REPUBLIC OF KENYA

MINISTRY OF EDUCATION
STATE DEPARTMENT FOR BASIC EDUCATION

P.O. BOX 300400– 00100
NAIROBI

TECHNICAL PROPOSAL FOR THE REQUEST FOR PROPOSAL FOR PROVISION OF INTEGRATED KENYA MANAGEMENT INFORMATION SYSTEM (KEMIS)

TENDER NO: MOE/SDBE/SSS/01/2024-2025

SUBMISSION DATE 30TH JULY 2025 AT 5PM

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TABLE OF CONTENTS

No.		PAGE
1.	Power of Attorney to sign the Proposal	3-5
2.	TECH-1: Technical Proposal Submission Form	6-11
3.	Technical Writeup	12-93
4.	Compliance To Technical Requirements	94-238
5.	TECH-2: Bidder's Organization and Experience	239-416
6.	Company Profile	239-310
7.	TECH 2B: Experience	311-416
8.	TECH-3: Comments and Suggestions	417-419
9.	TECH-4: Description of Approach, Methodology, and Work plan	420-458
10.	TECH-5: Work Schedule and Planning for Deliverables	459-460
11.	TECH-6: Team Composition, Assignment and Key Personnel	461-678
12.	Tech 6A: Key Experts Inputs	462-467
13.	Tech-6B: Curriculum Vitae (CV)	468-682
14.	TECH-7: Mandatory and Support Document	683-717
15.	Certificate of Incorporation/Certificate of Registration	688-699
16.	Valid Tax Compliance Certificate	700-704
17.	KRA PIN Certificate	705-708
18.	Copy of CR12	709-712
19.	Certified copy of a valid and current CBK banking License	713
20.	Copy of Certificate of Registration as a data Processor	714-717
21.	Copy of Certificate of Registration as a data Controller	714-717
22.	TECH-8: Self-Declaration Forms	718-733
23.	TECH 9: Comments/proposed amendments or term sheet outlining comments to any proposed form of procurement contract contained in the RFP	734

L.B.O.

SECTION:1

Power of Attorney

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THE PRINCIPAL SECRETARY, MINISTRY OF EDUCATION, STATE DEPARTMENT FOR BASIC EDUCATION

ATTENTION: DIRECTOR SUPPLY CHAIN MANAGEMENT
Jogoo House Building, Harambee Avenue, P.O BOX
300400-0010Nairobi- Kenya.
MINISTRY OF EDUCATION STATE DEPARTMENT FOR BASIC EDUCATION

This **POWER OF ATTORNEY** made on the **18th day of July Two Thousand and Twenty-Five BETWEEN**:

a. **KONZA TECHNOPOLIS DEVELOPMENT AUTHORITY**, a parastatal under the Ministry of ICT and Digital Economy, duly incorporated under the laws of Kenya and carrying on business in the said name and style, having its registered office within Konza and whose address is care of **P.O. Box 1 – 90150 Konza** (hereinafter called **"the Donor"**) of the one part; and

b. **LEWIS OGUNDO**, who is the Company's **Ag. Chief Manager ICT & Smart City Solutions** and of **P.O. Box 1 – 90150 Konza** (hereinafter referred to as **"the Donee"**) of the other part.

NOW THIS POWER OF ATTORNEY WITNESSETH as follows: -

1. The Donor appoints the Donee to be its duly appointed and lawful attorney with respect to **RFP No. MOE/SDBE/SSS/01/2025-2026, a REQUEST FOR PROPOSAL FOR PROVISION OF INTEGRATED KENYA EDUCATION MANAGEMENT INFORMATION SYSTEM (KEMIS)** to handle all lawful transactions and with all requisite authority to execute on its behalf, to attend meetings and undertake any other advisable and lawful act on behalf of the Donor with respect to the aforesaid Tender fully and effectively as would have been otherwise done by the Company through its legally mandated Organ.
2. The Donor hereby agrees and ratifies that it intends that any deed or agreement signed on its behalf by the Attorney pursuant to Clause 1 (above) shall bind the Company and shall have the same effect as if it had been executed under the Company's Common Seal, and.
3. This Power of Attorney shall be governed by the Laws of the Republic of Kenya.

IN WITNESS WHEREOF the Common Seal of the Company has hereunto been affixed in the presence of its duly authorized officers the day and year first herein before written.

SEALED with the Common Seal of
KONZA TECHNOPOLIS DEVELOPMENT AUTHORITY

"The Donor"

CEO: John Paul Okwiri, OGW

ID No : 24550649

L.B.O.

"The Donee"

Signed By:

LEWIS OGUNDO. AG, CM, ICT & SCS



ID No: 21687455

I CERTIFY that the above named, (a) ..... (b) .....appeared before me on the ..... day of .....2025 and acknowledge that the Common Seal of the Donor herein above affixed and the Signatures of the duly authorized officers of the Company and the Donee herein above were appended voluntarily in my presence on the date and year first herein before written.

GLADYS J. KOLETI
ADVOCATE
&
COMMISSIONER FOR OATHS
P.O. Box 34643 - 00100 NAIROBI

Signed: .....

