposed solution. Further, the SI will be required to undertake a study of best practices and benchmark the designed solution against market best practices.

7.2 Requirement Study

The SI shall perform the detailed assessment of the solution requirements as mentioned in this section. Based on the understanding and its own individual assessment, SI shall develop & finalize the Functional Requirements Specifications (FRS) and the System Requirement Specifications (SRS) in consultation with DA&FE. While doing so, SI at least is expected to do following

- The SI shall liaise with DA&FE and other stakeholder Departments
- The SI shall bring in domain experts during the study
- The SI shall translate all the requirements mentioned in the document into System Requirements

- The SI shall follow standardized template for requirements capturing
- The SI must maintain traceability matrix from SRS stage for the entire implementation

7.3 Design

The SI shall design the solution architecture and specifications for meeting the requirements mentioned as part of this document. The SI shall be entirely responsible for the design and architecture of the system implemented to satisfy all requirements as described in this document including sizing of the required hardware.

7.4 Development

The SI shall identify, design and develop components / functionalities that are required to address the DA&FE requirements mentioned in this RFP. The SI shall supply the following documents along with the developed components:

- Business process guides
- Data model descriptions
- Sample reports
- Frequently asked question (FAQ) guides
- Any other documentation required for usage of implemented solution

7.5 Integration

The SI shall enable integration with different applications (as specified in the Scope of work in this RFP). The system should support both push and pull of data from systems proposed to be integrated. The SI will have to co-ordinate with the designated nodal agencies for integration and DA&FE will facilitate this process. In addition, the solution should be designed in such a way that any future integration does not require any changes to the system.

- a) The integrated solution design should include integration framework for integration of both internal and external applications and services
- b) The integration framework should use SOA enablement for the underlying applications
- c) The SI is expected to conduct Due Diligence of the existing applications of DA&FE and submit their report to DA&FE before integrating the application to the Portal.

7.6 Testing

- a) The SI shall provide the testing strategy including Traceability Matrix, Test Cases and Conduct Testing of various components of the software developed / customized (e.g. including Conference Room Pilots, Unit Tests, System Integration

Tests, Security Testing and final User Acceptance Test).

- b) Details of the testing strategy and approach should be provided in the response.
- c) The SI is responsible to identify and inform the DA&FE regarding testing requirements and impacts. The SI shall work in a manner to satisfy all the testing requirements and adhere to the testing strategy outlined.
- d) SI must ensure deployment of necessary resources, tools, staging servers and related logistics during the testing phases. The SI shall perform the testing of the solution based on the approved test plan, document the results and shall fix the bugs found during the testing.
- e) It is the ultimate responsibility of SI to ensure that the end product delivered by the SI meets all the requirements specified in the document.
- f) The SI shall take remedial action based on outcome of the tests.
- g) The SI shall provide complete support to DA&FE team or their representatives at the time of user acceptance testing.
- h) It would be SI's responsibility to ensure that all issues raised during UAT are closed and signed-off from respective authority.
- i) The SI shall ensure that each module & features developed under this RFP is tested as per the latest version of the **IEEE 730** (Software Quality Assurance Processes) standards and shall comply with **GIGW** guideline.

7.7 Third Party Audit

- a) The SI needs to ensure that the solution is in compliance with the CERT-In Security Policy and Guidelines.
- b) The SI shall appoint CERT-In empaneled auditor who shall be responsible for performing the security audit of the solution.
- c) The cost of audit & rectification of non-compliances shall be borne by the SI.
- d) Carryout security audit before go-live of application and obtain the safe-to-host certification
- e) Carryout the periodic audit & certification as and when it is required as per the OSDC policy.
- f) The audit shall be performed at least on the below mentioned aspects.
 - Functional Testing
 - Accessibility Testing
 - Application Security Audit
 - Vulnerability Testing
- g) The illustrative deliverables for this activity are mentioned below.

<i>Activity</i>	<i>Responsibility</i>
First Round Audit Report	Auditor

Rectified solution and submission of next round of audit	SI
Next Round Audit Report	Auditor
If required, rectified solution & submission of next round of audit	SI
Compliance Confirmation	Auditor

7.8 SSL Certification

- a) Secure connection between Client and Server through Secure protocol HTTPS
- b) Encryption of Data during transmission from server to browser and vice versa
- c) Encryption key assigned to it by Certification Authority (CA) in form of a Certificate.
- d) SSL Security in the application server

7.9 Handholding Support

- a) The SI shall also provide hand-holding support to DA&FE personnel for a period of three months from the date of go-Live.
- b) These personnel must be clearly identified exclusively for this role.
- c) The SI shall provide at least two people for hand-holding support at DA&FE.

7.10 Technical Support Unit

- a) The Technical Support Unit(TSU) shall work onsite at Krishi Bhawan under the supervision of Director of Agriculture and Food Production
- b) Co-ordinate with the existing SI and department for project implementation
- c) Address the application related functional queries raised by officials of the Department
- d) Co-ordinate with software team for all types of issue management / redressal in relation to the application software, MIS reports, etc.
- e) Providing assistance and technical support to end users for efficient use of the system
- f) Provide training to users
- g) The team shall furnish periodic report on number of issues received vis-a-vis resolved related to software.
- h) Manpower to be deployed by SI for TSU will comply with minimum qualification as mentioned in following table.

Sl#	Skill	Number of Resources	Minimum Educational Qualification and Experience
a)	Project Manager	1	<ol style="list-style-type: none"> a) BE/B.Tech/MBA b) Minimum 10 years' experience of handling similar large projects in IT Sector. c) Out of these 7 years in the field of software development and implementation. Out of these 7 years, 2 years' experience in

SI#	Skill	Number of Resources	Minimum Educational Qualification and Experience
			agriculture or related domain for any government department in India. d) Must have proficiency in Odia language
b)	Business Analyst	1	a) BE/ B.TECH/MCA b) Minimum 5 years' experience in the field of IT System Analyst and Design. c) Must have proficiency in Odia language
c)	MIS Expert-cum-Trainer	2	a) B.TECH / MCA /MBA b) Experience – 4 years on MIS and analysis c) Must have proficiency in Odia language

(The bidder have to furnish CV of the persons to be deployed in TSU)

7.11 Training

- a) The SI shall provide centralized training to the users identified by DA&FE on a train to trainer concept.
- b) It would be the SI's responsibility to set up the infrastructure helpful in providing successful training.
- c) Infrastructure like computer, network, LCD shall be provided by SI.
- d) The schedule / training calendar and the training material for imparting training shall be developed by the SI in consultation with DA&FE. The SI shall submit a hardcopy of the training material to DA&FE before every training session.
- e) In case of modifications either in the training plans or substitutions of the regular trainers, proper correspondence with DA&FE shall be made.
- f) It is also proposed that the training contents / User Manuals be made available to Users in downloadable (PDF) format so that the Users may refer / download it for their own personal reference as and when needed.
- g) It is required that the downloadable training content should have proper indexing and internal references, mapped with key words, in order to allow any User to search and reach the desired content with the help of those key words

7.12 Deployment & Configuration

- a) SI shall deploy the new application/portal over the hardware infrastructure provided by the OSDC.
- b) The SI shall be responsible for the end-to-end management of hosting and deployment of the application.
- c) The SI will be responsible for configuration, installation and hosting of the application in High Availability mode at OSDC.
- d) The SI shall ensure deployment of the application as per the DR policy of OSDC

7.13 UAT & Go-Live

After completion of the development work for application, DA&FE will conduct the technical reviews of development work performed by the SI as UAT. The SI shall be responsible for:

- a) Preparation and submission of test strategy, test cases and test results
- b) Demonstration of module-wise functionalities/ features to the DA&FE in staging environment
- c) Support DA&FE and its designated authority for conducting the testing and provide access of the systems as required by them.
- d) Rectification in the new application for any issues/ bugs/ and improvements/ Enhancements / up-gradations suggested Departments (if any) during the UAT without any additional cost.
- e) After incorporation of the suggestions made during the UAT phase the selected bidder has to host the application in the production environment. After achieving certain transaction, UAT and go live shall deemed to be declared.

7.14 Infrastructure Support

- a) The solution is proposed to be hosted in OSDC or any government cloud which is identified thereafter.
- b) The SI shall carry out the installation, maintenance & support of all the supplied software(s) on the procured hardware for development, quality and production environment.

This track is related to the assessment of infrastructure requirement which will include server, storage, security devices and related system software. Activities for this track are as follows:

7.14.1 Study & Feasibility Assessment

- a) The SI shall perform the detailed assessment of envisaged solution requirements and assess the infrastructure requirements including Servers, Storage and Security, etc for operationalization of the solution.
- b) The OSDC already has certain infrastructure present which can be utilized for the project.
- c) The SI will access existing SDC infrastructure and prepare a Gap analysis report for hardware / software which needs to be procured as well provide detailed specification of hardware to be procured.

7.14.2 Infrastructure Installation

- a) The SI will assess infrastructure present at State Data Centre / Government cloud and provide detailed requirement of infrastructure (hardware/software) to be

hosted at the hosting location. The SDC infrastructure (both software and hardware) should be leveraged so as to avoid any additional cost to the project.

- b) The SI will assist DA&FE in overseeing the working of the Infrastructure vendor.
- c) The SI shall be responsible for operationalizing the end-to-end solution for DA&FE.
- d) The SI shall deploy the solution at the Data Centre and Disaster Recovery of DA&FE as per the procurement cycle and shall ensure that the application software services are made accessible to the DA&FE employees.
- e) The location of Data Centre would be in Odisha and the location of DR would be as per OSDC policy.
- f) The SI shall ensure that the production operations of the application stack is tested from DR on a periodic basis, once the DR is being made operational.

7.14.3 Implementing System Software & Tools

- a) The SI shall design, implement/customize the solution and shall develop any additional tools required to monitor the performance indicators.
- b) The observations of the audit shall be addressed and same shall be tested and verified again before the go-live.

7.14.4 Business Continuity Planning

- a) DC and DR integration for all modules and components should be such that it is possible to operate any module from DR in case of any disruption at DC site.
- b) The SI may suggest a better methodology for optimal usage and cost benefits.
- c) SI will provide a BCP and DR Plan as part of the Business continuity plan

7.14.5 Documentation

- a) The SI shall undertake preparation of documents including that of infrastructure solution design and architecture, configuration files of the infrastructures, user manuals, Standard Operating Procedures, Information Security Management procedures as per acceptable standards.
- b) The SI shall take sign-off on the deliverables (documents), including design documents, Standard Operating Procedures, Security Policy and Procedures from DA&FE team and shall make necessary changes before submitting the final version of the documents.

7.15 Operation & Maintenance

7.15.1 Application Support

Application support includes, but not limited to, production monitoring, troubleshooting and addressing the functionality, availability and performance issues, implementing the system change requests etc. The SI shall keep the application

software in good working order; perform changes and upgrades to applications as requested by the DA&FE team. Key activities to be performed by SI in the application support phase are as follows:

- a) Enhancement of MIS report as per the requirement
- b) Database query report management on emergency
- c) Optimization of the already developed reports
- d) Tuning of transactions
- e) User & access management
- f) The SI shall ensure compliance to SLAs as indicated in this RFP and any upgrades / major changes to the software shall be accordingly planned by SI ensuring the SLA requirements are met at no additional cost to the DA&FE.

7.15.2 Software Maintenance

- a) The SI shall provide unlimited support through Telephone / Email / Video Conferencing / Installation Visit as required as per the service window defined in the RFP
- b) The SI shall address all the errors / bugs / gaps in the functionality in the solution implemented by the SI (vis-à-vis the FRS and SRS signed off) at no additional cost during the support phase.
- c) All patches and upgrades from OEMs (if any) shall be implemented by the SI ensuring customization done in the solution as per the DA&FE requirements are applied. Technical upgrade of the installation to the new version, as and when required, shall be done by the SI.
- d) Any changes/upgrades to the software performed during the support phase shall subject to the comprehensive and integrated testing by the SI to ensure that the changes implemented in the system meets the specified requirements and doesn't impact any other function of the system.
- e) Tuning of products/ applications, databases, third party software's and any other components provided as part of the solution software including reconfiguration of the system in the event of any hardware/ network failures/ if any hardware/ network components have to be replaced, shall be the responsibility of the SI.
- f) Issue log for the errors and bugs identified in the solution and any change done in the solution shall be maintained by the SI and periodically submitted to the DA&FE.

7.15.3 Change & Version Control

- a) All planned changes to application systems and hardware shall be coordinated within established Change control processes to ensure that:
 - Appropriate communication on change required has taken place

- Proper approvals have been received
 - Schedules have been adjusted to minimize impact on the production environment
- b) The SI shall define the Software Change Management and Version control process. For any changes to the solution, SI has to prepare detailed documentation including proposed changes, impact to the system in terms of functional outcomes/additional features added to the system etc.
- c) Maintain configuration information: SI shall maintain version control and configuration information for application software and any system documentation.
- d) Maintain System documentation: SI shall maintain and update documentation of the software system ensuring that:
- Source code is documented
 - Functional specifications are documented
 - Application documentation is updated to reflect on-going maintenance and enhancements including FRS & SRS, in accordance with the defined standards
 - User manuals & training manuals are updated to reflect on-going changes / enhancements
 - Standard practices are adopted and followed in respect of version control and management.

7.15.4 System/Infra Support

- a) Provide integration and user support on all supported servers, data storage systems, etc.
- b) Management & monitoring of server infrastructure in cloud
- c) Installation and re-installation of the database
- d) Application Load balancing and Database Clustering
- e) Network configuration
- f) Perform Database, event & system log analysis
- g) Database log management
- h) Database & file back-up as per the policy of OSDC
- i) Patch update
- j) System Administration and Trouble Shooting
- k) Application & System Software Administration (including performance tuning)
- l) Application and database level performance tuning.
- m) Database Administration, optimization and Trouble Shooting
- n) Co-ordination with OSDC Network Administration Team

7.16 Expected Deployment of Personnel

The bidders have to furnish resumes of key personnel both to be engaged during implementation, operation & maintenance phase. Bidder is required to submit a detailed work plan showcasing involvement of key resources in their technical proposal. The bidder has to engage the same personnel for the period of at least six month from date or commencement of project. The minimum criteria for key resources are as follows.

Sl#	Competency Area	Minimum educational qualification, Skill and Experience
1	Project Manager	<ul style="list-style-type: none"> – BE/ B.Tech/ ME/ M.Tech/ MCA/ M.Sc. (IT) from a recognized university – <i>S/he must have minimum 10 Years' experience in IT industry in project management and implementation with minimum 6 years in project management.</i> – <i>Experience in implementing complete projects using SDLC based Project planning, scheduling, monitoring & tracking.</i> – <i>Have more than 8 years of experience in implementing e-governance projects along with proficiency in local language will be an added advantage.</i>
2	Application & Database Architecture / Design Expert	<ul style="list-style-type: none"> – BE/ B.Tech/ M.Tech/ MSc (IT)/MCA from a recognized university – <i>S/he must be having minimum 8 years of relevant experience in database management role including at least 5 years of relevant experience in the field as mentioned in the left column.</i> – <i>Implementation experience should be in Web Services on multiple platforms, and in Web programming and DB Migration, Reorganization, Backup, & Recovery.</i> – <i>Resources having any technical certification in relevant field will be preferred.</i> – <i>Persons exposure to e-Governance system is preferred.</i>
3	Project Data Lead	<ul style="list-style-type: none"> – BE/ B.Tech/ M.Tech/ MSc (IT)/MCA from a recognized university – <i>S/he must be having minimum of 5 years' experience in the field of project data</i>

Sl#	Competency Area	Minimum educational qualification, Skill and Experience
		<p><i>management at least 3 years of relevant experience in the field data migration and analysis</i></p> <ul style="list-style-type: none"> – <i>Persons exposure to e-Governance system is preferred.</i> – <i>He/ She should have excellent communication skills.</i>
4	Business Analyst	<ul style="list-style-type: none"> – <i>B.E/ B.Tech/ MCA from a recognized university</i> – <i>S/he must be having minimum 5 years of relevant experience in Business Analyst role including at least 3 years of relevant experience in the field as mentioned in the left column.</i> – <i>Resources having any technical certification in addition to the educational qualification will be preferred.</i> – <i>Experience of the personnel in handling e-Governance system is preferred.</i> – <i>Personnel having proficiency in local language will have added advantage with good communication skill.</i>
5	System Administrator/ Database Administrator	<ul style="list-style-type: none"> – <i>B.E/ B.Tech/ MCA from a recognized university</i> – <i>S/he must be having minimum 8 years of relevant experience in System Administrator/ Database Administrator role including at least 5 years of relevant experience in the field as mentioned in the left column.</i> – <i>Resources having any technical certification in addition to the educational qualification will be preferred.</i> – <i>Personnel having proficiency in local language will have added advantage with good communication skill.</i> – <i>Experience of the personnel in handling e-Governance system is preferred.</i>
6	Senior Application Developer	<ul style="list-style-type: none"> – <i>BE/ B.Tech/ M.Tech/ M.Sc (IT)/MCA from a recognized university</i> – <i>S/he must be having minimum 8 years' experience in Application Programming Technologies Experience in developing web services and apps.</i>

Sl#	Competency Area	Minimum educational qualification, Skill and Experience
		<ul style="list-style-type: none"> – Experience of developing and designing applications using SOA architecture. – Resources having any technical certification in addition to the educational qualification will be preferred. – Experience of the personnel in handling e-Governance system is preferred.
7	Application Developer	<ul style="list-style-type: none"> – BE (IT)/BTech/MCA from a recognized university – S/he must be having minimum of 4 years' experience in Application Programming Technologies. – Experience in development of web services and should be able to write test plan and cases and test scripts, perform tests and generate test reports. – Resources having any technical certification in addition to the educational qualification will be preferred. – Experience of the personnel in handling e-Governance system is preferred.
8	Data Visualization Manager	<ul style="list-style-type: none"> – BCA/ B.Tech/MCA/M.Tech from a recognized university – S/he must be having minimum 2 years of experience with data visualization tools like Tableau, Power BI, Qlik, D3, Ggplot, Pandas, Plotly, or similar. He/ She should have excellent communication skills

7.17 Escalation Process and Matrix

During the process of Handholding support and Operation support, The SI will adhere to the escalation process. The escalation process and matrix will be finalized during approval of project inception report and communication strategy.