COMMISSIONER FOR OATHS

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SECTION:2

TECH-1: Technical Proposal Submission Form

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KONZA TECHNOPOLIS
DEVELOPMENT AUTHORITY

7th Floor, Konza Complex, Nairobi – Mombasa Road - Konza Technopolis, ♦ P.O. Box 1-90150 KONZA TECHNOPOLIS, KENYA
Tel: +254-20-4343013/4 ♦ Email: ceo@konzacity.go.ke

Office of the Chief Executive Officer

When replying please quote

Ref: KOTDA/1/15

Date: July 29, 2025

Amb. (Prof.) Julius K. Bitok, CBS
Principal Secretary
State Department for Basic Education
Ministry of Education
NAIROBI

Dear PS,

RE: SUBMISSION OF TECHNICAL AND FINANCIAL PROPOSAL FOR TENDER FOR PROVISION OF INTEGRATED KENYA MANAGEMENT INFORMATION SYSTEM (KEMIS) ,TENDER NO: MOE/SDBE/SSS/01/2024-2025

Reference is made to your letter (attached) submitted via email on Tuesday, 1st July 2025 from Head of Procurement, Dr. Hilder G. Kaaria requesting for a Proposal for Development of KEMIS from Konza Technopolis .

Konza Technopolis Development Authority hereby submits the Technical and Financial Proposal as per the deadline submission of 30th July 2025.

We appreciate your consideration to bid for the proposal and look forward to your favorable response.

Thank you for your continued support.

Yours Sincerely,

JOHN PAUL OKWIRI, OGW
CHIEF EXECUTIVE OFFICER

L.B.O.

KONZA TECHNOPOLIS
DEVELOPMENT AUTHORITY

7th Floor, Konza Complex, Nairobi – Mombasa Road - Konza Technopolis, ♦ P.O. Box 1-90150 KONZA TECHNOPOLIS, KENYA
Tel: +254-20-4343013/4 ♦ Email: ceo@konzacity.go.ke

Office of the Chief Executive Officer

When replying please quote

Ref: KOTDA/1/15 **Date:** July 29, 2025

Principal Secretary
State Department for Basic Education
Ministry of Education
NAIROBI

Attention:
Dr. Hilder G. Kaaria
Head of Procurement
State Department for Basic Education
Ministry of Education
NAIROBI

Dear PS,

RE: MANDATORY REQUIREMENTS: CONSORTIUM FOR BID REQUEST FOR PROPOSAL FOR PROVISION OF INTEGRATED KENYA MANAGEMENT INFORMATION SYSTEM (KEMIS) TENDER NO: MOE/SDBE/SSS/01/2024-2025

Konza Technopolis, together with its partners listed below, shall form a consortium comprising the following organizations:

1) KONZA TECHNOPOLIS DEVELOPMENT AUTHORITY- Lead Bidder
2) KCB BANK KENYA LIMITED
3) DHANUSH SOFTECH PRIVATE LIMITED
4) VISIBILITY TECHNOLOGY SERVICES LIMITED
5) VILCOM NETWORKS LIMITED

We appreciate your consideration of this request and look forward to your favorable response.

Thank you for your continued support.

Yours Sincerely,

JOHN PAUL OKWIRI, OGW
CHIEF EXECUTIVE OFFICER

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B. CERTIFICATE OF INDEPENDENT PROPOSAL DETERMINATION

I, the undersigned, in submitting the accompanying **TECHNICAL PROPOSAL SUBMISSION FORM** to the Ministry of Education for the **PROVISION OF INTEGRATED KENYA EDUCATION MANAGEMENT INFORMATION SYSTEM (KEMIS) FOR THE REPUBLIC OF KENYA.** In response to the request for tenders made by:

KONZA TECHNOPOLIS DEVELOPMENT AUTHORITY do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of :

i. Kenya Commercial Bank Kenya Limited
ii. Dhanush Softech Private Limited
iii. Visibility Technology Services Limited
iv. Vilcom Networks Limited



that:

1. I have read and I understand the contents of this Certificate;

2. I understand that the Tender will be disqualified if this Certificate is found not to be true and complete in every respect;

3. I am the authorized representative of the Bidder with authority to sign this Certificate, and to submit the Tender on behalf of the Bidder;

4. For the purposes of this Certificate and the Tender, I understand that the word "competitor" shall include any individual or organization, other than the Bidder, whether or not affiliated with the Bidder, who:

   - Has been requested to submit a Tender in response to this request for tenders;
   - could potentially submit a tender in response to this request for tenders, based on their qualifications, abilities or experience;

5. The Bidder discloses that [check one of the following, as applicable]:

   - The Bidder has arrived at the Tender independently from, and without consultation, communication, agreement or arrangement with, any competitor;

6. The Bidder has entered into consultations, communications, agreements or arrangements with one or more competitors regarding this request for tenders, and the Bidder discloses, in the attached document(s), complete details thereof, including the names of the competitors and the nature of, and reasons for, such consultations, communications, agreements or arrangements;

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7. In particular, without limiting the generality of paragraphs (5)(a) or (5)(b) above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:

- prices;
- methods, factors or formulas used to calculate prices;
- the intention or decision to submit, or not to submit, a proposal; or
- the submission of a proposal which does not meet the specifications of the request for proposals; except as specifically disclosed pursuant to paragraph (5)(b) above;

8. In addition, there has been no consultation, communication, agreement or arrangement with any competitor regarding the quality, quantity, specifications or delivery particulars of the works or services to which this RFP relates, except as specifically authorized by the procuring authority or as specifically disclosed pursuant to paragraph (5)(b) above;

9. The terms of the RFP have not been, and will not be, knowingly disclosed by the Bidder, directly or indirectly, to any competitor, prior to the date and time of the official proposed opening, or of the awarding of the Contract, which ever comes first, unless otherwise required by law or as specifically disclosed pursuant to paragraph (5)(b) above.

Name: Lewis Ogundo

Title: Ag. Chief Manager IT and Smart City Solutions

Date : 24th July 2025

Kenza Technopolis Development Authority
P. O. Box 30519 - 00100, Nairobi

Signature:

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SECTION:2A

TECH-1A: Technical WriteUp

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Proposed Solution for Kenya Education Management Information System (KEMIS)

The proposed solution for the Kenya Education Management Information System (KEMIS) is to implement a unified, scalable, and open-source digital platform that serves as a centralized repository for managing comprehensive education sector data across all levels—from Early Childhood Development Education (ECDE) to universities. KEMIS will enable efficient data collection, integration, and analysis covering learners, staff, institutions, governance bodies, audits, and resource allocations. It incorporates tools such as digital lockers, data exchange portals, and real-time dashboards to support policy-making, ensure financial prudence, and streamline procurement processes. By enhancing transparency, promoting data-driven decision-making, and integrating with existing educational bodies, KEMIS aims to modernize Kenya's education governance and improve the quality, accessibility, and accountability of education services nationwide.

The Kenya Education Management Information System (KEMIS) is a robust, scalable, open-source, and user-centric digital platform designed to centralize, harmonize, and streamline data management across all levels of Kenya's education system — spanning Early Childhood Development Education (ECDE), primary and secondary schools, Technical and Vocational Education and Training (TVET) institutions, teacher training colleges, and universities.

Key Features:

- **Comprehensive Data Management:** Captures and coordinates institutional biodata, learner and staff information, council and board memberships.
- **Online School Audit & Feeding Data:** Facilitates online declarations and monitoring of school audits and feeding programs.
- **Digital Locker & Data Exchange Portal:** Secure platforms for storing and sharing educational documents and records.
- **Data Infrastructure:** Includes data centers, servers, internet connectivity, development and client access devices.
- **Policy Support Dashboard:** Real-time dashboards for decision-makers to track performance and make informed policy decisions.
- **Stakeholder Helpdesk:** Centralized support for addressing stakeholder queries.

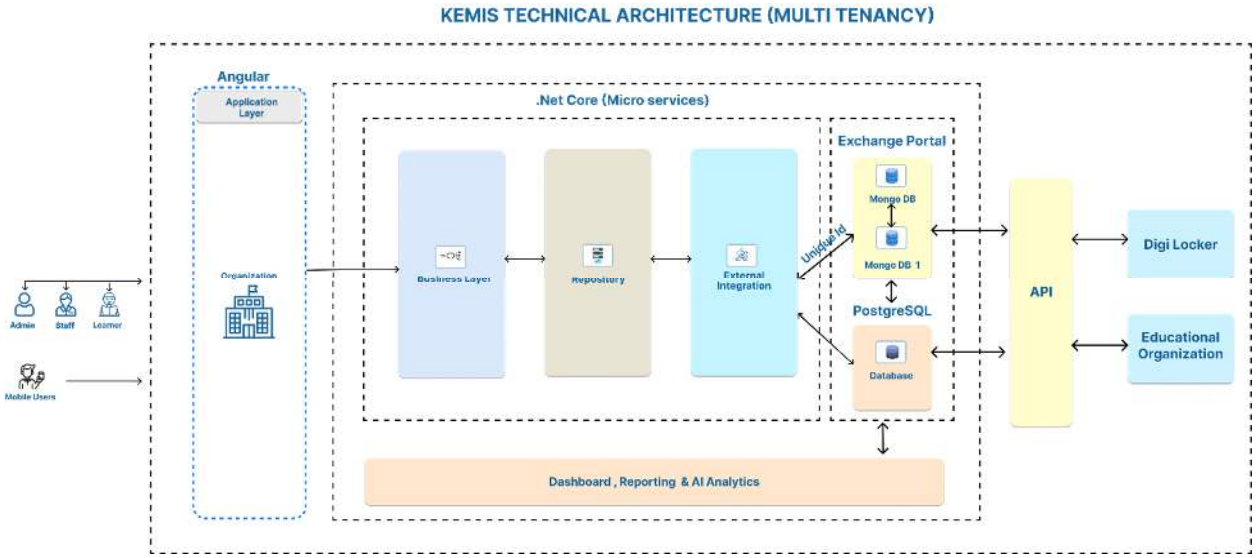
Impact & Benefits:

- **Financial Prudency:** Enables the government to disburse funds efficiently and only as needed.
- **Resource Allocation:** Data-driven planning supports optimal use of educational resources.
- **Procurement Efficiency:** Incorporates e-procurement tools for transparent and standardized purchasing.
- **Student-Centric Advantages:** Tracks student and staff mobility and performance, ensuring transparency and enhancing educational access and quality.
- **Integration & Capacity Building:** KEMIS is integrated with other educational bodies and supports the continuous training of educational managers and institution heads, reinforcing effective education governance.

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Technical Architecture of KEMIS (Multitenancy)

The system is designed using a **Service-Oriented Architecture (SOA)**, which structures applications as a collection of loosely coupled, reusable services. These services communicate via standardized protocols (e.g., HTTP, REST) to perform specific business functions.



Key Components include:

1) **Service Segmentation and Database Partitioning**
   - Each service is **tracked and sized independently**, with dedicated **database partitions** to isolate data by category (e.g., user management, course enrolment, payment processing).
   - **Segmentation** ensures that data is logically divided based on record types (e.g., student records, institutional data) or tenant requirements, enabling efficient querying and management.
2) **Auto-Sizing and Scaling**
   - **Server-Level Auto-Sizing**: Resources (CPU, memory, storage) are dynamically adjusted based on real-time demand. For example, during peak enrolment periods, additional resources are allocated to handle increased traffic.
   - **Horizontal and Vertical Scaling**:
     - **Horizontal Scaling**: Adds more server instances to distribute load (e.g., deploying additional containers in a Kubernetes cluster).
     - **Vertical Scaling**: Upgrades existing server capacity (e.g., increasing RAM for a database server).
   - Scaling is tailored to **segments** (e.g., high-traffic services like analytics are scaled independently from low-traffic services like report generation).