8 Functional & Technical Requirement

8.1 Objective

a) The objective of the current assignment is the development and maintenance of Krushak Odisha Platform including the following broad components –

- Krushak Odisha Database
- Krushak Odisha Portal
- Agri-extension App
- Decision Support System

These three platforms have been integrated and will work together.

b) Krushak Odisha Platform will have a configurable, modular and a scalable technology architecture to ensure sustainability and re-usability over the long term.

c) A predefined list of core technical features, an exhaustive list of detailed use-cases, high-level technological architecture and development milestones which the platform must meet have been detailed below.

8.2 Core Principles

The following design principles have and will guide the creation of the Krushak Odisha Platform.

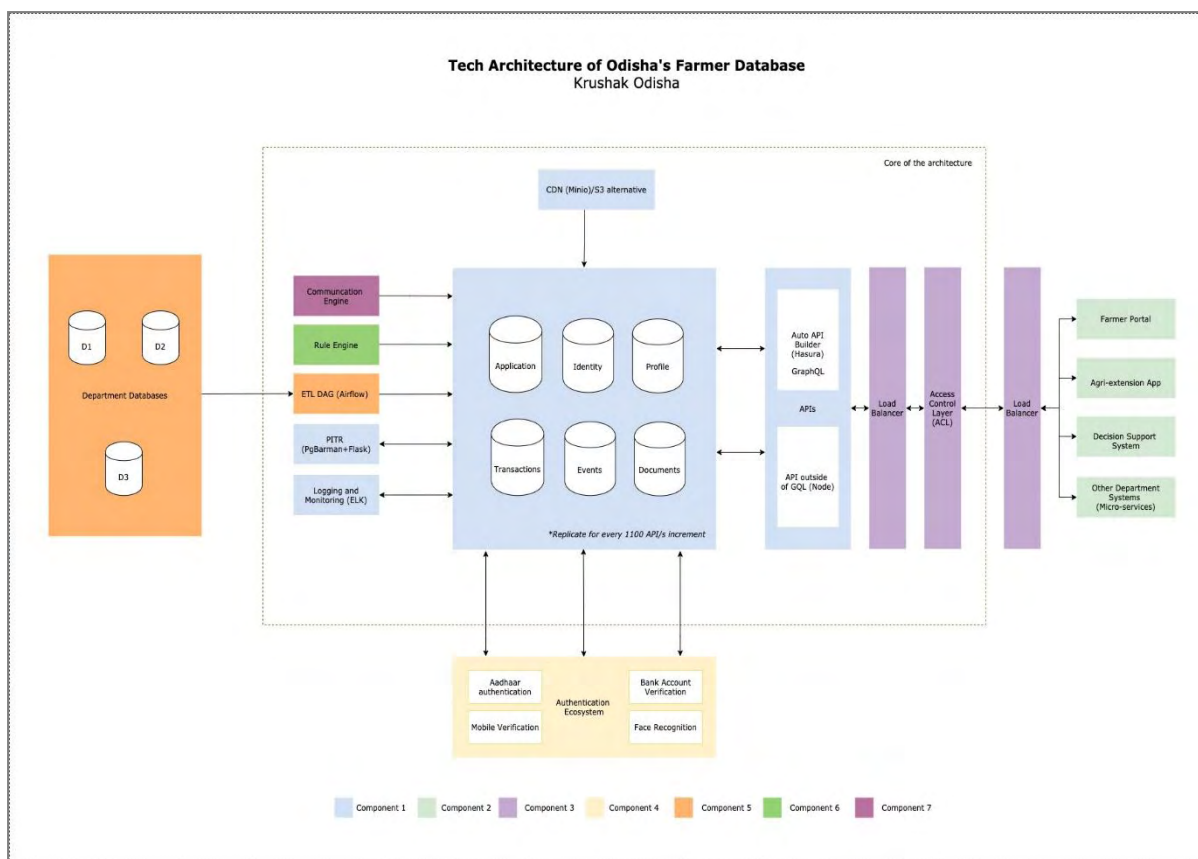
a) Creation of modular, reusable, scalable, extensible & deployable technology products using open-source tools

- **Modular** - Can be configured by wiring together multiple open source tools
- **Reusable** - Can be reused with minimal effort for similar use cases
- **Scalable** - Can work well as number of end users begin to rapidly scale
- **Extensible** - Feature additions can be made on the products with ease

b) To leverage and integrate with existing government systems

8.3 Technology Specifications & Use Cases

The following diagram captures the tech architecture conceptualized and finalized for the Krushak Odisha Platform -



The technology architecture is a micro-services architecture and consists of different configurable and modular technology elements that are wired together to power the Krushak Odisha Platform. The description of each of these elements is presented below.

The selected vendor is required to at every point in time maintain the architecture as shown above. If the selected vendor deems any change in the afore-mentioned architecture necessary, selected vendor will have to present the logic for such change before the steering committee, and only after their due approval, can such change be made.

8.4 Component – 1 [Krushak Odisha Database]

The Krushak Odisha Database is the core of the entire platform, and has been built on open-source software - **Postgres DB**.

The Krushak Odisha database will be a single source of truth for any information pertaining to the use case flows for the respective entities. As shown in the diagram, it comprises 6 different databases, each of them explained below -

#	Database	Description
a)	Application	<ul style="list-style-type: none"> Stores all the unverified applications, as included from

#	Database	Description
		<p>existing state databases or received through the Krushak Odisha Portal.</p> <ul style="list-style-type: none"> Once an application is verified, it is thereafter distributed amongst the four below mentioned databases (2 to 5)
b)	Identity	<ul style="list-style-type: none"> Stores basic information (unique keys) of all the verified farmers, to enable searchability of farmers from the Krushak Odisha Database
c)	Profile	<ul style="list-style-type: none"> Stores detailed information of all the verified farmers
d)	Documents	<ul style="list-style-type: none"> Stores documents (url) as uploaded by the farmer, generated by the system or fetched through other systems, of all the verified farmers The actual documents (images/PDF, etc) are linked to and stored in an open-source Content Delivery Network (CDN). Software component used - MinIO (https://min.io/)
e)	Events	<ul style="list-style-type: none"> Logs events/actions that take place on the Krushak Odisha Database and Portal, for all the verified farmers
f)	Transactions	<ul style="list-style-type: none"> Stores basic transactional information, to be fetched through integrations with existing farmer systems of the state, for all the verified farmers

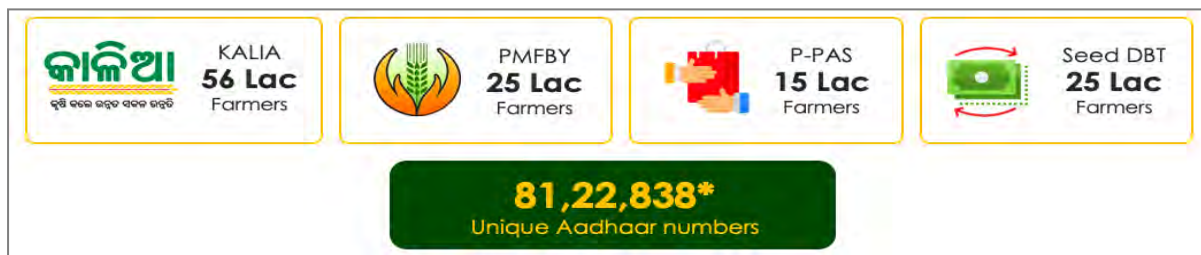
Each database comprises required tables and masters. The system has been designed to be horizontally scalable i.e. for every 1100 API calls/second, the central database layer can be replicated.

8.4.1 Current Situation

Presently several farmer lists exist under various systems such as Farmer ID, KALIA, PMFBY, P-PAS, M-PAS, PMKSY, etc. Four farmer lists* have been shortlisted namely *KALIA, PMFBY, FS&CW and Farmer ID* because of the following reasons –

- High degree of Aadhaar seeding
- Most validated farmer lists
- Cover majority farmers of the state

As highlighted below, these four lists have been consolidated and a **provisional database with 81,22,838 unique Aadhaar numbers** has been prepared.



All these unique profiles have been added in the application database at the moment. These profiles will undergo a 100-day field verification after which they will be moved to the identity, profile and other databases.

8.4.2 Krushak Parichay Patra

Once verified all farmers will be given a Farmer ID ie. a **10 character randomly generated alpha-numeric code** (with first 2 alphabets and last 8 numbers)

Please note, once a farmer is allotted a unique ID, that ID cannot be revised/changed at any point in time in the future. In cases where a particular farmer expires/becomes ineligible, the same information may be recorded against that particular ID.

8.4.3 Other Sub-components

The following section covers sub-components of the Krushak Odisha Database. There are three sub-components of the Krushak Odisha Database -

- **API Layer** - The Krushak Odisha database will be connected to different technology systems through an API based system. As, shown in the diagram, the API layer has been setup using two technology components -
 1. GraphQL API Builder - Software component used - **Hasura** (<https://hasura.io/>)
 2. APIs outside of GraphQL - Software component used - **NodeJS**
- **Logging and Monitoring** - To enable logging and monitoring of system performance, the Krushak Odisha database has been integrated with open-source software - **ELK Stack** (<https://www.elastic.co/elastic-stack>)
- **Point-in-time recovery (PITR)** - For data protection and quick recovery of data in the event of a disaster, the Krushak Odisha database has been integrated with open-source software - **PgBarman** (<https://www.pgbarman.org/>) and **Flask** (<https://flask.palletsprojects.com/en/1.1.x/>)

8.5 Component – 2 [System Integrations]

The Krushak Odisha Database will be linked to various external registries/systems including the following -

- Krushak Odisha Portal
- Agri-extension App
- Decision Support System
- Other Department Systems

The following sections, elaborate on each of these systems –

8.5.1 Krushak Odisha Portal

A unified Krushak Odisha Portal is to be developed for all government to farmer interactions with respect to the Krushak Odisha Database.

Software component used - React, Material UI

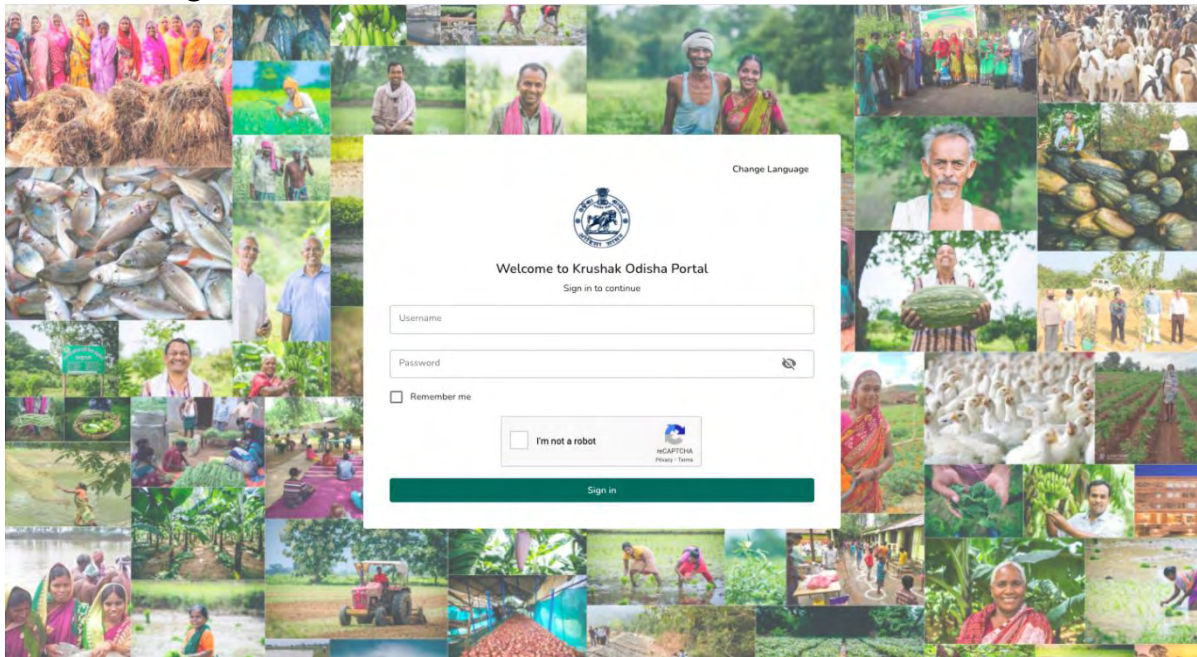
This portal is currently used by District and Block Officers. It would have following functionalities –

- a) Homepage and additional static informational pages
- b) Farmer Enrolment
- c) Update Farmer Details
- d) Farmer Verification
- e) Application Tracker (Know Farmer Status)
- f) Download Krushak Parichay Patra (Farmer ID) - with secure QR code
- g) Grievance Redressal
- h) Reports
- i) Frequently Asked Questions (FAQs)
- j) User Profile
- k) Communication Channel
- l) Scheme Eligibility
- m) Any other functionality, as required in future

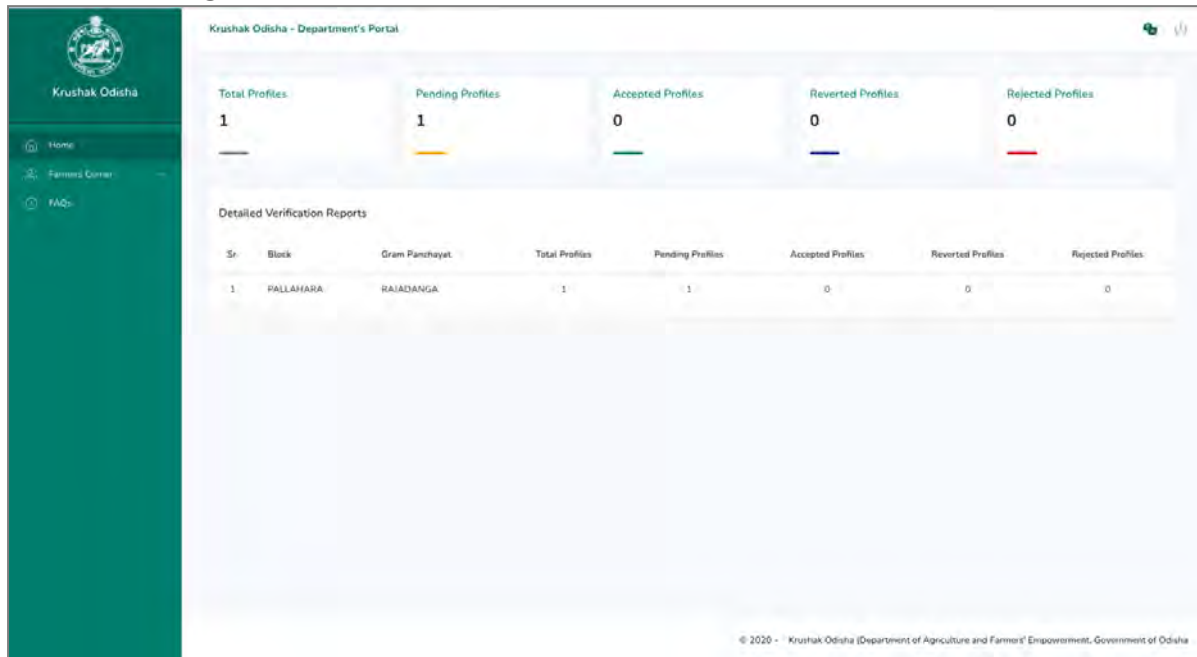
A basic version of the Krushak Odisha Portal has already been developed with the following features - Farmer Enrolment (#2), Farmer Verification (#4), Application Tracker (#5), Reports (#8) and FAQs (#9).

Screenshots have been attached below -

Screen 1 - Login Screen



Screen 2 - Progress Dashboard



Screen 3 - Farmer Verification List

Krushak Odisha - Department's Portal

Farmer Verification

District: ANGUL Block: FALLAHARA GP: Pending Status: Pending [Apply Filter](#)

Total Profiles filtered: 1 Note: Village details have been aggregated across different databases and so are indicative in nature

Sr.	Block Name	Gram Panchayat	Village	Applicant Name	Gender	Application number	Block	GP	Action
1	PALLAHARA	RAIADANGA	Ganjamuna	Farmer 124578124512	Male	A0002182092	Pending	Approved	

Rows per page: 21-1 of 1

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Screen 4 - Verification and Update

Krushak Odisha - Department's Portal

Profile Details

Application No. A0008025726 Applicant Name Farmer five million twenty five thousand seven hundred twenty six Mobile Number 52619108668

Eligibility Verification

Is Farmer five million twenty five thousand seven hundred twenty six a farmer, as defined in the guidelines for State Farmer Database (i.e. Krushak Odisha)?

Yes No

[Next](#)

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Krushak Odisha - Department's Portal

Profile Details

Applicant ID: A0005025726 | Farmer Name: Farmer five million twenty five thousand seven hundred twenty six | Aadhar Number: 526191086668

Select the farmer's occupation/s?

- Cultivator
- Agricultural Laborer

Select activities that the farmer is involved in?

- Crop Production
- Animal Production
- Fishing
- Forestry

Next

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Krushak Odisha - Department's Portal

Profile Details

Applicant ID: A0005025726 | Farmer Name: Farmer five million twenty five thousand seven hundred twenty six | Aadhar Number: 526191086668

Occupations: Cultivator, Agricultural Laborer

Activities: Crop Production, Animal Production, Fishing, Forestry

Demographic details

Applicant Name: SURESH CHANDRA | Farmer Name (as per Aadhar): Farmer five million twenty five thousand seven hundred twenty six

Gender: Male | Social Category (Aadhar): General | Marital Status: Married

Age of Male (Years): 4 | Month of Birth (Optional): October | Age of Male (Months): 3000

Welfare Mobile number (Aadhar): 5025726000 | Secondary Mobile number (Optional): | Family Type (Optional): Medium (Awns >= 4 Ha. and <= 10 Ha.)

Odisha Profession (Mandalayal):

Family member details

Member Name (Member): JX | Member Gender: Male | Member Aadhar Number: 44443333222

Residential details

State (mandatory): | Date of Birth (Optional):

The selected vendor will need to, as required, maintain and make all further changes to the existing functionalities and develop new functionalities as specified above by the steering committee.