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Technical Solution Overview

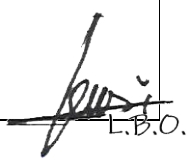
The solution employs a **Multi-Tenancy Architecture**, where a single application instance serves multiple tenants (e.g., Learning Institutes or departments) while maintaining isolation.

1) Multi-Tenancy Architecture

- **Isolated Environments**: Each tenant operates in a dedicated environment with:
  - **Data Privacy**: Tenant data is segregated using schema-level isolation (separate databases) or row-level isolation (shared database with tenant-specific identifiers).
  - **Customization**: Tenants can configure UI themes, workflows, and access controls without affecting others.
- **Shared Infrastructure**: Underlying servers, databases, and services are pooled, reducing hardware costs and simplifying maintenance.

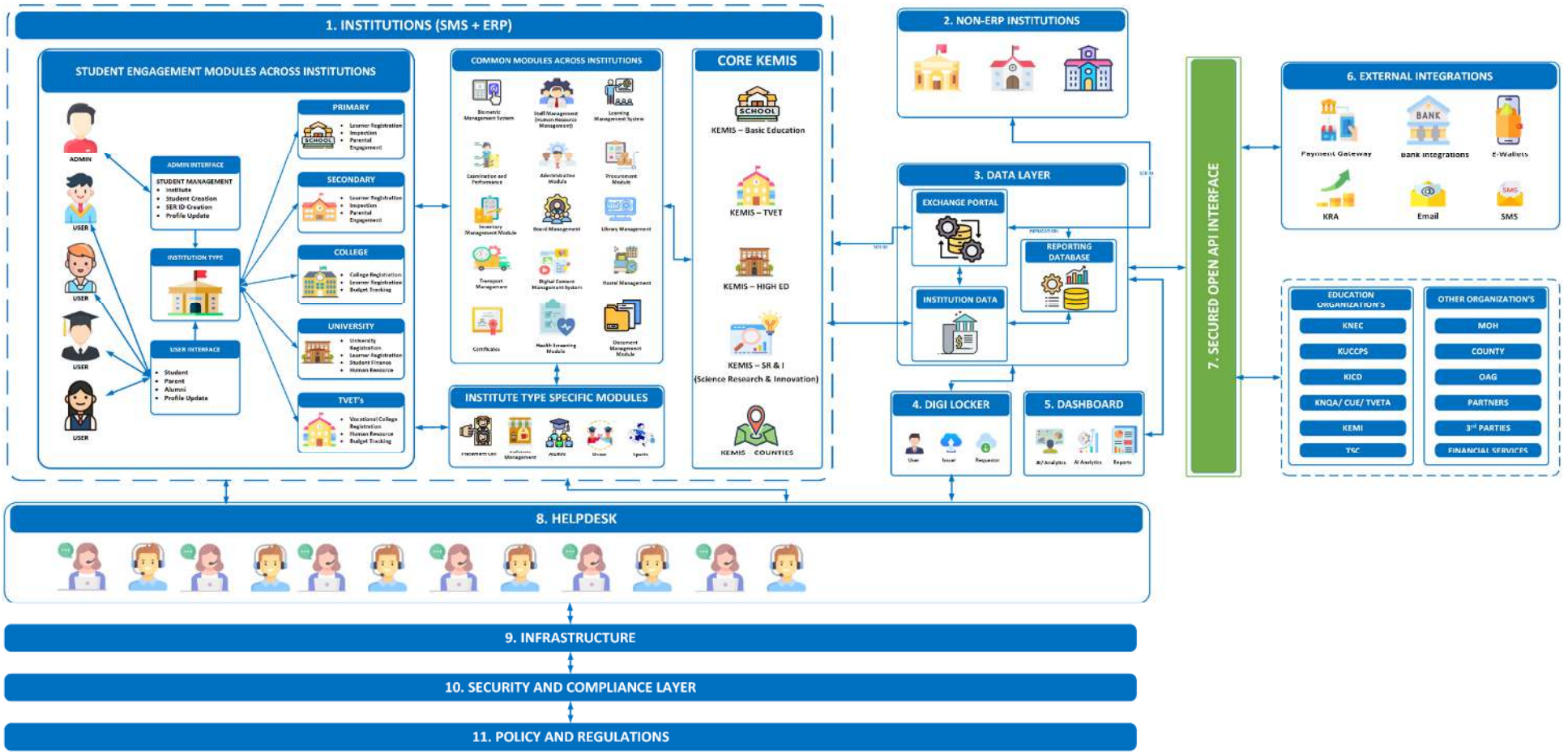
2) Key Benefits

- **Cost Efficiency**:
  - **Resource Pooling**: Shared infrastructure eliminates the need for separate servers per tenant, cutting hardware, power, and maintenance costs.
  - **Economies of Scale**: Bulk licensing and centralized resource management reduce operational expenses.
- **Simplified Upgrades**:
  - **Seamless Updates**: All tenants are upgraded simultaneously, eliminating the need for manual intervention.
  - **Zero Downtime**: Rolling updates ensure continuous availability during upgrades.
- **Enhanced Redundancy and Backups**:
  - Centralized backup solutions and disaster recovery mechanisms (e.g., cross-region replication) are implemented at the infrastructure level, avoiding the complexity of managing backups per tenant.
- **Business Intelligence (BI) Integration**:
  - **Cross-Tenant Analytics**: Aggregated data from all tenants enables country-level dashboards and reports (e.g., national education trends).
  - **Data Visualization**: Tools like Power BI or Tableau generate actionable insights (e.g., student performance metrics, institutional ROI).



KEMIS Business Solution Overview

A comprehensive ecosystem for managing Kenya's education data across various types of institutions and stakeholders through a centralized digital platform.



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1) **Institutions (SMS + ERP)**
   - These are institutions that adopt KEMIS as their internal Education Resource Planning (ERP) system. The solution provides student engagement modules tailored to different educational levels — Primary, Secondary, College, University, and TVETs. The modules cover core activities like student management, profile updates, SRN (Student Registration Number) creation, and student progression tracking. Admin and user interfaces are customized for administrators and learners, ensuring smooth navigation and functionality across all types of institutions.

2) **Non-ERP Institutions**
   - KEMIS also accommodates institutions that do not run full ERP systems. These institutions still feed data into the system through simplified mechanisms, ensuring inclusivity and consistency in national data collection and analysis.

3) **Data Layer**
   - This layer acts as the data backbone of the system. It includes:
     - **Exchange Portal:** Facilitates secure data sharing between institutions and other stakeholders.
     - **Institution Data:** A structured database housing key institutional information.
     - **Reporting Database:** Powers analytics and visualization tools used by policymakers and stakeholders to drive evidence-based decisions.

4) **Digi Locker**
   - A secure repository that enables students and institutions to digitally store and retrieve educational documents such as certificates, transcripts, and ID records. This eliminates the dependency on physical documents and enhances data portability and authenticity.

5) **Dashboard**
   - The dashboard layer includes visualization tools for monitoring KPIs, policy impact analysis, alerts, and real-time updates. These tools are essential for strategic decision-making and system monitoring at the national and institutional levels.

6) **External Integrations**
   - KEMIS is designed for robust integration with external systems including:
     - Financial Systems (e.g., payment gateways, bank integrations, and e-wallets)
     - Government Services (e.g., KRA, email, SMS gateways) This ensures seamless operations for transactions, communication, and regulatory compliance.

7) **Secured Open API Interface**
   - A critical bridge enabling secure and standardized integration with external systems and partners. This open API ensures interoperability with other platforms, enabling smooth data exchange without compromising security.

8) **Helpdesk**
   - To support users across institutions, KEMIS includes a centralized helpdesk system. It provides technical and operational assistance to administrators, educators, and learners, thereby improving user adoption and experience.

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Institutions (SMS + ERP)

KEMIS leverages a **multi-tenant ERP architecture**, allowing diverse types of institutions to operate within a common platform while retaining their individual branding, domain identity, and operational autonomy. This design supports:

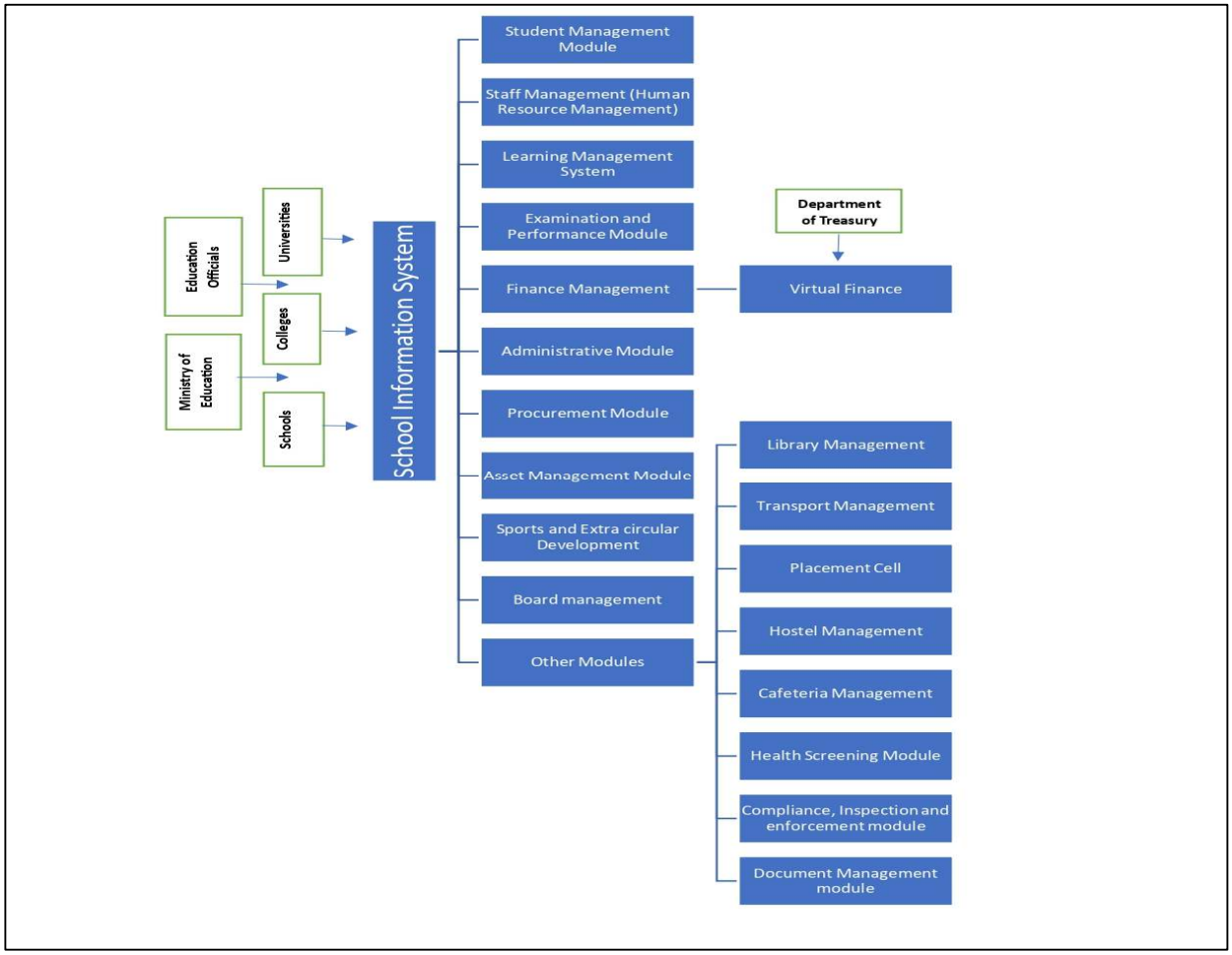
- A shared database infrastructure
- Individual domain names and landing pages
- Customization of modules as per institutional requirements