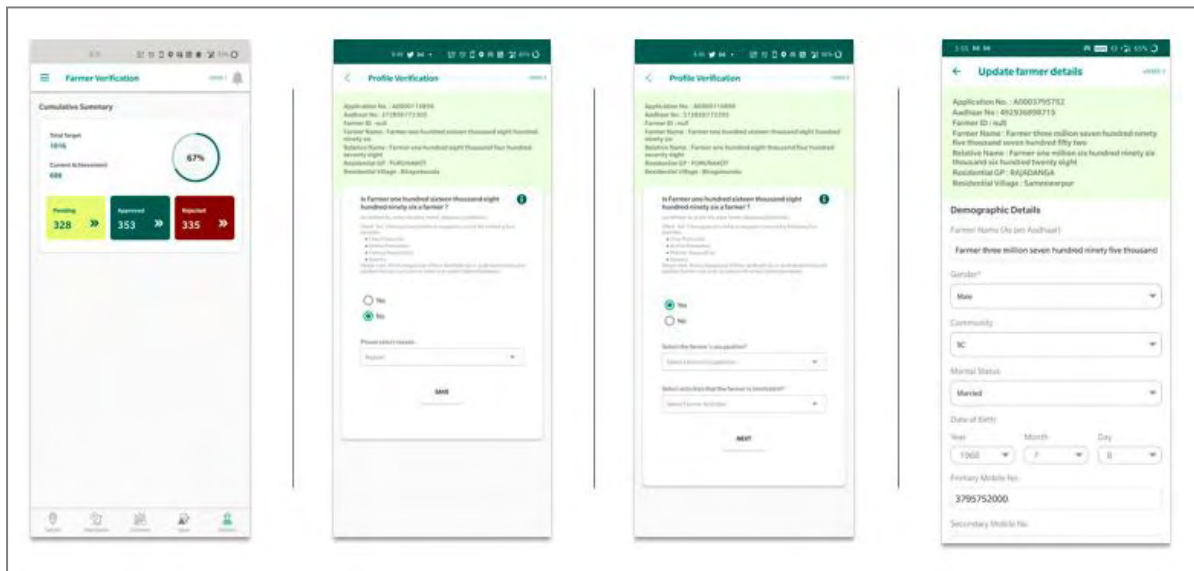
8.5.2 Agri-extension Application

An Android mobile app has been developed for all the 4000+ extension workers of the Agriculture Department, i.e. including the three directorates of Agriculture, Horticulture and Soil Conservation.

Software component used - Native Android App on Java and Kotlin

Some key features of the app include - It works in offline mode and is compatible with Odia.

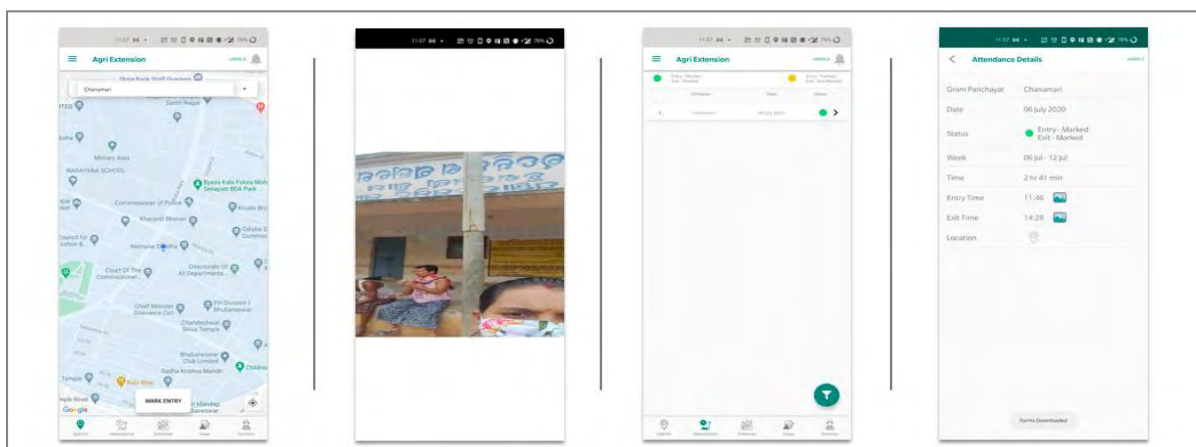
With respect to the Krushak Odisha Database, ***the Agri-extension App is being used for farmer verification by GP officers (screenshots below).***



In addition to this, the app supports various other functionalities –

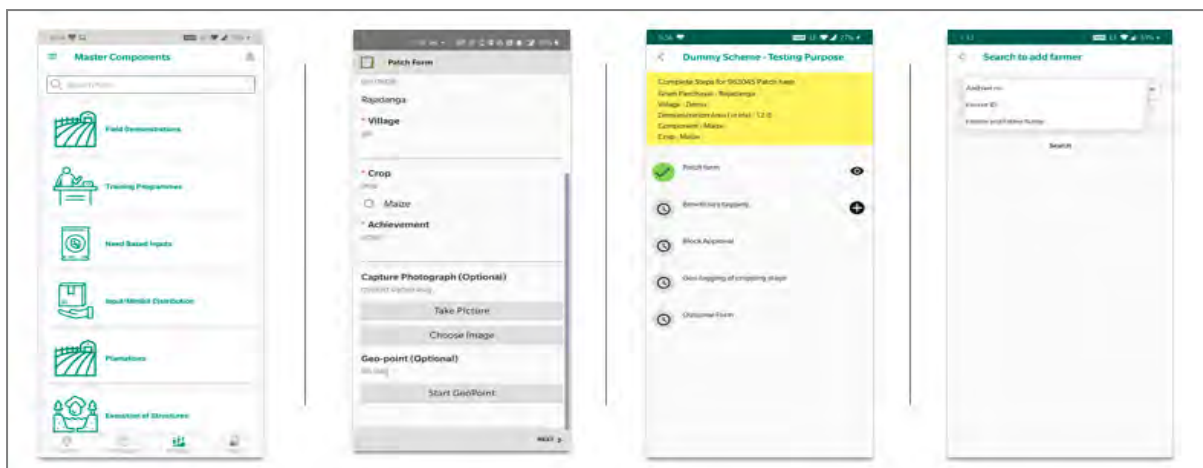
8.5.2.1 Attendance Marking (GP sitting section)

As part of this activity (GP sitting), every GP Officer marks his/her geo-tagged attendance on the app every Monday.



8.5.2.2 Geo-tagging and Beneficiary tagging (Schemes section)

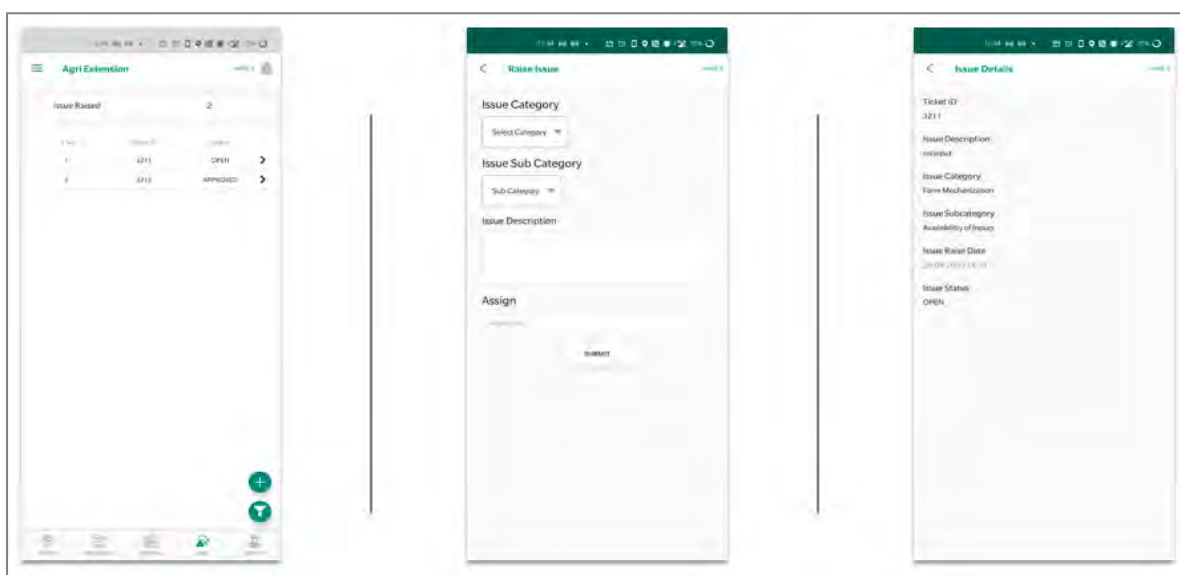
All the different schemes that department has, are delivered by the GP level extension workers. The objective of the schemes section is to enable GP Officers to geo-tag and beneficiary tag schemes delivery. Beneficiary tagging is linked to the Krushak Odisha Database. With the help of this, real-time visibility into the current status of scheme delivery is enabled.



This entire section is configurable and can be managed through the third system - Decision Support System (explained later).

8.5.2.3 Issue resolution

All farmer related and other issues can be raised by GP officers with the concerned senior officers, through this issue resolution mechanism.



8.5.2.4 Performance Report (Dakshyata Program)

On the app, each officer will be able to view his/her overall performance across the various parameters of Dakshyata Program - Department's Employee Performance Management System.

8.5.2.5 Help Section

For Tutorial Videos, Instructional Manual and other training material.

8.5.2.6 Department YouTube & Twitter handle

Web-view of Department's twitter and YouTube channels

User Profile

Connect with ADAPT Support (WhatsApp API)

To chat with the Department Support Team on WhatsApp.

The selected vendor will need to, as required, maintain and make all further changes to the existing functionalities and develop new functionalities as specified by the steering committee.

8.5.3 Decision Support System

An Integrated Decision Support System has been developed as a powerhouse of all the data points required for decision making. It is also connected to the Krushak Odisha Database, for reporting, review and decision making.

Software component used -

- ***Front-end Tool - Angular,***
- ***Back-end Database - MySQL and Redis***
- ***APIs and Logging - Php Laravel Framework***

It has the following key functionalities -

- **Data Collection** - Data for various aspects of Agriculture and from various sources is collected on ADAPT DSS. The different mediums through which data is collected include the following -
 - **Forms** -
 - **Basic forms** - For basic data collection, configurable open-source tool ***Open Data Kit (ODK)*** has been integrated with the Decision Support System.
 - **Grid forms** - For complex use-cases, a grid based form builder has been custom-developed on Decision Support System.
 - **Uploader** - For bulk data entry, an upload input format has also been developed.
 - **Web-services (APIs)** - Existing systems of the department have been linked to the ADAPT Decision Support System through real-time APIs.

For the 2nd and 3rd mediums i.e. uploader and web-services, Decision Support System has been integrated with ***an open-source ETL tool (Extract, Transform and Load) – Talend (<https://www.talend.com/>) along with a scheduler Apache Airflow (<https://airflow.apache.org/>)***

- **Visualisation and Reporting** - All the different datasets that are collected through Decision Support System are stored in the database and visualised on the DSS using **open-source software** - **Apache Superset** (<https://superset.incubator.apache.org/>)

The following section outlines the major use cases that the Decision Support System enables -

#	Section	Description
a)	Agri-Operations	<p>This section of DSS captures the weekly progress/status of various agricultural operations including but not limited to</p> <ul style="list-style-type: none"> ● Rainfall status, ● Reservoir status, ● Supply of Seeds, ● Supply of Fertilisers, ● Crop Loan Disbursement, ● Crop Insurance Enrolment and Claim Disbursement ● Crop Coverage status ● Ama Krushi customised Agro-advisory <p>Data-sets across these different operations are uploaded and visualised on DSS, which is thereafter used during weekly Crop Weather Watch Group (CWWG) meetings.</p>
b)	Scheme Delivery	<p>DA&FE delivers on an average 80+ schemes every year. Each scheme has different components and a different workflow.</p> <p>To take into consideration all these differences, the scheme delivery section thus, has been designed to enable the following -</p> <ul style="list-style-type: none"> ● Configure schemes and their components ● Top-down target allocation from the state to panchayat levels ● Bottom-up achievement submission by ground officers - Linked to Agri-extension App (schemes section) <p>The entire section has been made configurable and user-friendly, so that department officers themselves can configure schemes, and roll-out target and achievement recording.</p>
c)	Forums	There are various meeting forums that DSS powers –

#	Section	Description
		<ul style="list-style-type: none"> ● Block Level Technology Team (BTT) Meetings - All block level meetings are tracked with the help of a BTT meeting form (built on ODK) enabled on DSS. ● District Profiles - District wise reports on scheme achievement, agri-operations and other aspects. This report is used for weekly Senior Officers Meeting and District Visits.
d)	Issues	Through this issue resolution section, all farmer related and other issues that are raised by GP officers on the Agri-extension App can be viewed, resolved and escalated by Block, District and State Officers on the Decision Support System.
e)	Performance Management	The monthly performance of all Group B and Group C government employees are calculated using various data streams on Decision Support System. These employee specific monthly report cards are visible on the Decision Support System.

The selected vendor will need to, as required, maintain and make all further changes to the existing functionalities and develop new functionalities as specified by the steering committee.

8.5.4 Other Department Systems

This includes any other department system that may be required to connect in future. For any further connection, level of data access to be given as per license agreement between the DA&FE and corresponding party.

The selected vendor will need to, as required and specified by the steering committee, integrate other department systems with the Krushak Odisha Platform.

8.6 Component – 3 [Access Control Layer – ACL]

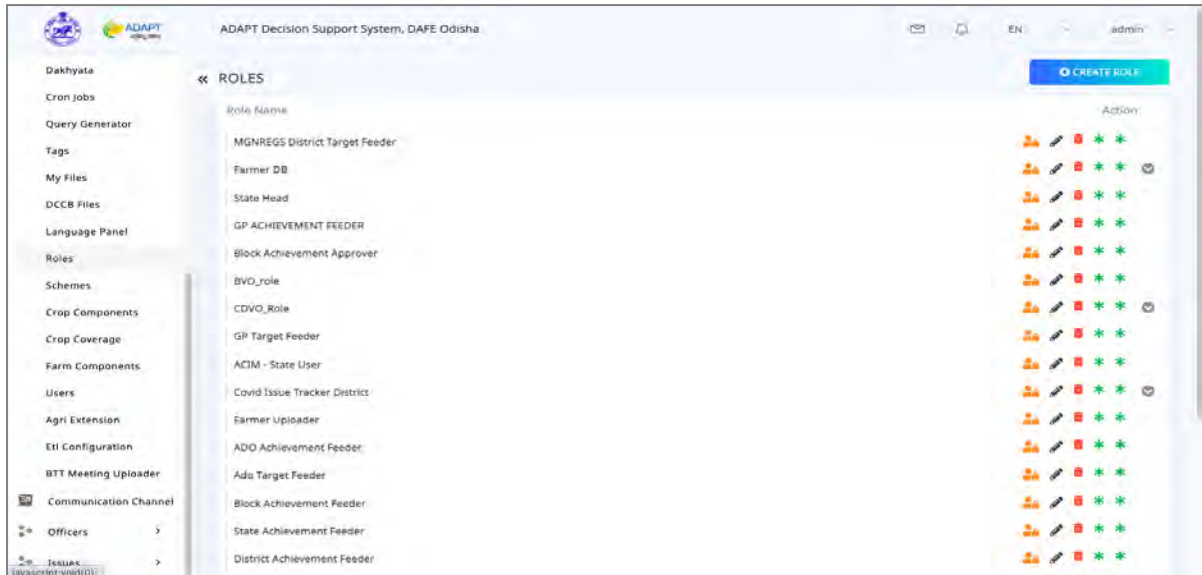
Access to the Krushak Odisha Platform, including the three systems, is tightly controlled through a centralized Access Control Layer (ACL), that is managed on the front-end through Decision Support System.

The Access Control Layer comprises the following components -

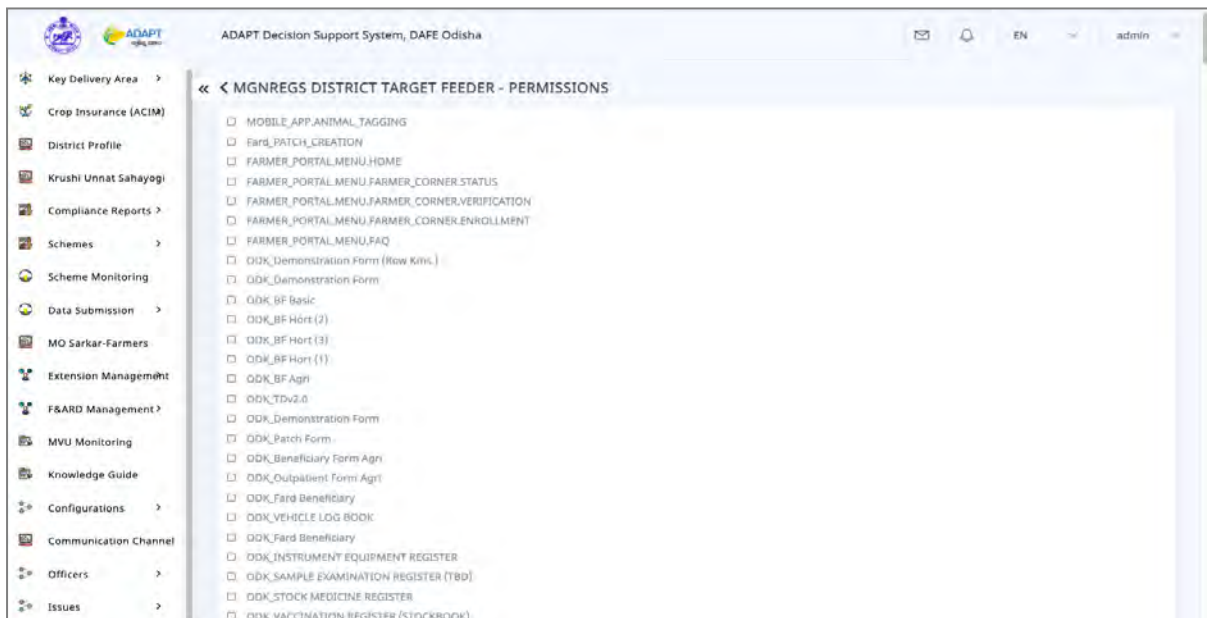
- Users
- Roles
- Permissions

Each user is mapped to a role, and each role is given access to a set of permissions. This limits the access that each user has of the Krushak Odisha Platform. Each user has access to sections and data that is only relevant to that user.