Each institution is on boarded with a unique code prefixed by its type:

- P for Primary
- S for Secondary
- C for College
- U for University
- T for TVET

5.2.1.1.1 Core Functional Modules

Institutions will have access to a suite of common and optional modules, tailored to meet their operational needs:



KEMIS Core (MCDA)

The **Kenya Education Management Information System (KEMIS)** is envisioned as a centralized, integrated digital platform designed to streamline data collection, analysis, reporting, and decision-making across Kenya's education ecosystem. Anchored by the **Multi-Component Digital Architecture (MCDA)**, the system supports data-driven governance across five key education domains: Basic Education, Technical and Vocational Education and Training (TVET), Higher Education, Science Research & Innovation (SR&I), and County-level education operations. KEMIS empowers stakeholders with a single source of truth for education sector performance, planning, and resource management.

KEMIS for Basic Education

KEMIS plays a pivotal role in transforming the basic education subsector by integrating school-level operations with national policy oversight. It provides modules for learner registration, attendance tracking, teacher management, infrastructure monitoring, and academic performance analytics for pre-primary, primary, and secondary institutions. Through real-time dashboards and longitudinal data records, the system enables the Ministry of Education to assess student progression, identify at-risk learners, and evaluate the effectiveness of government interventions such as school feeding, bursary distribution, and infrastructure investments. The platform enhances transparency and accountability through end-to-end data visibility from school to state level.

KEMIS for TVET

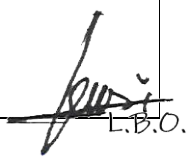
In the TVET subsector, KEMIS supports the management of institutions, learners, instructors, and industrial attachments, all while aligning skills development to national economic needs. It standardizes data collection across Technical Training Institutes (TTIs), Vocational Training Centres (VTCs), and National Polytechnics, enabling the Ministry and County Governments to monitor enrollment trends, course uptake, certification outcomes, and post-training employment. The system is also integrated with industry skill councils and employers to align training curricula with market demand. Through this, KEMIS strengthens the planning and financing of TVET programs while supporting evidence-based reforms for skills development and youth employment.

KEMIS for Higher Education

KEMIS provides a digital governance layer for universities and other tertiary institutions, focusing on student lifecycle management, faculty data, research outputs, and institutional accreditation. It enables the Commission for University Education (CUE) and the Ministry to access disaggregated data on admissions, program offerings, funding, infrastructure, and graduate employability. By harmonizing data from public and private universities, the platform improves sector oversight, enhances quality assurance processes, and facilitates strategic planning for expansion, rationalization, and equity. It also serves as a repository for alumni records, institutional rankings, and research indicators, fostering collaboration and global competitiveness.

KEMIS for Science Research & Innovation (SR&I)

This module serves as a national repository for tracking scientific research projects, funding mechanisms, publications, patents, innovation hubs, and researcher profiles. It supports the Ministry of Education and national agencies like the National Research Fund (NRF) in mapping the research and innovation landscape, linking outputs to national development priorities and the Vision 2030 framework. KEMIS-SR&I enhances coordination across universities, research institutions, and private innovators, enabling the government to



assess research productivity, fund utilization, and knowledge transfer. It promotes synergy among academia, industry, and government, while also supporting Kenya's aspiration for a knowledge-based economy.

KEMIS Counties

Recognizing the devolved functions under Kenya's governance framework, KEMIS has been tailored to support education functions managed by County Governments. This includes oversight of Early Childhood Development Education (ECDE), Vocational Training Centres, and adult literacy programs. The county dashboard allows education officers to monitor school performance, staffing, infrastructure, and budget utilization in real time. With built-in interoperability, county-level data is seamlessly aggregated at the national level, ensuring alignment with policies and performance indicators. Through this localization, KEMIS enhances participatory planning, facilitates equitable resource allocation, and strengthens decentralized education governance.

KEMIS Core, built on the MCDA framework, offers a transformative solution for education governance in Kenya by ensuring transparency, interoperability, and real-time data flow across all education levels and administrative layers. It positions the country to harness digital tools for equitable, inclusive, and quality education for all.

Student Management Module

Student life cycle management is a key aspect of proposed solution. This solution has been developed to enhance and automate the various stages of student lifecycle management, spanning from initial nursery admissions all the way to the culmination of educational journeys, including advanced programs such as doctoral studies in universities and research establishments.