Screen 1 - Roles Management



Screen 2 - Permissions Management (Role specific)



Screen 3 - Assigning roles to users



The selected vendor will need to, as required, maintain and make all further changes to the existing ACL layer and develop new functionalities as specified by the steering committee.

8.7 Component – 4 [Authentication Ecosystem]

The Krushak Odisha Database will be linked to an authentication ecosystem, to ensure the authenticity of data being stored in the database. This ecosystem comprises the following four sub-components -

- **Aadhaar Authentication** - Each farmer is uniquely identified through a valid Aadhaar number. To be able to check, whether an Aadhaar number entered by the officer/farmer is valid or not, it is important to undertake demographic authentication of the Aadhaar number and farmer's name.

The selected vendor will be required to liaise for and integrate the Krushak Odisha Database with Aadhaar authentication API, as the state's AUA may provide, for real-time Aadhaar authentication. If required, the department may specify the integration for Aadhaar e-KYC as well.

- **Mobile Verification** - The mobile number of each farmer is critical to establish future communication channels and send out customized agro-advisory. For this, it is imperative that all the recorded mobile numbers be verified.

To enable this, the selected vendor will be required to integrate the Krushak Odisha Database with NIC's OTP based mobile verification, other mobile verification mechanisms, as may be required.

- **Bank Verification** - To establish any financial communication with the farmers, it is important to store their correct financial address ie. bank details. To ensure the correctness of stored bank details, it is important to get them verified.

To enable this, the selected vendor will be required to integrate the Krushak Odisha Database with PFMS (Public Financial Management System), NPCI (National Payments Corporation of India), or any other entity as may be required.

- **Face Recognition** - As a further layer of authentication and check at the time of farmer transactions and scheme delivery, a liveness and face match check will be integrated. The face match algorithm should return a score, on comparing the live photograph of the farmer, and an existing base photograph. All above a certain threshold, to be successfully authenticated.

The selected vendor will need to integrate the Krushak Odisha Platform, with an accurate face match API to fulfil the above-mentioned use-case.

8.8 Component – 5 [Integration with existing Department Databases]

The Krushak Odisha Database will be linked to all the existing farmer transactional systems. The objectives are to

- Maintain a single list of farmers with updated data - Existing datasets will be replaced with this single database, and other systems will be connected to ensure real-time verification and updation of recorded data.
- Authenticate all farmer transactions - To validate whether entered Farmer ID (Krushak Parichay Patra) is valid or not, and to return a set of fields as per license agreement.
- Store a copy of the transactions in a specific format in the transactions database - This will be used for calculation of Occupational Confidence Levels, explained later.

All transactional systems will be connected to the Krushak Odisha database through a middleware **ETL layer using Talend and Apache Airflow**.

The indicative list of systems that are required to be connected are as follows -

#	Section	Description
a)	Existing Farmer ID	Existing State Farmer ID database to be replaced with the Krushak Odisha Database for transfer of seed subsidy, assistance under Jalnidhi, Saura Jalnidhi, Farm Mechanisation etc.
b)	National Federated Farmer Database	The Government of India is preparing a National Farmer Database. <ul style="list-style-type: none"> ● Krushak Odisha Database will be linked to Government of India database, ● The Farmer IDs of all landowning farmers in the Krushak Odisha Database, will be fetched from the National Database. Farmer IDs for the remaining farmers, will be generated internally.

#	Section	Description
c)	Land Records (Know Your Land and Bhulekh)	Odisha's land records database will be linked to Krushak Odisha Database. Integration will be with two systems - <ul style="list-style-type: none"> ● Know Your Land Mobile Application - To verify and fetch details and geo-coordinates for each land parcel ● Bhulekh - To verify land records as per official database with the State Revenue Department
d)	Fertilizers	The fertilizer subsidy system is to be integrated with Krushak Odisha Database, so that <ul style="list-style-type: none"> ● Farmer authentication is done for all transactions ● All transactions are tagged to specific farmers
e)	Crop Loan	The Crop Loan system is to be integrated with Krushak Odisha Database, so that <ul style="list-style-type: none"> ● Farmer authentication is done for all loan disbursements ● All loan disbursements and repayments are tagged to farmers
f)	Ama Krushi	Ama Krushi is the Department's customized agro-advisory service. It is to be integrated with Krushak Odisha Database, so that <ul style="list-style-type: none"> ● Real-time updated information on all farmers is available to Ama Krushi for generation of customised advisory ● All advisories issued are tagged to specific farmers
g)	Schemes Delivery on Agri-extension App	The Department delivers multiple schemes. Integration is required for <ul style="list-style-type: none"> ● Identification of beneficiaries ● All beneficiaries are tagged from Krushak Odisha database for transparent beneficiary list creation and monitoring
h)	Krushak Assistance for Livelihood and Income Augmentation (KALIA)	KALIA is DA&FE's flagship scheme under which financial assistance is directly transferred to farmers. Integration is required for <ul style="list-style-type: none"> ● Identification of beneficiaries ● All beneficiaries are tagged from Krushak Odisha

#	Section	Description
		database for transparent beneficiary list creation and monitoring
i)	Pradhan Mantri Fasal Bima Yojana (PMFBY)	PMFBY is a GoI managed system for Crop Insurance to farmers. It is to be integrated with Krushak Odisha Database, so that <ul style="list-style-type: none"> Farmer authentication is done during farmer registration itself Claim disbursement can be tagged to specific farmers
j)	Odisha Millets Mission (OMM)	OMM is another scheme of the department. It is to be integrated with Krushak Odisha database, so that <ul style="list-style-type: none"> Farmer authentication is done during farmer registration itself All beneficiaries are tagged from Krushak Odisha database for transparent beneficiary list creation and monitoring
k)	Pradhan Mantri Krishi Sinchai Yojana (PMKSY)	PMKSY is another scheme of the department. It is to be integrated with Krushak Odisha database, so that <ul style="list-style-type: none"> Farmer authentication is done during farmer registration itself All beneficiaries are tagged from Krushak Odisha database for transparent beneficiary list creation and monitoring
l)	Mission for Integrated Development of Horticulture (MIDH)	MIDH is another scheme of the department. It is to be integrated with Krushak Odisha database, so that <ul style="list-style-type: none"> Farmer authentication is done during farmer registration itself All beneficiaries are tagged from Krushak Odisha database for transparent beneficiary list creation and monitoring
m)	Millet Procurement (M-PAS)	M-PAS is the procurement management system. It is to be integrated with Krushak Odisha database, so that <ul style="list-style-type: none"> Farmer authentication is done for all transactions All transactions are tagged to specific farmers
n)	Paddy Procurement (P-PAS)	P-PAS is the procurement management system. It is to be integrated with Krushak Odisha database, so that <ul style="list-style-type: none"> Farmer authentication is done for all

#	Section	Description
		<p>transactions</p> <ul style="list-style-type: none"> • All transactions are tagged to specific farmers
o)	Cotton Procurement (CCI)	<p>Cotton Procurement happens through CCI's procurement management system. It is to be integrated with Krushak Odisha database, so that</p> <ul style="list-style-type: none"> • Farmer authentication is done for all transactions • All transactions are tagged to specific farmers
p)	Pulse and Oilseeds Procurement (e-Samridhi, NAFED)	<p>Pulse and Oilseeds Procurement happens through the e-Samridhi portal of NAFED. It is to be integrated with Krushak Odisha database, so that</p> <ul style="list-style-type: none"> • Farmer authentication is done for all transactions • All transactions are tagged to specific farmers
q)	National Dairy Development Board (NDDB) Animal Database	<p>Fisheries and Animal Resources Development Department (F&ARD), has an animal database with the NDDB. It is to be integrated with Krushak Odisha Database so that there is clear mapping of animals and farmers.</p>

The selected vendor will need to integrate the Krushak Odisha database with all the relevant systems, the above list being non-exhaustive, and can be modified as per the direction by the Steering Committee. Please note, all integrations will be defined as per license agreements with respective departments and concerned authorities.

8.9 Component – 6 [Rule Engine]

For the following use cases there will be a parametrized decision rule engine that will provide a suggestive decision based on the pre-defined parameters and their respective computations.

- Schemes Eligibility Engine
- Confidence Level Algorithm
- Anomaly Detection Engine

The decision rule engine will be configured by the administrator user. The structure of the decision rule engine would be as follows:

1. Define a rule
 - a. Identify input parameters

- b. Define a rule based on operators and sequencing
- c. Define output labels

2. Execute a rule and view test results.

The following section details out the three use cases mentioned above –

Schemes Eligibility Engine

There are 80+ schemes that are implemented by the Department each year. Most of the schemes have an eligibility criteria. These eligibility criteria can be both simple and complex, as illustrated below -

- Example of simple eligibility criteria - All farmers owning land are eligible for a particular scheme.

This eligibility criteria has only one input parameter i.e. land. Based on this information, the rule is required to return a list of farmers.

- Example of complex eligibility criteria - The following categories of farmers shall not be eligible for benefit under the scheme.
 - Former and present holders of constitutional posts
 - Former and present Ministers/State Ministers and former/present Members of Lok Sabha/ Rajya Sabha/ State Legislative Assemblies/ State Legislative Councils, former and present Mayors of Municipal Corporations, former and present Chairpersons of District Panchayats.
 - All serving or retired officers and employees of Central/ State Government Ministries / Offices / Departments and its field units Central or State PSEs and Attached offices / Autonomous Institutions under Government as well as regular employees of the Local Bodies (Excluding Multi-Tasking Staff /Class IV/Group D employees)
 - All superannuated/retired pensioners whose monthly pension is Rs.10,000 or more (Excluding Multi-Tasking Staff / Class IV/Group D employees) of above category
 - All Persons who paid Income Tax in last assessment year
 - Professionals like Doctors, Engineers, Lawyers, Chartered Accountants, and Architects registered with Professional bodies and carrying out profession by undertaking practices

This eligibility criteria has 6 input parameters with a lot of nuances. Based on this information, the rule is required to return a list of farmers

So, the scheme eligibility engine should allow the user to configure eligibility rules basis which it should return a list of farmers and corresponding counts.

Confidence Level Algorithm

Through past experience and stakeholder discussions, following has been observed –

- Recorded Information about farmers has wavering levels of accuracy across data-points and across farmers, depending on the level of verification/authentication done – Thus, in the Krushak Odisha Database, it is important to maintain accuracy score at a data-point level.
- Additionally, a farmers' dependence on farming as an occupation keeps on changing over time - Thus, in a static base farmer database, to build sustainability and relevance into it, it is important to index it to time.

To incorporate the following, the idea of confidence levels has been conceptualized and can be categorized into two components –

- Informational Confidence level (ICL)
- Occupational Confidence level (OCL)

In the Krushak Odisha Database, Confidence value will be calculated by:

- Krushak Odisha Portal Portal, while submitting new data
- Data-sync ETL, while fetching values from other databases

Informational Confidence level (ICL)

Objective and Envisioned Output

For each farmer record, there are multiple data points that are recorded in the farmer database. The objective of Informational Confidence Levels (ICL) is to establish the degree with which the state can say whether a particular data point for a particular farmer is correct or incorrect.

The envisioned output would be as follows – 80% confidence that recorded gender is correct

On the other hand, it can also be said with 20% confidence that recorded gender is incorrect

Tenets

Each data point has multiple validation/verification mechanisms with differing levels of accuracy.

With this context, there are certain tenets governing the calculation of ICL -

- *Tenet 1* – A verification mechanism with a higher degree of accuracy (A1) is preferred over a verification mechanism with a lower degree of accuracy (A2)
- *Tenet 2* – For slow-moving and fast-moving variables, Verification conducted more recently (T1) is preferred over verification conducted at an older date (T2); while for static variables, there is no time preference. This is shown in the table below.

Timelines Legend					
Nature of Variable	Less than 6 months	6-12 months	1-2 years	2-5 years	More than 5 years
	T5	T4	T3	T2	T1
Static	0.2	0.2	0.2	0.2	0.2
Slow-moving	0.3	0.25	0.2	0.15	0.1
Fast-moving	0.5	0.25	0.13	0.07	0.05

- *Tenet 3* – Every ‘Match/Valid’ response from the verification mechanisms* adds to the ICL, while every ‘Mismatch/Invalid’ response reduces the ICL.

**Applies only to Aadhaar demographic authentication for now*

Model for ICL

The table below outlines the verification mechanisms for one data point from the entire list – Farmer Name (*Full list with verification mechanisms in C3*). Additionally, the following variables have been mapped against each verification mechanism –

- **Update Frequency** – The frequency at which that data point gets updated. For example – Farmer Name is slow-moving because it is a rare event and would only happen due to life events such as marriage. This has a bearing on the weightages assigned to each timeframe from T1-T5.
- **Accuracy Score** – A weightage allocated to each verification mechanism based on the degree of correctness of the response returned by that verification mechanism.
- **No. of times undertaken** – The number of times a particular verification was conducted

- **Event Score** – A weighted average of the number of times each mechanism is conducted in each time frame from T1-T5 and the respective weightages of each timeframe.
- **CL Score** – Overall confidence level score for a specific verification mechanism

Variable Name		Farmer Name								
Update Frequency		Slow-moving Name								
#	Verification Mechanism	Accuracy Score	No. of times undertaken	T1	T2	T3	T4	T5	Event Score	CL Score
				0.1	0.15	0.2	0.25	0.3		
1	Aadhaar e-KYC	31.25%	25	5	5	5	5	5	0.50	31.25%
2	Aadhaar Demo Auth (Match)	31.25%	25	5	5	5	5	5	0.50	31.25%
3	Aadhaar Demo Auth (Mismatch)		0	0	0	0	0			
4	Field Verification	18.75%	25	5	5	5	5	5	0.50	18.75%
5	Self-Validation	18.75%	25	5	5	5	5	5	0.50	18.75%
6	Not verified	0.00%	0	0	0	0	0	0	0	0.00%
Cumulative Informational Confidence Level										100%

**Values for accuracy score and other columns are indicative in nature and only for illustrative purposes*

Additional things to note –

- For a certain data point, cumulative value of the accuracy scores(of all the verification mechanisms) should always add up to 100%. Therefore, depending on the number and type of verification mechanisms, the same verification mechanism may have a different weightage for a different data point.
- Number of times undertaken is always the sum total of times conducted across T1-T5.
- The count of times a verification mechanism is undertaken is converted to a % value as shown below before being applied in the final formula for calculation. This is done to ensure that confidence level score remains below than or equal to 100%.

Events Legend	
Count of events in T	Value
0	0
1	0.05
2	0.07

Events Legend	
Count of events in T	Value
3	0.13
4	0.25
5	0.5

Please note, the table shown above can be further extended to create a data table.

- The cumulative value of the weightages for timeframes T1-T5 will always add up to 100%.
- The final CL score for any verification mechanism is the product of the following three components –
 - Accuracy score
 - Event score
 - Multiplier to normalize and scale the final score
- Cumulative ICL can never be more than 100% or less than 0%.

Please note, the weightages across the formula are dynamic and would change, based on the correctness of results ICL i.e. the algorithm returns.

Cumulative Informational Confidence Level – The cumulative ICL for a particular farmer will be the weighted cumulative score of all data points.

The weights may correspond to the relative importance of such data point for scheme delivery. For example – Aadhaar number is the most important data point while age is a relatively less important variable. On the other hand, all data points may also have the same weightage.

Occupational Confidence level (OCL)

Objective and Envisioned Output

A farmers' dependence on farming as an occupation keeps on changing over time - Thus, in a static base farmer database, to build sustainability and relevance into it, it is important to index it to time. Thus, the objective of Occupational Confidence Levels (OCL) is to establish the degree with which the state can say whether a particular record is practicing farming in a particular season/year or not.

The envisioned output would be as follows – 80% confidence that the record is practicing farming

On the other hand, it can also be said with 20% confidence that the record is not practicing farming

Tenets

Each farmer is involved in a lot of transactions during the farming life cycle right from sowing to procurement. Transactions here include not only purchase/sale transactions but also disbursements/assistance under schemes such as KALIA or advisory under Ama Krushi. With this context, the following tenets govern the calculation of OCL -

- *Tenet 1* – A record with a more recent transaction recorded with the government has a higher chance that he/she practices farming than a record with a relatively outdated transaction history.
- *Tenet 2* – A record with more transactions and recorded across databases with the government has a higher chance that he/she practices farming than a record with fewer transactions or transactions concentrated in a particular database.

Model for OCL

The table below outlines two variables in the transactional history i.e. number of transactions and the timeframe of such transactions across 4 databases for 1 farmer to illustrate the concept of OCL –

Farmer Name	RILU MEHER	Krushak Odisha Database ID		AB12345			
#	Transactional Database	T1	T2	T3	T4	T5	CL Score
1	Seeds	5	5	5	5	5	35.71%
2	Implements	5	5	5	5	5	14.29%
3	Paddy	5	5	5	5	5	35.71%
4	Millets	5	5	5	5	5	14.29%
Cumulative Occupational Confidence Level							100.00%

**Values in all the columns are indicative in nature and only for illustrative purposes*

Additional things to note –

- The nature of a certain database i.e. slow-moving or fast-moving will determine the weightages of timeframes from T1-T5, as shown below -

Database	Nature	T5	T4	T3	T2	T1
Seeds	Fast-moving	0.5	0.25	0.13	0.07	0.05
Implements	Slow-moving	0.3	0.25	0.2	0.15	0.1

Database	Nature	T5	T4	T3	T2	T1
Paddy	Fast-moving	0.5	0.25	0.13	0.07	0.05
Millets	Fast-moving	0.5	0.25	0.13	0.07	0.05

- The cumulative value of the weightages for timeframes T1-T5 will always add up to 100%.
- The count of transactions recorded in a certain database is converted to a % value as shown below before being applied in the final formula for calculation. This is done to ensure that confidence level score remains below than or equal to 100%.

Transactional Events Legend	
Count of events in T	Value
0	0
1	0.05
2	0.07
3	0.13
4	0.25
5	0.5

Please note, the table shown above can be further extended to create a data table.