Features and Functionalities of Student Module

- **Admissions Management:** This solution simplifies the admissions process by providing online application forms, document submission, and automated application tracking. It streamlines the evaluation and selection process, allowing administrators to efficiently manage applications and communicate with prospective students.
- **Enrollment and Registration**: This solution makes student enrollment and registration more efficient by providing online enrollment forms, course selection, and fee payment options. Students can easily access the system to register for classes, review schedules, and make changes as needed.
- **Student Information Management**: This solution maintains comprehensive student profiles with essential information, including personal details, medical history, emergency contacts, and demographic data. Administrators can easily access and update this information throughout the student's journey.
- **Attendance and Discipline:** This solution tracks student attendance, providing real-time data for administrators and teachers. It helps manage disciplinary records and generates reports on student behavior, enabling timely interventions when necessary.
- **Academic Progress Tracking:** This solution helps track and monitor students' academic progress throughout their educational journey. It records and maintains information such as grades, attendance, assignments, and assessments. Educators and administrators can access this data in real-time to evaluate student performance and provide timely interventions when necessary.

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- **Student Records Management:** This solution stores and manages comprehensive student records, including personal information, contact details, academic history, and extracurricular activities. These records can be easily accessed by authorized staff to gain insights into students' backgrounds and track their development over time.
- **Communication and Collaboration:** This solution offers communication and collaboration tools that facilitate seamless interaction between students, teachers, parents, and administrators. These tools enable the sharing of announcements, assignments, grades, and feedback, promoting effective communication and engagement throughout the student life cycle.
- **Parent-Teacher Communication:** This solution provides a platform for seamless parent-teacher communication. This can include features like a parent portal, allowing parents to access their child's attendance, grades, assignments, and communicate with teachers directly.
- **Extracurricular Activities:** This solution supports the management of extracurricular activities, including clubs, sports teams, and events. Students can enroll in activities, view schedules, and receive updates through the ERP platform.
- **Graduation and Alumni Management**: This solution assists in managing graduation requirements, tracking credits, and generating transcripts. It also maintains alumni databases and facilitate ongoing communication with former students, supporting networking and alumni engagement initiatives.
- **Student Welfare Management:** This solution supports tracking of the feeding program, uniforms and other accessories distribution, text books and stationary allotment to students
- **Integration with Register of Persons:** This solution will be integrated with Register of Persons and which could be used to follow-up with parents of the children that have reached school going age and are yet to be registered in any school.
- **Integration with National Health Insurance Fund (NHIF) & HMIS:** This solution can be integrated with NHIF system and HMIS to record, track and monitor the health screening records, insurance beneficiary information.

Benefits of Student Life Cycle Management

- By automating and centralizing student life cycle management processes, this solution enhances administrative efficiency, improve data accuracy, and provide a more streamlined and organized experience for students, parents, and educators.
- It allows educational institutions to focus on delivering quality education while efficiently managing the student journey from admissions to graduation and beyond.
- Every student enrolled is allotted a unique user id (UID) which is used to capture the data throughout the entire tenure spent with the institution and the same UID will be used to capture the data when student moves to a new institution and student information can be shared seamlessly.

Staff Management (Human Resource Management)

The Staff Management Module encompasses the entire spectrum of HR operations within institutions, spanning from the initial onboarding process of teaching, non-teaching and support staff to eventual departure (covering the complete employee lifecycle). This module offers a range of essential human resources functionalities, including benefits administration, payroll processing, recruitment and training management, as well as performance analysis and evaluations.

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Functionalities of Staff Management Module:

- **Employee Information Management**
  - Centralized database for storing and accessing employee information.
  - Personal details, contact information, employment history, qualifications, certifications, bank details etc…
- **Recruitment and Onboarding:**
  - Job posting and applicant tracking.
  - Application management and resume parsing.
  - Interview scheduling and candidate evaluation.
  - New employee onboarding workflows.
- **Time and Attendance Tracking:**
  - Recording employee work hours.
  - Managing attendance, leaves, vacations, and time-off requests.
  - Integration with time clock systems.
- **Payroll Management:**
  - Calculation of employee salaries, wages, and bonuses.
  - Tax calculations and deductions.
  - Direct deposit and paycheck distribution.
  - Compliance with labor laws and regulations.
- **Benefits Administration:**
  - Enrolling employees in benefits programs (healthcare, retirement plans, etc.).
  - Managing employee benefit selections and changes.
  - Integrating with external benefits providers.
- **Performance Management:**
  - Goal setting and tracking.
  - Regular performance evaluations and feedback.
  - Performance improvement plans.
  - 360-degree feedback mechanisms.
- **Training and Development:**
  - Identifying employee training needs.
  - Offering training programs and courses.
  - Tracking employee skill development.
  - Skill gap analysis.
- **Employee Self-Service Portals:**
  - Allow employees to access and update their personal information.
  - Submit time-off requests, expense claims, and other requests.
  - Access pay stubs and tax documents.

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- **Reporting and Analytics:**
  - Generating reports on HR metrics and key performance indicators.
  - Analyzing data for workforce planning and decision-making.
  - Compliance reporting.
- **Compliance and Legal Requirements:**
  - Ensuring adherence to Kenyan labor laws and regulations.
  - Managing employee contracts, documentation, and policies.
  - Data security and privacy features to protect sensitive information.
- **Workflow Automation:**
  - Automating HR processes to improve efficiency.
  - Sending notifications for important events (e.g., performance reviews, contract renewals).
  - Workflow customization based on Institution needs.
- **Succession Planning:**
  - Identifying and grooming high-potential employees for leadership roles.
  - Creating development plans for future leaders.
- **Integration and Scalability:**
  - Integrating with other systems like NHIF, HMIS.
  - Handling a growing number of employees and expanding organizational needs.