- Every database will have a different weightage based on its fundamental dependence on farming and the cumulative value of all databases should always add up to 100%

Database	Value (based on fundamental dependency for farming)	Weightage
Seeds	5	35.71%
Implements	2	14.29%
Paddy	5	35.71%
Millets	2	14.29%

- The final CL score for any database is the product of the following three components –
 - Database weightage
 - Weighted average of the count of transactions in each time frame from T1-T5 and the respective weightages of each timeframe

- Multiplier to normalize and scale the final score
- Cumulative OCL can never be more than 100% or less than 0%.

Further, dynamic weightages can be assigned to transactions and time as well.

Anomaly Detection Engine

Krushak Odisha Database will continuously resolve data inconsistencies through an anomaly detection engine.

For illustration, the following types of discrepancies will be flagged by the engine:

- Purchase of seeds of a certain variety and sale of produce of a different crop
- Area sown less than area insured
- Total area insured more than plot size
- Fertilizer purchase not equal to requirement as per Soil Health Card
- Any other as may be added

These scenarios may emerge, among other reasons, due to inefficient or fraudulent practices, and incorrect data recording. Therefore, it is important to highlight and verify them.

All such discrepancies will be communicated to the relevant field officer for on-ground verification and basis the officer's response, the anomaly to be corrected/flagged.

The selected vendor will need to define a rule engine to fulfil the above mentioned 3 use cases. Please note, the steering committee may decide to add more use cases, after consultation with all parties including the vendor.

8.10 Component – 7 [Communication Channel]

This component has two sub-components to it - Communication Engine and WhatsApp Chatbot.

Communication Engine

The objective of the communication engine will be to trigger notifications to the users of the system based on a pre-defined trigger in the workflow.

Certain key features of the communication engine will be:

1. Notification rule creator
2. Notification content formatter - May include text, images, audio and video
3. Notification medium - May include SMS, Email, WhatsApp any other

4. Notification scheduling
5. Notification delivery tracker

Illustrative triggers and the SMS based communication details for the planned workflows is provided below. A few sample SMS communication screenshots have been included for reference:

- A. Successful generation of Farmer ID
 - a. Trigger: Generation of Farmer ID in the Krushak Odisha Database

Recipient: Farmer

Example text: Your Application with <Application No> has been successfully verified, and your Krushak Parichay Patra generated is <Farmer ID>. Please store this message for future reference.

- B. Customized Agro-advisory to Farmer
 - b. Trigger: Manual trigger by Ama Krushi

Recipient: Farmer

Example text: Ama Krushi Advisory : Because of <Reason description> you are requested to undertake <Advisory description>

The above shown messages are illustrative of SMS medium.

WhatsApp Chatbot

With the above-mentioned communication engine, a WhatsApp Chatbot, is required for the following -

1. FAQs and Queries - Pre-configured in the system
2. Manage data requests - To access specific data points across reports on the Decision Support System

The selected vendor will need to develop the communication engine and WhatsApp Chatbot, and assist the department and other stakeholders in defining rules for both these components.

8.11 Technology Components

The selected vendor will need to be comfortable with the following set of technology components that form the complete tech stack for Krushak Odisha Platform -

#	Component	Application	Description
a)	PostgreSQL (PSQL)	Database Management	The entire Krushak Odisha database is maintained on this open-source PSQL application

#	Component	Application	Description
b)	Min.IO	Content Delivery Network (CDN)	All documents/images corresponding to Krushak Odisha Database will be maintained here
c)	Hasura (GraphQL)	Configuring APIs	Open-source component to enable a configurable Graph QL API layer
d)	NodeJS	Database Models and Migrations	<ul style="list-style-type: none"> ● To create models for defining data validations ● For any future changes in the database schema ● To create APIs that cannot be created through Hasura GraphQL
e)	ELK Stack	Logging and Monitoring	To enabled logging and monitoring of system performance
f)	PgBarman and Flask	Point-in-time recovery	For data protection and quick recovery of data in the event of a disaster
g)	React and Material UI	Frontend	Front-end software component for the Krushak Odisha Portal
h)	MySQL	Database Management	The entire Decision Support System and Agri-extension Mobile Application are maintained on open-source MySQL application
i)	Angular	Frontend	Open-source component for development of Decision Support System
j)	PHP Laravel Framework		In built logging framework used at API level for Decision Support System and Agri-extension App
k)	Android App on Java/Cotlin	Mobile App Development	For development of a mobile Application - Agri-extension App
l)	Open Data Kit (ODK)	Configurable Form Builder	Open-source component for configuring forms from the front-end
m)	Talend (ETL) + Airflow	Data pipelining and scheduling	<ul style="list-style-type: none"> ● Talend - Open-source ETL(Extract-Transform-Load) tool for data transformations and integration ● Airflow - Tool to schedule and monitor workflows
n)	Superset	Data visualisation	Data exploration and visualization platform for the Decision Support System

#	Component	Application	Description
o)	FusionAuth/Custom Developed ACL	Access Control (ACL)	An open-source and scalable access control layer to authenticate and authorise different users on the basis of available/tagged licenses (data access)
p)	Secure QR Code	Ease in offline service delivery	A secure QR code is being generated to enable smooth and hassle free registration for government services in the offline environment
q)	Face Recognition / Face Match	Offline farmer authentication and liveness check	<ul style="list-style-type: none"> A Face match API will be integrated to enable offline authentication of farmers during various transactions with the government
r)	Phonetic Search	Enhanced search ability in the database	Enhanced search ability in the Krushak Odisha Database to factor in spelling differences
s)	Drools/ other open-source application	Configurable rule engine	Open-source rule engine to define business logics and rules
t)	WhatsApp Chatbot	Communication Channel	WhatsApp Chatbot to manage data requests, FAQs and Queries

Any deviation, changes or addition in the afore-mentioned technology components list, has to be first presented before and approved by the steering committee before implementation.

8.12 Technology Development Guidelines

The selected vendor will need to ensure the following development guidelines at all points in time

8.12.1 Open Source Development

The implementation agency will be recommended to use libraries available on Open Source to build different components of the Krushak Odisha Platform to ensure sustainability and re-usability of technology over the long term.

8.12.2 Configurability

Each technology element mentioned above will be developed in such a manner that it can be seamlessly configured by the Government department tech team. If this requires a content management system, then the same can be developed after approval from the Steering Committee.

8.12.3 Deployments

All deployments to be containerized and the stack needs to be horizontally scalable. Orchestration to be done through Docker.

- The staging environment will replicate the entire system as is and will be used for future development and testing.
- Auto scaling based on CPU/RAM usage for all services (read as micro services).
- Databases
 - Periodic database backups (preferably every 2 days)
 - CI/CD needs to be set up for the entire system with auto testing and to build docker images every time code is pushed to master.
 - A suite of load test that could be run to monitor the speed and status of all API on a dashboard. (Data could be saved in a database to see historical trends)

8.12.4 Performance

The performance parameters would be of two types

- Latency of the APIs - All APIs need to have a latency of less than 200 ms. The system should be load tested for 5x the expected load for this calculation.
- Performance of Database - The database cluster should be indexed in a manner such that all calls to APIs should take less than 1ms.

8.13 Functional Requirement of Krushak Odisha Portal

A unified Krushak Odisha Portal will be developed for all government to farmer interactions with respect to the Krushak Odisha Database. The portal shall be accessed by State, Block and District level officers.

8.13.1 Home Page

The Home Page of the Krushak Odisha Portal will have most of the generic links for the users to browse through the main web portal. The Page will contain links such as Success Story, News & Updates, People Reached, gallery including photos, videos, publications and articles to disseminate information, Privacy Policy, Terms & Conditions, etc. All this information can be managed through the CMS provided to the authorized users.

8.13.2 Farmer Profile Builder

Following data will be captured:

8.13.2.1 Farmer Enrolment

a) Enrolment of farmers by entering following relevant information:

- Farmer Details: Name, Contact number
 - Family details: Number of members in the family, Relationship with tenant
 - ID proof details: Aadhaar, Biju Krushak Kalyan Yojna number etc.
 - Communication Address: Panchayat name, Village, Pin etc.
 - Bank Details: Name of bank, Branch, IFSC code
 - Land Details: Name of Revenue Circle, Tehsil, Plot number, Khata, type of land, total Area of plot, area of irrigated land, source of Irrigation, type of crop etc.
- b) Confirmation to farmer after successful enrolment through SMS.
- c) Generation of unique ID to track the status of the application
- d) Provision to check the status of the application by entering the unique ID
- e) Aadhaar eKYC facility to be available for future use.

8.13.2.2 Update Farmer Details

Provision to update the existing data with real time verification which includes the following:

Demographic Details	<ul style="list-style-type: none"> – Aadhaar Number or any other identification recognized and in digital form like Ration Card, PAN card etc. – Gender – Category – Marital Status – Date of Birth – Mobile No. – Farmer Type
Family Member Details	<ul style="list-style-type: none"> – Member Name – Relation – Aadhaar No – Occupation
Residential Details	<ul style="list-style-type: none"> – District – Block/ULB – GP/Ward – Village/locality

8.13.3 Field Verification

- a) Provision to check the below mentioned details in the field:
- Land Details
 - Farmer Occupation
 - Crops Cultivated
- b) Verification of recorded mobile numbers for future communication channels and

send out customized agro-advisory

- c) Verification of the correctness of stored bank details
- d) The data verified at field level shall be shared to the department
- e) Option shall be there for the department officials to verify the captured data

8.13.4 Krushak Parichay Patra (Farmer ID)

- a) Generation of a 10 character alpha-numeric code called the Krushak Parichay Patra (Farmer ID) after successful verification
- b) All ID Cards should have a secure QR code that will be scanned by the department's QR code scanning application
- c) The QR code should store basic and static information of the farmer such as Farmer ID, Farmer name, Gender, Date of Birth and Photograph
- d) Only static information should be stored to prevent further generation of QR code
- e) In case an existing static data-point is recorded incorrectly and therefore is updated by the farmer, a new QR code should be generated. In that case:
 - Farmer can take a new print out of his/her Farmer ID card
 - The older QR Code should become non-functional on generation of the newer one

8.13.5 Grievance Redressal System

- a) Provision to register grievance
- b) Generation of grievance token number
- c) Token number notification through SMS
- d) Option to check the status of the grievance
- e) Option for authority to take action against grievance
- f) Provision to forward the grievance to respective higher authority
- g) Auto escalation facility in case grievances are not addressed within the stipulated time period.
- h) SMS Intimation to applicant about action taken

8.13.6 Frequently Asked Questions (FAQs)

There should be a separate section for publishing of FAQs in the Portal. Departmental authorities should be able to create and publish FAQ by using built-in FAQ style templates. The FAQs should be responsive and device friendly. The features of the FAQ should include the following:

- a) Add/ Edit/ Delete FAQs

- b) Active or De-active FAQs
- c) Change the position of FAQs
- d) Change the Style/ Template of FAQs
- e) Option to set the font style & font colour

8.13.7 Chatbot

Chatbot shall be used to provide quick and accurate responses to the users. Users shall communicate with Chatbot using a chat interface just like they would converse with another person. It will have the following functionalities:

- a) The proposed Chatbot solution should provide following details to the users:
 - How to download Krushak Parichay Patra
 - Check eligibility for a specific scheme
 - How to lodge a grievance
 - How to update profile
 - How to do e-KYC
- b) Chatbot should be operational for 24 x 7 for 365 days a year.
- c) Chatbot should be able to maintain a conversation with the user in user-friendly manner.
- d) The Chatbot should allow the user(s) to resume their conversation within a predefined time duration.

8.13.8 Communication Channel

A Communication channel through E-Mail/SMS should be developed for the following activities:

- a) Notifications through E-Mail/SMS should be shared to the authorized authority for any scheduled meetings
- b) Remainder messages should be shared to the concerned action taking authority for any particular tasks
- c) Facility to send notification through WhatsApp with attachments

8.13.9 Scheme Eligibility Engine

The SI will develop a Scheme Eligibility Engine for all the 80+ schemes that are implemented by the department. The engine shall allow the user to configure the eligibility rules which shall produce a list of farmers eligible for the particular schemes.

8.13.10 Admin Console

8.13.10.1 User & Master Management

- a) Creation of master fields
 - Department Master
 - State officer Master
 - Block Officer Master
 - GP Officer Master
- b) User creation
- c) Tagging user types with User
- d) Creating and managing the login credentials
- e) Profile updating of users by admin or by individual users

8.13.10.2 Roles & Rights

- a) Provide access rights to the users
- b) Tagging of departmental users with respect to the designation and role
- c) User access management

8.13.10.3 Workflow Management

The configurable workflow management framework will help to define the approval process as per the business needs of the client. Super Admin or Admin user should be able to configure the workflow process. Workflow management module should have the following functionality.

- a) Creation of approval authority
- b) Configuration of approval process
- c) Online user wise work-flow with system of checks and balances
- d) Defining rules to check duplicate/ fake registrations
- e) Configure multi-level, time bound based approval
- f) Delegation of task to another user for a certain period, without sharing the password

8.14 Guiding Principles

The proposed solution should adhere to the following principles.

8.14.1 Standards

- a) The system architecture should be based on industry standards and protocols

- b) The system will be centrally deployed and globally accessed
- c) The system shall be designed to be scalable and easily extensible
- d) The system should be flexible to cater to changing business, industry and compliance requirements (including reporting requirements in proper formats)

8.14.2 Application

- a) The solution design should be a 3-tier services based architecture for all environments
- b) The solution design should focus on developing workflow and business transaction, rules management, configuration management
- c) All applications must take into account appropriate security, performance, efficiency and maintainability issues
- d) The ownership of the product licenses would be with DA&FE
- e) Upgrade to new releases should not become mandatory for the next five years from the date of installation.

8.14.3 Integration

- a) The integrated solution design should include integration framework for integration of both internal and external applications and services
- b) The integration framework should use SOA enablement for the underlying applications

8.14.4 Data

- a) Data will be owned, shared, controlled and protected as a corporate asset of the DA&FE
- b) Data should only be accessed through application / interfaces for create, update and delete. There should not be any direct access to the data layer for users
- c) The SI shall provide the details of data synchronization strategy both in batch mode and in real time

8.14.5 Data Security

- a) The SI shall provide strategy to maintain data security at the application level
- b) The SI shall provide strategy to maintain data security at the database level
- c) The SI shall provide strategy to maintain data security at the messaging and middleware level
- d) The SI shall provide security strategies when the applications are accessed from outside the network or accessing resources outside the network.

- e) The SI shall provide strategies of encryption and security for external transaction with partner network and systems

8.15 General

8.15.1 Adherence to Standards

The system shall comply with relevant defined industry standards (their latest versions as on date) wherever applicable. This will apply to all the aspects of solution including but not limited to its design, development, security, installation, and testing. The suggested architecture must be scalable and flexible for modular expansion. It should ensure ease of integration with software / applications developed using common industry standards since the solution may be linked and connected to other sources (websites, contents, portals, systems of other user departments etc.) as well as there may be loose/tight integration with backend system of other departments depending on individual service processes. The solution architecture should thus have provision to cater to the evolving requirements of the Department.

A reference list of the minimum industry standards which the system components should adhere to is mentioned below:

Sl#	Component	Standards
a)	Information Access / Transfer Protocols	SOAP, HTTP/HTTPS
b)	Interoperability	Web Services, Open Standards
c)	Portal Development	W3C Specifications
d)	Document encryption	PKCS specification
e)	Information Security	ISO 27001 certified System
f)	Operation	ISO 9001 Certified
g)	Service Management	ISO 20000 specifications or latest
h)	Project Documentation	IEEE/ISO Specifications for documentation
i)	Data Standards	All-important data entities should be in line with standards published by DeITY.

8.15.2 Security, Integrity & Confidentiality

a) Web Services Security: System shall comply with all the Web services including routing, management, publication, and discovery should be carried out in a secure manner. Those who are using the Web services should be able to utilize security services such as authentication, authorization, encryption and auditing. Encryption of data shall take place at client level itself. Application server shall provide SSL security.

b) Data Integrity and Confidentiality: Data integrity techniques need to be deployed to ensure that information has not been altered, or modified during transmission

without detection. Similarly, Data confidentiality features are also to be applied to ensure that the data is only accessible by the intended parties.

- c) **Transactions and Communications:** With respect to the Data Transactions and Communications, system needs to ensure that the business process are done properly and the flow of operations are executed in correct manner.
- d) **Non Repudiation Security:** The application shall have the Non-repudiation security services to protect a party to a transaction against false denial of the occurrence of that transaction by another party. End-to-End Integrity and Confidentiality of Messages The integrity and confidentiality of messages must be ensured even in the presence of intermediaries.
- e) **Database Controls:** The database controls for online transaction processing systems like access to database directly, access to database through application, access to log files, access by the remote terminals, DBA controls, backup policy and backup procedures.

8.15.3 Change Request Management

Looking into the length of the project implementation period it is very usual to find changes in business logic frameworks. In such scenarios, there may be a need of modification of the software modules beyond FRS/SRS/Scope document mentioned in this RFP. It may also be required to develop new software modules beyond the coverage of FRS/SRS/Scope document.

- a) The activities that will be treated as enhancement services is mentioned below:
 - Functional changes in the application
 - Development of new module/sub-module/Form/Report in the developed system
 - Changes in the workflow or core application framework
 - Integration with any new system
 - Additional onsite resources in the project
- b) The procedure for executing the change request is as follows:
 - **Analysis:** SI will analyses the changes suggested and submit an effort estimation including timeline to DA&FE
 - **Approval:** DA&FE shall do the due diligence and provide approval on the effort and timeline suggested
 - **Incorporation:** After receiving the approval from DA&FE team will incorporate the changes in the application.
 - On approval, SI shall deliver the services and raise the claim as per actual according to the Commercial Bid.
 - The SI can raise claims under this head as per actual consumption of service duly approved by DA&FE.

8.15.4 Exit Plan

The selected firm will provide systematic exit plan and conduct proper knowledge transfer process to handover operations to DA&FE technical team at least three months before project closure. IT resource persons of DA&FE will work closely with resource persons of SI at test, staging and production environment during knowledge transfer phase. All knowledge transfer should be documented and possibly recorded. The SI will ensure capacity building of the IT resource persons of DA&FE on maintenance of software and infrastructure.

8.15.5 Expected Project Timeline

<i>SI#</i>	<i>Category</i>	<i>Payment Terms</i>
a)	Enhancement, Design, Development & Implementation of Krushak Odisha Portal	Within <u>6 months</u> from the date of work order
b)	Operation & Maintenance Krushak Odisha Portal	<u>36 months</u> from the date of go-live of the Krushak Odisha Portal
c)	Operation & Maintenance Existing Modules / Sub-modules	<u>42 months</u> from the date of work order
d)	Technical Support Unit	<u>36 months</u> from the date of go-live of the Krushak Odisha Portal

8.15.6 Payment Terms

<i>SI#</i>	<i>Category</i>	<i>Payment Terms</i>	
a)	Design, Development & Implementation of Krushak Odisha Portal	<ul style="list-style-type: none"> – 20% payment on Prototype & SRS Approval – 20% payment on completion of development & hosting in the staging server – 20% payment in acceptance of UAT & completion of 1st Security audit – 20% payment on Go-Live – Balance 20% will be paid after 1 year of successful Go-Live of the application. 	
b)	Operation & Maintenance Krushak Odisha Portal & Existing Modules / Sub-modules	Application Support Software Maintenance System/Infra Support	100% cost of this item equally divided into 12 quarters
c)	Technical Support Unit	100% cost of this item equally divided into 12 quarters	
d)	Additional Modules / Change Request	100% payment on Go-Live of the additional modules / change request	

SI#	Category	Payment Terms
e)	Security Audit	100% payment on submission of Safe-To-Host Certificate
f)	SSL Certificate	100% payment on submission of configuration report

8.16 Project Documentation

The SI will share below list of documents during the project contract period.

a) During Requirement study phase

- Project Inception report
- System requirement Study Documents
- Screen prototypes & prototype walk through
- High Level Design (HLD)/ Low Level Design (LLD) Including
 - i. Application architecture documents
 - ii. ER diagrams and other data modelling documents
 - iii. Database design
 - iv. Application component design including component deployment views, control flows, etc.
 - v. Application flows and logic

b) During Design, Development and Testing phases Phase

- Approved design plan
- Test Plans , Test cases, Test Result

c) Third Party Audit

- Report of security audit and Safe- to-Host Certificate

d) Training

- User Manual
- FAQ Documents
- Help documents
- Video tutorials
- Application Installation & Configuration Manual

e) User Acceptance Test and Go- Live

- UAT Certificate
- Go- Live Certificate

8.17 Application Availability & Performance

Service Category	Description	Required Service Level	Penalty	
			% Availability	Penalty as %
Application availability	Availability of all Modules for at least 99.9% of time measured on monthly basis for a 24x7x365 time period excluding the OSDC Hardware/network downtimes, if any as per the OSDC performance reports. The non-availability for application service, website measured on monthly basis and excluding the scheduled maintenance shutdown. Performance of system refers to the proper and timely functioning of the system's functionalities. The applications should be available and performing as per functionalities	99.9%	<99.9% & >=99%	0.5%
			< 99% & >= 98%	1%
			< 98% & >= 97%	2%
Application Performance	a) Average page opening/loading time - 7 seconds b) Average response time for retrieval of information from server – 7 seconds c) Business Transaction Response Time involving uploading/downloading of documents - 30 seconds (Considering average 5 scanned documents of 0.5 Mb)	95% (Response time of services, measured monthly)	<95% & >=93%	0.5%
			< 93% & >= 91%	1%
			< 91% & >= 89%	2%

- a) For each additional drop of 1% in Application availability below 97%, 2% of the Quarterly Instalment of Managed IT/Service Delivery Phase will be levied as additional penalty
- b) Application availability at OSDC of less than 97% continuously for two quarter will

be considered as the Breach of the Agreement in case of O&M Phase and DA&FE reserves the Right to terminate the agreement

- c) The non-availability for application service, website measured on monthly basis and excluding the scheduled maintenance shutdown. Performance of system refers to the proper and timely functioning of the system's functionalities.
- d) The applications should be available and performing as per functionalities
- e) Standard Bandwidth for analyzing response time of the developed/ customized application will be 256 Kbps
- f) For each additional drop of 1% in Application performance below 89%, 2% of the Quarterly Instalment of Managed IT/Service Delivery Phase will be levied as additional penalty.
- g) Application availability and performance will be monitored and reports will be generated as per the monitoring system deployed at OSDC.

8.17.1 During Implementation

In case of delay in implementation of the project as per the Delivery Schedule mentioned in the RFP, penalties shall be imposed as mentioned below:

- a) In the event of delay in execution of work, specified in this Contract / furnishing of deliverables, the SI shall be liable to a penalty @ 0.25% of the value of work order for the respective component/item, for every week of delay up to a maximum of 10%, after which DA&FE shall be at liberty to take action against the SI as deemed proper (such as cancellation of order, increase of penalty percentage etc).
- b) For the purpose of this clause, part of a week shall be considered to be a full week.
- c) Penalty will not be applicable if the delay is not attributable to the SI. However, in such cases SI has to communicate in writing the reason of delay. The decision of the Purchaser in this regard shall be final.

8.17.2 Reporting Procedures of SLA

The SI's representative will prepare and distribute Service level performance reports in a mutually agreed format by the 10th working day of the completion of each month. The reports will include "actual versus target" Service Level Performance, a variance analysis and discussion of appropriate issues or significant events.

8.18 Service Level Metrics for Application Management

The purpose of this SLA is to clearly define the expected levels of service to be provided by selected SI to purchaser during the entire duration of this contract or till the amendment of SLA whichever is earlier.

8.18.1 Definitions

- a) "Scheduled Maintenance Time" shall mean the time that the System is not in service due to a scheduled activity. The scheduled maintenance time would not be during Working Hour timeframe. Further, scheduled maintenance time is planned downtime with the prior permission.
- b) "Scheduled operation time" means the scheduled operating hours of the System for the month. All scheduled maintenance time on the system would be deducted from the total operation time for the month to give the scheduled operation time. The total operation time for the applications within the Primary DC, DR and critical client site infrastructure will be 12 hrs. X 7 days X 12 months.
- c) "System downtime" means accumulated time during which the System is totally inoperable within the Scheduled Operation Time.
- d) "Availability" means the time for which the services and facilities are available for conducting operations including application and associated infrastructure. Availability is defined as: $\{(Scheduled\ Operation\ Time - System\ Downtime) / (Scheduled\ Operation\ Time)\} 100\%$
- e) "Incident" refers to any event / abnormalities in the functioning of the Data Centre Equipment / Services that may lead to disruption in normal operations of System or Application services.

8.18.2 Interpretations

- a) The business hours are 10:00AM to 5:30PM on all Govt. of Odisha working days.
- b) "Non-Business Hours" shall mean hours excluding "Business Hours".
- c) The SLA parameters shall be monitored on a monthly basis as per the individual SLA parameter requirements.
- d) Overall Availability and Performance Measurements will be on a monthly basis for the purpose of Service Level reporting. An "Availability and Performance Report" will be provided by the SI on monthly basis in the suggested format for review. The monthly Availability and Performance Report shall be containing the summary of all incidents reported and associated SI performance measurement for that period. The monthly availability and performance report will be deemed to be accepted by the DA&FE.
- e) The SI is expected to provide the required service levels. In case the service levels cannot be achieved at service levels defined in the tables below, it shall result in a breach of contract and invoke the penalty clause. Payments to the SI are linked to the compliance with the SLA metrics laid down in the tables below. During the contract period, it is envisaged that there could be changes to the SLA, in terms of addition, alteration or deletion of certain parameters, based on mutual consent of

both the parties i.e. the DA&FE and SI.

9 Formats for Submission of Proposal

9.1 Self-Declaration: Not Blacklisted

To (Company letter head)
The General Manager (Admin)
Odisha Computer Application Centre
(Technical Directorate of E&IT Dept, Govt. of Odisha)
N-1/7-D, Acharya Vihar P.O. - RRL, Bhubaneswar - 751013

Sub: Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha – *Self Declaration for not Blacklisted*

Sir

In response to the RFP No.: OCAC-SEGP-SPD-0010-2021-21012 for RFP titled "Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha", as an owner/ partner/ Director of (organisation name) _____

I/ We hereby declare that presently our Company/ firm is not under declaration of ineligible for corrupt & fraudulent practices, blacklisted either indefinitely or for a particular period of time, or had work withdrawn, by any State/ Central government/ PSU.

If this declaration is found to be incorrect then without prejudice to any other action that may be taken, my/ our security may be forfeited in full and the tender if any to the extent accepted may be cancelled.

Thanking you,

Signature
(Authorised Signatory)

Seal:

Date:

Place:

Name of the Bidder:

9.2 Bidder's Authorization Certificate

To (Company letter head)

The General Manager (Admin)
Odisha Computer Application Centre
(Technical Directorate of E&IT Dept, Govt. of Odisha)
N-1/7-D, Acharya Vihar P.O. - RRL, Bhubaneswar - 751013

Sub: Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha – Bidder's Authorization Certificate

Sir,

With reference to the RFP No.: OCAC-SEGP-SPD-0010-2021-21012 , Ms./Mr. <Name>, <Designation> is hereby authorized to attend meetings & submit pre-qualification, technical & commercial information as may be required by you in the course of processing the above said Bid. S/he is also authorized to attend meetings & submit technical & commercial information as may be required by you in the course of processing above said application. Her/his contact mobile number is _____ and Email id is _____. For the purpose of validation, his/ her verified signatures are as under.

Thanking you,

Signature
(Authorised Signatory)

Verified Signature by
Director/CEO

Seal:

Date:

Place:

Name of the Bidder:

9.3 Acceptance of Terms & Conditions

To (Company letter head)

The General Manager (Admin)
Odisha Computer Application Centre
(Technical Directorate of E&IT Dept, Govt. of Odisha)
N-1/7-D, Acharya Vihar P.O. - RRL, Bhubaneswar - 751013

Sub: Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha – *Acceptance of Terms & Conditions*

Sir,

I have carefully and thoroughly gone through the Terms & Conditions along with scope of work contained in the RFP Document [No. OCAC-SEGP-SPD-0010-2021-21012] regarding Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha.

I declare that all the provisions/clauses including scope of work of this RFP/Tender Document are acceptable to my company. I further certify that I am an authorized signatory of my company and am, therefore, competent to make this declaration.

Thanking you,

Signature
(Authorised Signatory)

Seal:

Date:

Place:

Name of the Bidder:

9.4 Technical Bid Cover Letter

To (Company letter head)

The General Manager (Admin)
Odisha Computer Application Centre
(Technical Directorate of E&IT Dept, Govt. of Odisha)
N-1/7-D, Acharya Vihar P.O. - RRL, Bhubaneswar - 751013

Sub: Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha – *Technical Bid Submission*

Sir,

We, the undersigned, offer to provide solution to OCAC, for Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha in response to the RFP No.: OCAC-SEGP-SPD-0010-2021-21012

We are hereby submitting our Proposal, which includes the Pre-Qualification Bid, Technical bid and the Commercial Bid sealed in a separate envelope.

We hereby declare that all the information and statements made in this Technical bid are true and accept that any misinterpretation contained in it may lead to our disqualification.

We undertake, if our Proposal is accepted, to initiate the implementation services related to the assignment not later than the date indicated in the RFP Document.

We agree to abide by all the terms and conditions of the RFP document. We would hold the terms of our bid valid for 180 days as stipulated in the RFP document.

We understand you are not bound to accept any Proposal you receive.

Thanking you,

Signature
(Authorised Signatory)

Seal:

Date:

Place:

Name of the Bidder:

9.4.1 Project Citation Format

Relevant IT / e-Gov Project Experience	
<i>General Information</i>	
Name of the project	
Client for which the project was executed	
Name and contact details of the client	
Date of award and date of completion	
<i>Project Details</i>	
Description of the project	
Scope of services	
Service levels being offered/ Quality of service (QOS)	
Technologies used	
Outcomes of the project	
<i>Other Details</i>	
Total cost of the project	
Total cost of the services provided by the respondent	
Duration of the project (no. of months, start date, completion date, current status)	
<i>Other relevant Information</i>	
Copy of Work Order	

9.4.2 Proposed Solution

Technical approach, methodology and work plan are key components of the Technical Proposal. It is suggested to present Approach and Methodology divided into the following sections:

- a) Solution Proposed
- b) Understanding of the project (how the solution proposed is relevant to the understanding)
- c) Technical Approach and Methodology

Thanking you,

Signature
(Authorised Signatory)

Seal:

Date:

Place:

Name of the Bidder:

9.4.3 Proposed Work Plan

Sl#	Activity ¹	Weeks							
		1	2	3	4	5	6	7	n
a)									
b)									
c)									
d)									
e)									
f)									
g)									
h)									
i)									
j)									
k)									
l)									
m)									
n)									
o)									
p)									
q)									
r)									
s)									
t)									
u)									
v)									
w)									
x)									
y)									
z)									

1. Indicate all main activities of the assignment, including delivery of reports (e.g.: inception, interim, and final reports), and other benchmarks such as Purchaser approvals. For phased assignments indicate activities, delivery of reports, and benchmarks separately for each LOT.
2. Duration of activities shall be indicated in the form of a bar chart.

9.4.4 Team Composition

Name of Staff with qualification and experience	Area of Expertise	Position Assigned	Task Assigned	Time committed for the engagement

9.4.5 Curriculum Vitae (CV) of Key Personnel Proposed

<i>General Information</i>	
Name of the person	
Current Designation / Job Title	
Current job responsibilities	
Proposed Role in the Project	
Proposed Responsibilities in the Project	
<i>Academic Qualifications</i>	
Degree	
Academic institution graduated from	
Year of graduation	
Specialization (if any)	
Key achievements and other relevant information (if any)	
Professional Certifications (if any)	
Total number of years of experience	
Number of years with the current company	
Summary of the Professional / Domain Experience	
Number of complete life cycle implementations carried out	
The names of customers (Please provide the relevant names)	
Past assignment details (For each assignment provides details regarding name of organizations worked for, designation, responsibilities, tenure).	
<i>Prior Professional Experience</i>	
Organizations worked for in the past	
Organization name	
Duration and dates of entry and exit	
Designation Location(s)	
Key responsibilities	
<i>Prior Project Experience</i>	
Project name	
Client	
Key project features in brief Location of the project	
Designation	
Role	
Responsibilities and activities	
Duration of the project	
Please provide only relevant projects.	
<i>Proficient in languages</i>	
Against each language listed indicate if speak/read/write	

9.4.6 Deployment of Personnel

Sl#	Name of the Staff	Staff input in Months (in the form of a bar chart)							Total staff man-months proposed
		1	2	3	4	5	6	n	Total
Total									

1. For Professional Staff the input should be indicated individually; for Support Staff it should be indicated by category
2. Months are counted from the start of the assignment.



Full time input



Part time input

9.5 Undertaking on Pricing of Items of Technical Response

To (Company letter head)

The General Manager (Admin)
Odisha Computer Application Centre
(Technical Directorate of E&IT Dept, Govt. of Odisha)
N-1/7-D, Acharya Vihar P.O. - RRL, Bhubaneswar - 751013

Sub: Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha –Undertaking on Pricing of Items of Technical Response

Sir,

I/We do hereby undertake that Commercial Proposal submitted by us (against RFP No.: OCAC-SEGP-SPD-0010-2021-21012) is inclusive of all the items in the technical proposal and is inclusive of all the clarifications provided/may be provided by us on the technical proposal during the evaluation of the technical offer. We understand and agree that our Commercial Proposal is firm and final and that any clarifications sought by you and provided by us would not have any impact on the Commercial Proposal submitted by us.

Thanking you,

Signature
(Authorised Signatory)

Seal:

Date:

Place:

Name of the Bidder:

9.6 Format for Bank Guarantee for Earnest Money Deposit

To

The General Manager (Admin)
Odisha Computer Application Centre
(Technical Directorate of E&IT Dept, Govt. of Odisha)
N-1/7-D, Acharya Vihar P.O. - RRL, Bhubaneswar - 751013

Sub: Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha - RFP No.: OCAC-SEGP-SPD-0010-2021-21012

Whereas <<Name of the bidder>> (hereinafter called 'the Bidder') has submitted the bid for Submission of RFP Ref. No. OCAC-SEGP-SPD-0010-2021-21012 , dated 02/01/2021 for Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha (hereinafter called "the Bid") to OCAC.

Know all Men by these presents that we <<Name of the Bidder>> having our office at <<Address>> (hereinafter called "the Bank") are bound unto the <<Nodal Agency>> (hereinafter called "the Purchaser") in the sum of Rs. <<Amount in figures>> (Rupees <<Amount in words>> only) for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors and assigns by these presents. Sealed with the Common Seal of the said Bank this <<Date>>

The conditions of this obligation are:

1. If the Bidder having its bid withdrawn during the period of bid validity specified by the Bidder on the Bid Form; or
2. If the Bidder, having been notified of the acceptance of its bid by the Purchaser during the period of validity of bid
 - a. Withdraws his participation from the bid during the period of validity of bid document; or
 - b. Fails or refuses to participate in the subsequent Tender process after having been short listed;

We undertake to pay to the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to <<insert date>> and including <<extra time over and above mandated in the RFP>> from the last date of submission and any demand in respect thereof should reach the Bank not later than the above date.

NOTWITHSTANDING ANYTHING CONTAINED HEREIN:

- i) Our liability under this Bank Guarantee shall not exceed Rs. <<Amount in figures>> (Rupees <<Amount in words>> only)
- ii) This Bank Guarantee shall be valid upto <<insert date>>)
- iii) It is condition of our liability for payment of the guaranteed amount or any part thereof arising under this Bank Guarantee that we receive a valid written claim or demand for payment under this Bank Guarantee on or before <<insert date>>) failing which our liability under the guarantee will automatically cease.

(Authorized Signatory of the Bank)

Seal:

Date:

9.7 Financial Bid Letter

To (Company letter head)

The General Manager (Admin)
Odisha Computer Application Centre
(Technical Directorate of E&IT Dept, Govt. of Odisha)
N-1/7-D, Acharya Vihar P.O. - RRL, Bhubaneswar - 751013

Sub: Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha – *Financial Bid Submission*

Sir,

We, the undersigned, offer to provide the service for Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha as per RFP No.: OCAC-SEGP-SPD-0010-2021-21012 and our Proposal (Technical and Financial Proposals). Our attached Financial Proposal is for the sum of <<Amount in words and figures>> exclusive of taxes and duties.

1) PRICE AND VALIDITY

All the prices mentioned in our Tender are in accordance with the terms as specified in the RFP documents. All the prices and other terms and conditions of this Bid are valid for a period of 3 years from the date of opening of the Bid.

We hereby confirm that our prices do not include any taxes and duties.

We understand that the actual payment would be made as per the existing tax rates during the time of payment.

2) UNIT RATES

We have indicated in the relevant forms enclosed, the unit rates for the purpose of on account of payment as well as for price adjustment in case of any increase to / decrease from the scope of work under the contract.

3) TENDER PRICING

We further confirm that the prices stated in our bid are in accordance with your clauses in RFP/Tender document.

4) QUALIFYING DATA

We confirm having submitted the information as required by you in your RFP. In case you require any other further information/ documentary proof in this regard before/during evaluation of our Tender, we agree to furnish the same in time to your satisfaction.

5) BID PRICE

We declare that our Bid Price is for the entire scope of the work as specified in the <Refer Section No.>. These prices are indicated Commercial Bid attached with our bid as part of the Tender. In case there is substantial difference between the component wise price approved by OCAC and the price quoted by the bidder, OCAC will have the rights to ask the bidder to realign their cost without impacting the total bid price. We hereby agree to submit our offer accordingly.

6) PERFORMANCE BANK GUARANTEE

We hereby declare that in case the contract is awarded to us, we shall submit the Performance Bank Guarantee as specified in the clause 6.7 of this RFP document.

Our Financial Proposal shall be binding upon us subject to the modifications resulting from Contract negotiations, up to expiration of the validity period of the Proposal, i.e., [Date].

We understand you are not bound to accept any Proposal you receive.

We hereby declare that our Tender is made in good faith, without collusion or fraud and the information contained in the Tender is true and correct to the best of our knowledge and belief.

We understand that our Tender is binding on us and that you are not bound to accept a Tender you receive.

Thanking you,

Signature
(Authorised Signatory)

Seal:

Date:

Place:

Name of the Bidder:

9.8 Commercial Bid

Sl#	Item	Unit	Unit Rate (excluding GST)	Qty	Cost (excluding GST)
a)	Takeover & System Integration of Existing Applications and thereafter Enhancement, Development & implementation of Krushak Odisha Portal	Lump sum		1	
b)	Operation & Maintenance of existing & newly developed modules	Year		3	
c)	Technical Support Unit (onsite resource deployment)	Month		36	
d)	EV Green-bar SSL Certificate with 3 years validity	Lump-Sum		1	
e)	Security audit of existing and new modules from Cert-in Empanelled firm (once in six month)	No		6	
f)	Change request for future enhancement such as new modules / sub-modules, Mobile App, Integration with other applications (to be paid as per actual, if consumed)	Man-month		50	
	Grand Total				

Above cost is exclusive of all taxes & duties.

Thanking you,

Signature
(Authorised Signatory)

Seal:

Date:

Place:

Name of the Bidder:

9.9 Performance Security

To

The General Manager (Admin)
Odisha Computer Application Centre
(Technical Directorate of E&IT Dept, Govt. of Odisha)
N-1/7-D, Acharya Vihar P.O. - RRL, Bhubaneswar - 751013

Sub: Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha - RFP No.: OCAC-SEGP-SPD-0010-2021-21012

Whereas, <<name of the supplier and address>> (hereinafter called "the bidder") has undertaken, in pursuance of contract no. <Insert Contract No.> dated. <Date> to provide services for Selection of Software firm for Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha (hereinafter called "the beneficiary")

And whereas it has been stipulated by in the agreement that the bidder shall furnish you with a bank guarantee by a recognized bank for the sum specified therein as security for compliance with its obligations in accordance with the agreement;

And whereas we, <Name of Bank> a banking company incorporated and having its head /registered office at <Address of Registered Office> and having one of its office at <Address of Local Office> have agreed to give the supplier such a bank guarantee.

Now, therefore, we hereby affirm that we are guarantors and responsible to you, on behalf of the supplier, up to a total of <<Cost of Service>> in (words) and we undertake to pay you, upon your first written demand declaring the supplier to be in default under the agreement and without cavil or argument, any sum or sums within the limits of <<Cost of Service>> (in Words) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the bidder before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the agreement to be performed there under or of any of the agreement documents which may be made between you and the Bidder shall in any way release us from any liability under this guarantee and we hereby waive notice of any such change, addition or modification. This Guarantee shall be valid until <<<insert date>>

Notwithstanding anything contrary contained in any law for the time being in force or banking practice, this guarantee shall not be assignable or transferable by the

beneficiary i.e OCAC. Notice or invocation by any person such as assignee, transferee or agent of beneficiary shall not be entertained by the Bank.

NOTWITHSTANDING ANYTHING CONTAINED HEREIN:

- i) Our liability under this bank guarantee shall not exceed <<amount>> (Amt. in words).
- ii) This bank guarantee shall be valid up to <<insert date>>.
- iii) It is condition of our liability for payment of the guaranteed amount or any part thereof arising under this bank guarantee that we receive a valid written claim or demand for payment under this bank guarantee on or before <<insert date>> failing which our liability under the guarantee will automatically cease.

(Authorized Signatory of the Bank)

Seal:

Date:

9.10 Statement of Deviation

To (Company letter head)

The General Manager (Admin)
Odisha Computer Application Centre
(Technical Directorate of E&IT Dept, Govt. of Odisha)
N-1/7-D, Acharya Vihar P.O. - RRL, Bhubaneswar - 751013

Sub: Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha – *Statement of Deviation*

Sir,

We declare that all the services shall be performed strictly in accordance with the Tender documents except for the variations and deviations, all of which have been detailed out exhaustively in the following statement, irrespective of whatever has been stated to the contrary anywhere else in our bid.

Further we agree that additional conditions, if any, found in the Tender documents, other than those stated in deviation schedule, shall not be given effect to.

A. On the Terms of Reference/Scope of Work

[Suggest and justify here any modifications or improvement to the Scope of Work you are proposing to improve performance in carrying out the assignment (such as deleting some activity you consider unnecessary, or adding another, or proposing a different phasing of the activities). Such suggestions should be concise and to the point, and incorporated in your Proposal.]

Sl#	Deviation	Material	Non-Material	Impacted Deliverable(s)	Impacted Timeline(s)	Financial Impact
1)	<Deviation description >	<Yes / No>	<Yes / No>	<Name(s) of Deliverables to get affected by the Deviation>	<Effect on Timelines due to the Deviation>	<Value>
2)	<Deviation description >	<Yes / No>	<Yes / No>	<Name(s) of Deliverables to get affected by the Deviation>	<Effect on Timelines due to the Deviation>	<Value>
3)	<Deviation description >	<Yes / No>	<Yes / No>	<Name(s) of Deliverables to get affected by the Deviation>	<Effect on Timelines due to the Deviation>	<Value>

B. Any other areas



Thanking you,

Signature
(Authorised Signatory)

Seal:

Date:

Place:

Name of the Bidder:

10 Proposed Master Service Agreement

Master Service Agreement for Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha

This agreement is made on ___/___/_____ between Odisha Computer Application Centre, the Designated Technical Directorate of Electronics and Information Technology Department, Government of Odisha having its office at Plot-N-1/7-D, Po- RRL, Acharya Vihar Square, Bhubaneswar - 751013, Odisha. (hereinafter called "**Purchaser**" or "**OCAC**") which expression shall unless repugnant to the context thereof include his successors, heirs, assigns, administrator, executive & representative of the one part,

And

M/s _____, a company registered under the Provisions of Act,1956 _____ is having its registered office at _____ India (hereinafter called "**Solution Provider**") which expression shall unless repugnant to the context thereof include his successors, heirs, assigns, administrator, executive and representatives of the other part.

WHEREAS OCAC had invited Request for Proposal (RFP) for selection of software firm for Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha vide RFP Reference No. _____. Based on the tender evaluation, M/s _____ has been selected as "**Solution Provider**".

And in "pursuance of above facts the parties have agreed to enter into this agreement.

NOW THIS AGREEMENT WITNESSES AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract referred to.
2. The following documents (collectively referred to as "Contract Documents") shall be deemed to form and be read and construed as part of this Agreement, viz.:
 - a) RFP floated by OCAC Reference No. _____, Technical bid and Commercial furnished by Solution Provider with respect to RFP
 - b) The General Conditions of Contract
 - c) The Special Conditions of Contract
 - i) Following Appendix to GC and SC:
 - ii) Appendix-A: Scope of Work
 - iii) Appendix-B: Deliverables
 - iv) Appendix-C: Cost of Service

d) The mutual rights and obligations of the Purchaser and the Solution Provider shall carry out the Services in accordance with the provisions of the Contract;

IN WITNESS WHEREOF, the Parties hereto have caused this Contract to be signed in their respective names as of the day and year above written.

On behalf of Purchaser

On behalf of Solution Provider

Signature:
Name:
Designation:

Signature:
Name:
Designation:

Witness -1
Name & Address:

Witness -1
Name & Address:

Witness -2
Name & Address:

Witness -2
Name & Address:

1. GENERAL CONDITIONS OF CONTRACT

1.1. Definitions

Unless the context otherwise requires, the following terms whenever used in this Contract have the following meanings:

- 1.1.1. “Applicable Law” means the laws and any other instruments having the force of law in India.
- 1.1.2. “Bidder” means the entity bidding for the services under the Contract.
- 1.1.3. “Solution Provider” means M/s _____ whose proposal to perform the Contract has been accepted by the Purchaser and is named as such in the Agreement and may provide or provides the Services to the Purchaser under this Contract.
- 1.1.4. “Contract” means the Agreement entered into between the Purchaser and the Solution Provider, together with the contract documents referred to therein, including General Conditions (GC), the Special Conditions (SC), all the attachments, appendices, annexure, and all documents incorporated by reference therein.
- 1.1.5. “Deliverables” means the services agreed to be delivered by Solution Provider in pursuance of the agreement as defined more elaborately in the RFP;
- 1.1.6. “Effective Date” means the date on which this Contract comes into force i.e. Date of issuance of Purchase Order (referred as PO).
- 1.1.7. “Day” means a Govt. of Odisha working day.
- 1.1.8. “GC” mean these General Conditions of Contract.
- 1.1.9. “Government” means the Government of Odisha
- 1.1.10. “In writing” means communicated in written form with proof of receipt.
- 1.1.11. “Intellectual Property Rights” means any patents, copyrights, trademarks, trade names, industrial design, trade secret, permit, service marks, brands, proprietary information, knowledge, technology, licenses, databases, software, know-how, or other form of intellectual property rights, title, benefits or interest, whether arising before or after execution of the Contract.
- 1.1.12. “Member” means any of the entities that make up the joint venture / consortium / association, and “Members” means all these entities.
- 1.1.13. “Man-Month” means one resource working for 1 month (Calendar working days as per Govt. of Odisha).
- 1.1.14. “Party” means the Purchaser or the Solution Provider, as the case may be, and “Parties” means both of them.

- 1.1.15. "Personnel" means persons hired or appointed by the Solution Provider and assigned to the performance of the Services or any part thereof
- 1.1.16. "Purchaser" means Odisha Computer Application Centre, Designated Technical Directorate of Information Technology Department, Government of Odisha an entity purchasing the services under this Contract.
- 1.1.17. "Resident" means normal resident of Odisha
- 1.1.18. "RFP" means Request for Proposal invited for Selection of Software firm for Development and Maintenance of Krushak Odisha - Odisha's Farmer Database for Department of Agriculture and Farmers' Empowerment, Government of Odisha vide RFP Reference No.: _____.
- 1.1.19. "SC" means the Special Conditions of Contract by which the GC may be amended or supplemented.
- 1.1.20. "Services" means the work to be performed by the Solution Provider pursuant to this Contract, as described in Appendix-A hereto.
- 1.1.21. The "Selected Agency" means Agency which is selected through the tender process i.e. System Integrator / Solution Provider.
- 1.1.22. The "System Integrator (SI)" means Solution Provider engaged for development of software application

1.2. Interpretation

In this Agreement, unless otherwise specified:

- 1.2.1. References to Clauses, Sub-Clauses, Paragraphs, Schedules and Annexures are to clauses, sub-clauses, paragraphs, schedules and annexures to this Agreement;
- 1.2.2. Use of any gender includes the other genders;
- 1.2.3. A reference to any statute or statutory provision shall be construed as a reference to the same as it may have been, or may from time to time be, amended, modified or re-enacted;
- 1.2.4. Any reference to a 'day' (including within the phrase 'business day') shall mean a period of 24 hours running from midnight to midnight;
- 1.2.5. References to a 'business day' shall be construed as a reference to Govt. of Odisha Working Day
- 1.2.6. References to times are to Indian Standard Time;
- 1.2.7. A reference to any other document referred to in this Agreement is a reference to that other document as amended, varied, novated or supplemented at any time; and
- 1.2.8. All headings and titles are inserted for convenience only. They are to be ignored in the interpretation of this Agreement.

1.3. Ambiguities within Agreement

In case of ambiguities or discrepancies within this Agreement, the following principles shall apply:

- 1.3.1. as between two Clauses of this Agreement, the provisions of a specific Clause relevant to the issue under consideration shall prevail over those in a general Clause;
- 1.3.2. as between the provisions of this Agreement and the Schedules / Annexures, the Agreement shall prevail, save and except as expressly provided otherwise in the Agreement or the Schedules/Annexures; and
- 1.3.3. as between any value written in numerals and that in words, the value in words shall prevail.

1.4. Law Governing Contract

This Contract, its meaning and interpretation, and the relation between the Parties shall be governed by the Applicable Laws of India.

1.5. Legal Jurisdiction

Any dispute arising out of this agreement shall be subject to the exclusive jurisdiction of courts in Bhubaneswar, Odisha.

1.6. Language

This Contract has been executed in English, which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Contract.

1.7. Notices

- 1.7.1. Any notice, request or consent required or permitted to be given or made pursuant to this Contract shall be in writing. Any such notice, request or consent shall be deemed to have been given or made when delivered in person to an authorized representative of the Party to whom the communication is addressed, or when sent to such Party at the address specified in the SC.
- 1.7.2. A Party may change its address for notice hereunder by giving the other Party notice in writing of such change to the address specified in the SC.
- 1.7.3. Authorized Representatives: Any action required or permitted to be taken, and any document required or permitted to be executed under this Contract by the Purchaser or the Solution Provider may be taken or executed by the officials specified in the SC.
- 1.7.4. Taxes and Duties: All taxes would be paid on actuals as per applicable laws.

1.8. Fraud and Corruption

1.8.1. Definition

It is the Purchaser's policy to require that the Purchaser as well as Solution Provider observe the highest standard of ethics during the selection and execution of the Contract. The Purchaser also requires that the Solution Provider does not demand any service charges from the Resident unless the same is agreed with the Purchaser in advance. In pursuance of this policy, the Purchaser: Defines, for the purpose of this provision, the terms set forth below as follows:

- a) "corrupt practice" means the offering, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the selection process or in contract execution;
- b) "fraudulent practice" means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract with the Purchaser; and includes collusive practice among bidders, prior to or after proposal submission, designed to establish bid prices at artificially high or non-competitive levels and to deprive the Purchaser of the benefits of free and open competition.
- c) "collusive practices" means a scheme or arrangement between two or more bidders, with or without the knowledge of the Purchaser, designed to establish prices at artificial, non-competitive levels;
- d) "coercive practices" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in a procurement process, or affect the execution of a contract;
- e) "unfair trade practices" means supply of services different from what is ordered on, or change in the Scope of Work which was agreed to;

1.8.2. Measures to be taken by the Purchaser

- a) The Purchaser may terminate the contract if it is proven that at any time the representatives or employees of the Solution Provider were engaged in corrupt, fraudulent, collusive or coercive practices during the execution of the contract, without the Solution Provider having taken timely and appropriate action satisfactory to the Purchaser to remedy the situation;
- b) The Purchaser may also sanction against the Solution Provider, including declaring the Solution Provider ineligible stated period of time (as decided by purchaser), to be awarded a contract if it at any time it is proven that that the Solution Provider has, directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for, or in executing, a Purchaser-financed contract.

2. COMMENCEMENT, COMPLETION, MODIFICATION & TERMINATION OF CONTRACT

2.1. Term of Contract

The term under this Contract will be for a period of 42 months which shall start from effective date of each work order.

2.2. Extension of Contract

- 2.2.1. If required by the Purchaser, an extension of the term can be granted to the Solution Provider. The final decision will be taken by the Purchaser.
- 2.2.2. The Purchaser shall reserve the sole right to grant any extension to the term above mentioned and shall notify in writing to the Solution Provider, at least one month before the expiration of the term hereof, whether it will grant the Solution Provider an extension of the term. The decision to grant or refuse the extension shall be at the Purchaser's discretion.
- 2.2.3. Where the Purchaser is of the view that no further extension of the term be granted to the Solution Provider, the Purchaser shall notify the Solution Provider of its decision at least one month prior to the expiry of the Term. Upon receipt of such notice, the Solution Provider shall continue to perform all its obligations hereunder, until such reasonable time beyond the term of the Contract with the Purchaser.

2.3. Termination of Contract

- 2.3.1. Normal termination of the contract would happen at the end of the tenure.
- 2.3.2. Pre-mature termination of the contract would happen in case of insolvency of bidder or due to conditions of breach happening due to reasons solely and entirely attributable to Bidder, provided prior thirty days written notice to rectify the same is given by the OCAC and failure by Bidder to rectify in the notice period.
- 2.3.3. Termination by Solution Provider - The Solution Provider may terminate this Contract, by not less than Ninety (90) days' written notice to the OCAC, such notice to be given after the occurrence of any of the following events –
 - a) If the Purchaser fails to pay any money due to the Solution Provider pursuant to this Contract and not subject to dispute pursuant to Clause 7.10 hereof within forty-five (45) days after receiving written notice from the SI that such payment is overdue.
 - b) If the Purchaser fails to comply with any final decision reached as a result of arbitration pursuant to Clause 7.10 hereof

- c) If the Purchaser is in material breach of its obligations pursuant to this Contract and has not remedied the same within forty-five (45) days (or such longer period as the Solution Provider may have subsequently approved in writing) following the receipt by the Purchaser of the Solution Provider's notice specifying such breach.
- d) OCAC failure to give acceptance of deliverables in mutually agreed time schedules

2.4. Effects of Termination

- 2.4.1. In the event of a pre-mature termination of this agreement by OCAC, the compensation payable to bidder will be decided in accordance with the Terms of Payment schedule for the milestones completed services and accepted deliverables till the last effective date of termination.
- 2.4.2. Parties shall mutually agree upon a transition plan and comply with such a plan. The bidder shall agree to extend full cooperation in supporting the transition process.

2.5. Binding Clause

All decisions taken by the Purchaser regarding the processing of the Contract shall be final and binding on all parties concerned.

2.6. Modifications or Variations

Any modification or variation of the terms and conditions of this Contract, including any modification or variation of the scope of the Services, may be made by written communication between the Parties and after Prior Mutual consent by both the parties. However, each Party shall give due consideration to any proposals for modification or variation made by the other Party.

2.7. Force Majeure

- 2.7.1. Any delay in or failure of the performance shall not constitute default hereunder or give rise to any claims for damage, if any, to the extent such delays or failure of performance is caused by occurrences such as acts of god or an enemy, expropriation or confiscation of facilities by Government authorities, acts of war, rebellion, sabotage or fires, floods, explosions, terrorist activities, military operations, riots, epidemics, civil commotions, strikes etc. The Solution Provider shall keep records of the circumstances referred to above and bring these to the notice of Government of Odisha in writing immediately on such occurrences. The amount of time, if any, lost on any of these counts shall not be counted for the Contract period. The decision of the Purchaser arrived at after consultation with the Solution Provider, shall be final and binding. Such a determined period of time will be extended by the Purchaser to enable the Solution Provider to complete the job within such

extended period of time. If a Solution Provider is prevented or delayed from performing any of its obligations under the Contract with Purchaser by Force Majeure, then the Solution Provider shall notify the Purchaser the circumstances constituting the Force Majeure and the obligations of which is thereby delayed or prevented, within five (5) working days from the occurrence of the events.

- 2.7.2. In the event the Force Majeure substantially prevents, hinders or delays a Solution Provider's performance of Services for a period in excess of five (5) working days from the occurrence of any such event, the Solution Provider may declare that an emergency exists. Post the emergency is declared to be over, the Purchaser will communicate to the Solution Provider to resume normal services within a period of seven (7) days. In the event that the Solution Provider is not able to resume services within the next seven days, the Purchaser may terminate the Contract and/or obtain substitute performance from an alternate Solution Provider.
- 2.7.3. Solution Provider will advise, in the event of his having to resort to this Clause, in writing, duly certified by the statutory authorities, the beginning and end of the causes of the delay, within fifteen (15) days of the occurrence and cessation of such Force Majeure.

2.8. No Breach of Contract

The failure of a Party to full fill any of its obligations under the contract shall not be considered to be a breach of, or default under, this Contract insofar as such inability arises from an event of Force Majeure, provided that the Party affected by such an event (a) has taken all reasonable precautions, due care and reasonable alternative measures in order to carry out the terms and conditions of this Contract, and (b) has informed the other Party as soon as possible about the occurrence of such an event.

Measures to be Taken

- 2.8.1. A Party affected by an event of Force Majeure shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall take all reasonable measures to minimize the consequences of any event of Force Majeure.
- 2.8.2. A Party affected by an event of Force Majeure shall notify the other Party of such event as soon as possible, and in any case not later than fourteen (14) days following the occurrence of such event, providing evidence of the nature and cause of such event, and shall similarly give written notice of the restoration of normal conditions as soon as possible.
- 2.8.3. Any period within which a Party shall, pursuant to this Contract, complete any action or task, shall be extended for a period equal to the time during which such Party was unable to perform such action as a result of Force Majeure.

- 2.8.4. During the period of their inability to perform the Services as a result of an event of Force Majeure, the Solution Provider, upon instructions by the Purchaser, shall either:
- a) Demobilize or
 - b) Continue with the Services to the extent possible, in which case the Solution Provider shall continue to be paid proportionately and on pro rata basis, under the terms of this Contract.
- 2.8.5. In the case of disagreement between the Parties as to the existence or extent of Force Majeure, the matter shall be settled according to Clause GC 8 (Settlement of dispute).

3. OBLIGATIONS OF THE SOLUTION PROVIDER

3.1. Scope of Work and Deliverables

This will be in conformity with the Scope of Work and Deliverables specified in the RFP document and shall include the submissions made by the bidder in their proposal and work plans, further refined during the negotiations. Deliverables and milestones shall be established with a process of formal acceptance or measurable criteria. In case of any conflict between RFP and Proposal submitted by the Bidder in relation to Scope of Work or Deliverables, the Proposal submitted by Bidder (including clarifications, if any) shall prevail and apply.

3.2. Norms Governing Service Delivery

- 3.2.1. Provide necessary performance guarantees on signing of the agreement;
- 3.2.2. Shall deliver the services in a professional manner commensurate with accepted industry practices and/or technical standards which are generally expected of such an engagement;
- 3.2.3. Bidders shall establish a formal team structure with a named Project Manager who will serve as single point of contact and staff with competent resources to provide effective and expert service delivery, in tune to the requirements;
- 3.2.4. Provide a roadmap and project plan for this engagement, describing clearly the responsibilities, timelines, dependencies, milestones and risks;
- 3.2.5. The cost of travel & accommodation during visit to various places of Odisha for various works like system study, training etc. should be borne by the bidder.

3.3. Standard of Performance

The Solution Provider shall perform the Services and carry out their obligations hereunder with all due diligence, efficiency and economy, in accordance with generally accepted professional standards and practices, and shall observe sound management practices, and employ appropriate technology and safe and effective equipment, machinery, materials and methods. The Solution Provider shall always act, in respect of any matter relating to this Contract or to the Services, as faithful advisers to the Purchaser, and shall at all times support and safeguard the Purchaser's legitimate interests in any dealings with third Parties.

3.4. Conflicts of Interest

The Solution Provider will be barred from participating in any Bid Process (downstream activities) falling within the Scope of Work / assisted by the Solution Provider or its personnel, till the duration of their Contract with the Purchaser in the department in which the Solution Provider is providing its services under this Contract. The Solution Provider would not be barred from executing existing projects for which it is already selected within the department, however it would be barred from any future projects / Bid Process (downstream activities) falling within the Scope of Work / assisted by the Solution Provider or its personnel, till the duration of their Contract with the Purchaser. The Solution Provider, if selected for any consultancy work, shall not be allowed to work in any downstream activity like application development, maintenance, support, hardware/software supply etc. in the same project. Similarly, the Solution Provider selected as the consultant shall not be allowed to work as Solution Provider and vice-versa in the same project.

3.5. General Confidentiality

Except with the prior written consent of the Purchaser or its client department/organisation, the Solution Provider and the Personnel shall not at any time communicate to any person or entity any confidential information acquired in the course of the Services, nor shall the Solution Provider and the Personnel make public the recommendations formulated in the course of, or as a result of, the Services.

3.6. Intellectual Property Rights (IPR)

The source code of entire applications (except OEM products/solutions) along with necessary documentations developed under this RFP/Contract should be shared with OCAC after Go-live of the application.

3.7. Assignment

The Solution Provider shall not assign, in whole or in part, their obligations under this Contract without the permission of Purchaser.

3.8. Force Majeure

Neither Party to this agreement shall be liable to the other for delay or default in performance of its obligations or any loss or damage which may be suffered by the other directly due to a Force Majeure event provided that the affected Party notifies the other Party of such event and its likely effects and duration as soon as possible and takes all reasonable steps to mitigate the losses/disruption.

3.9. Governing Law and Jurisdiction

This agreement and all questions of its interpretation shall be construed in accordance with the Laws of India in the High Court at Cuttack having jurisdiction. Suits, if any arising out of the contract/agreement shall be filed by either party in a court of Law to which the Jurisdiction of the High Court of Odisha extends.

3.10. Audit

- 3.10.1. The software and documents prepared for this project are subject to audit. The bidder should help OCAC during preparation of compliances of audit without any additional cost.
- 3.10.2. Software including source code, licenses (if any) and all technical documents/manuals shall be in favour of the OCAC and shall be submitted to the OCAC before final payment or on demand.
- 3.10.3. All records pertaining to this work shall be made available to the OCAC and its authorized agencies upon request for verification and/or audit, on the basis of a written request.

3.11. Good Faith

The Parties undertake to act in good faith with respect to each other's rights under this Contract and to adopt all reasonable measures to ensure the realization of the objectives of this Contract.

3.12. Operation of the Contract

The Parties recognize that it is impractical in this Contract to provide for every contingency which may arise during the life of the Contract, and the Parties hereby agree that it is their intention that this Contract shall operate fairly as between them, and without detriment to the interest of either of them, and that, if during the term of this Contract either Party believes that this Contract is operating unfairly, the Parties will use their best efforts to agree on such action as may be necessary to remove the cause or causes of such unfairness, but no failure to agree on any action pursuant to this Clause shall give rise to a dispute subject to arbitration in accordance with Clause GC 8 hereof.

4. SETTLEMENT OF DISPUTES

- 4.1. The Purchaser and the Solution Provider shall make every effort to resolve amicably by direct informal negotiation on any disagreement or dispute arising between them under or in connection with the Contract.
- 4.2. If, after thirty (30) days from the commencement of such informal negotiations, the Purchaser and the Solution Provider have been unable to resolve amicably a Contract dispute, the dispute should be referred to the Chief Executive Officer, OCAC for resolution.
- 4.3. If, after thirty (30) days from the commencement of such reference, Chief Executive Officer, OCAC have been unable to resolve amicably a Contract dispute between the Purchaser and the Solution Provider, either party may require that the dispute be referred to the Commissioner-cum-Secretary to Govt., E&IT Department, Govt. of Odisha.
- 4.4. Any dispute or difference whatsoever arising between the parties (Purchaser and Solution Provider) to the Contract out of or relating to the construction, meaning, scope, operation or effect of the Contract or the validity of the breach thereof, which cannot be resolved through the process specified above, shall be referred to a sole Arbitrator to be appointed by mutual consent of both the parties herein. In the event the parties cannot agree to sole arbitrator, such arbitrator shall be appointed in accordance with the Indian Arbitration and Conciliation Act, 1996.
- 4.5. The arbitration proceedings shall be held at Odisha and the language of the arbitration shall be English

5. ADHERENCE TO SAFETY PROCEDURES, RULES & REGULATIONS

- 5.1. The Solution Provider shall take all measures to ensure compliance with all applicable laws and shall ensure that the Personnel are aware of consequences of non-compliance or violation of laws including Information Technology Act, 2000 (and amendments thereof).
- 5.2. Statutory Audit
 - a) The deliverables prepared for this project are subject to audit (by CAG or other entities). The bidder should help OCAC during preparation of compliances of audit without any additional cost.
 - b) All technical documents/deliverables shall be in favour of the OCAC and shall be submitted to the OCAC before final payment or on demand.
 - c) All records pertaining to this work shall be made available to the OCAC and its authorized agencies upon request for verification and/or audit, on the basis of a written request.

6. LIMITATION OF LIABILITY

Except in cases of gross negligence or wilful misconduct: -

- 6.1. neither party shall be liable to the other party for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the supplier/ selected bidder to pay liquidated damages to the Purchaser; and
- 6.2. Maximum liability of the bidder for this project will be limited to the total value of the contract or the amount actually paid to the bidder whichever is lower and will not include any indirect or consequential clause or damage, loss or profit, data or revenue.

7. INDEMNITY

- 7.1. The Solution Provider shall indemnify the Purchaser from and against any costs, loss, damages, expense, claims including those from third parties or liabilities of any kind howsoever suffered, arising or incurred inter alia during and after the Contract period out of:
 - a) Any negligence or wrongful act or omission by the Solution Provider or any third party associated with Solution Provider in connection with or incidental to this Contract or;
 - b) Any breach of any of the terms of this Contract by the Solution Provider, the Solution Provider's Team or any third party
 - c) Any infringement of patent, trademark/copyright arising from the use of the supplied goods and related services or any party thereof
- 7.2. The Solution Provider shall also indemnify the Purchaser against any privilege, claim or assertion made by a third party with respect to right or interest in, service provided as mentioned in any Intellectual Property Rights and licenses
- 7.3. All indemnification obligations shall be subject to the Limitation of Liability clause.

8. CHANGE REQUEST MANAGEMENT

Any requirement beyond the scope mentioned in the RFP will be treated as Change Request and the process to address the change request is as follows:

- 8.1. Identification and documentation of change request requirement– The details of scope of change will be analysed and documented
- 8.2. Effort Estimate – OCAC will ask the successful bidder to submit the effort estimate in terms of man month rate using Function Point Analysis.
- 8.3. Approval or disapproval of the change request – Technical Committee constituted by OCAC will approve or disapprove the change requested including

the additional payments, after analysis and discussion with the bidder on the impact of the change on schedule.

- 8.4. Implementation of the change Request– The change will be implemented in accordance to the agreed cost, effort, and schedule. The vendor shall consolidate all approved CRs and raise invoice to OCAC accordingly.
- 8.5. The costing of change request shall be finalised as per cost mentioned in financial bid format- Software Enhancement Service.

9. ACTION AND COMPENSATION IN CASE OF DEFAULT

9.1. Conditions for default:

- a) The deliverables at any stage of the project as developed/ implemented by the Solution Provider do not take care of all or part thereof of the Scope of Work as agreed and defined under the Contract with the Purchaser.
- b) The deliverables at any stage of the project as developed/ implemented by the Solution Provider fails to achieve the desired result or do not meet the intended quality and objective as required by the Purchaser.
- c) The documentation is not complete and exhaustive.
- d) There is a change in resource before the completion of a pre-defined period.

- 9.2. The Purchaser may impose penalties on the Solution Provider providing the Services as per the Service Levels defined under this Contract.

10. SERVICE LEVEL AND PENALTY

As per RFP

11. PAYMENT TERM

- 11.1. The total fees payable to the bidder including a milestone based payment in the RFP would be specified. Such payments shall be inclusive of all taxes / levies and other out of pocket expenses. Rate of taxes will be applicable as per the rate prevailing at the time of submission of Bill.
- 11.2. Payments for additional services in case of change in scope will also be specified.
- 11.3. In case of a bona fide dispute regarding any invoice, OCAC shall be entitled to delay or withhold payment of the invoice or part of it, limited to the extent of the disputed amount.

12. MISCELLANEOUS PROVISIONS

- 12.1. Any failure or delay on part of any Party to exercise right or power under this Contract shall not operate as waiver thereof.

- 12.2. The Solution Provider shall notify the Purchaser of any material change in their status, in particular, where such change would impact performance of obligations under this Contract.
- 12.3. The Solution Provider shall at all times indemnify and keep indemnified the Purchaser against all claims/damages for any infringement of any copyrights while providing its services under the Project.
- 12.4. The Solution Provider shall at all times indemnify and keep indemnified the Purchaser against any claims in respect of any damages or compensation payable in consequences of any accident or injury sustained or suffered by its employees or agents or by any other third Party resulting from or by any wilful action or gross negligence by or on behalf of the Solution Provider.
- 12.5. The Solution Provider shall at all times indemnify and keep indemnified the Purchaser against any and all claims by Employees, agent(s), employed engaged or otherwise working for the Solution Provider, in respect of wages, salaries, remuneration, compensation or the like.
- 12.6. All claims regarding indemnity shall survive the termination or expiry of the Contract.
- 12.7. All materials provided to the Purchaser by Solution Provider are subject public disclosure laws such as RTI etc. except in respect of exclusions set out in such laws.
- 12.8. The Solution Provider shall not make or permit to be made a public announcement or media release about any aspect of the Contract without a written consent from the Purchaser
- 12.9. The Solution Provider shall not assign/outsource/sub-contract the project to any other agency, in whole or in part, to perform its obligation under this agreement.

13. SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of Contract (SCC) shall supplement the General Conditions of Contract (GCC). Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

13.1. The addresses are

For the Purchaser	For the Solution Provider
Odisha Computer Application Centre (OCAC) Designated Technical Directorate of Electronics & Information Technology Department, Government of Odisha, Plot No.: N-1/7-D, PO: RRL, Acharya Vihar Square, Bhubaneswar-751013, Odisha, India, Tel:	

For the Purchaser	For the Solution Provider
0674 - 2567064 / 2567858/ 2586838, Email: gm_ocac@ocac.in	

13.2. The Authorized Representatives are

For the Purchaser	For the Solution Provider
General Manager (Admn.) Odisha Computer Application Centre (OCAC) Designated Technical Directorate of Electronics & Information Technology Department, Government of Odisha, Plot-N- 1/7-D, Po-RRL, Acharya Vihar Square, Bhubaneswar - 751013, Odisha, India	

13.3. Contract Schedule

The Solution Provider	M/s
The effective date of the Contract/Work Order	
The date for the commencement of services	
Contract period	3 years 4 months from the effective date of contract/work order

13.4. Cost of Services

The cost of service as per Commercial Bid of the successful bidder is described at **Appendix-C – Cost of Services**

13.5. Bank Account Details

All payment under this contract shall be made by Electronic Transfer to the account of the Solution Provider with (Bank & Account No.):

Bank	
Branch	
IFS Code	
Account Number	

Payment will be made by the purchaser to the Solution Provider /Departments as per the contract value agreed in the contract as follows:

13.6. APPLICABILITY OF TENDER TERMS AND CONDITIONS

All terms & conditions stated in this Agreement would override the terms & conditions mentioned in the RFP (No: OCAC-SEGP-SPD-0010-2021-21012) and Technical & Commercial bid submitted by bidder. However, all other terms & conditions except those mentioned in this agreement would be applicable as per RFP.

Binding signature of Purchaser Binding signature of Solution Provider

Signed By: _____ Signed _____ By: _____

In the presence of (Witnesses)

(1).....(1).....
(2)..... (2).....

As per RFP

Resource Deployment Plan submitted by Bidder as per the requirement specified in the RFP.

As per the Commercial Bid of the successful bidder