Benefits of HRMS Module

- This Human Resource Management System (HRMS) module is a comprehensive platform to efficiently manage institution's HR processes.
  - By automating tasks such as payroll calculations, leave tracking, and recruitment processes, HRMS enhances operational efficiency while reducing errors.
  - Centralized data storage and employee self-service portals streamline data management, improving accuracy and enabling employees to access and update their information.
  - The system's reporting and analytics capabilities offer valuable insights for informed decision-making, while ensuring compliance with legal requirements.
- Through increased efficiency, accuracy, and strategic insights, this HRMS module ultimately empowers management to focus on higher-value tasks, enhances employee engagement, and contributes to overall organizational success.

Learning Management System

Learning Management System (LMS) is designed to streamline the process of creating, delivering, managing, and tracking various educational and training content. It serves as a centralized hub where instructors, trainers, and educators can create and organize courses, upload learning materials, interact with learners, and monitor their progress. Students or learners, on the other hand, use the LMS to access the content, participate in activities, submit assignments, and engage in discussions.

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Features and Functionalities of Learning Management System

- **Course Creation and Management**: LMS allows teachers or administrators to create and organize courses, modules, lessons, and learning materials in a structured manner.
- **Content Upload**: LMS enables the upload of various content types such as documents, videos, presentations, quizzes, and assignments in various formats such as PDF, Word documents, AV files, various image types such as PNG, JPEG etc…
- **User Management**: Admins can manage user accounts, enroll students or staff in courses, assign roles (instructor, learner, administrator), and control access to content.
- **Self-Paced Learning**: Learners can browse available courses, access the content and track their progress through the system.
- **Communication Tools**: LMS provides communication features like discussion forums, chat, video calling and messaging to foster interaction among students and instructors.
- **Assessment and Quizzing**: LMS supports the creation and administration of quizzes, assessments, and exams. It can automatically grade quizzes and provide immediate feedback to learners. There is a provision for submission of assignments by uploading them in the portal to which respective teachers will get access to evaluate them.
- **Progress Tracking and Reporting**: Learners and administrators can track individual progress, view completion status, and generate reports to analyze overall course performance.
- **Grading and Feedback**: Instructors can evaluate assignments, provide feedback, and assign grades within the LMS.
- **Multimedia Integration**: LMS platforms support the integration of multimedia elements such as videos, audio recordings, animations, and interactive simulations.
- **Mobile Compatibility**: LMS platforms is designed to be mobile-responsive, allowing learners to access content and participate in courses from various devices.
- **Certificates and Badges**: LMS systems often offer the capability to award certificates or badges upon course completion, providing recognition to learners.
- **Gamification:** Some LMS platforms incorporate gamification elements, such as points, leaderboards, and rewards, to enhance learner engagement.
- **Integration with Other Tools**: LMS can integrate with other software, such as video conferencing tools, virtual classrooms, and analytics platforms.

Benefits of LMS Module

- Learning Management System (LMS) offers a versatile and efficient approach to education and training.
    - By providing a centralized platform for content creation, distribution, and assessment, LMS enables learners to access materials at their own pace and from any location, fostering convenience and flexibility.
    - The system's real-time tracking and reporting capabilities empower administrators and instructors to monitor progress, adjust content as needed, and make data-driven decisions. LMS enhances learning experiences through multimedia elements, interactive activities, and personalized learning paths, catering to various learning styles.

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- It also reduces costs associated with traditional training methods, promotes scalability for larger audiences, and contributes to skill development and professional growth.

- Overall, LMS streamlines education, ensures consistency, and adapts to modern learning preferences, making it an indispensable tool for organizations and institutions seeking effective and accessible learning solutions.

Examination and Performance Management Module

The Examination and Performance Management Module has been crafted to effectively oversee diverse components of the examination procedure. This encompasses the creation, scheduling, execution by admin staff and instructors, and assessment of exams by teachers, alongside the monitoring and analysis of student performance. Students utilize the examination module as a platform to participate in and take their exams. This module provides them with a digital environment where they can access, attempt, and complete their exams online.

Features and Functionalities of Examination and Performance Management Module

- **Exam Creation and Scheduling:** The module allows educators to create different types of exams (e.g., quizzes, midterms, finals), set exam duration, and schedule exams based on class timetables.
- **Online and Offline Exams:** This module offers options for both online and offline exams, accommodating different assessment methods.
- **Automated Invigilation:** AI based proctoring of examinations that facilitates remote conduction of exams and detection of any fraudulent activities. This uses a deep learning algorithm to compare the features of eyes, nose, jaws, lips and chin of live moving image from the camera with stored student photo to authenticate and authorize individual to access the test. During the test if violation of rules is detected, system warns the students about the violations and upon reaching the threshold set, system automatically closes the test. The threshold of deviations is completely customizable as per the policy laid down by the university.
- **Adaptive Testing:** This module includes adaptive testing, where the difficulty of questions can be adjusted.
- **Student Enrollment and Seating Arrangements:** This module manages student enrollment in specific exams and assist in creating seating arrangements for offline exams.
- **Grading and Marking:** Educators can input exam scores and the system calculates final grades based on predefined grading scales.
- **Instant Result Generation:** After exams, the system can automatically generate and distribute results to students and parents in a timely manner.
- **Performance Analytics:** This module generates performance analytics, allowing educators to identify trends, strengths, and areas requiring improvement for individual students or the entire class.
- **Ranking and Merit Lists:** Institutes can generate ranking lists based on exam performance, helping students and parents track their progress relative to peers.
- **Report Cards and Transcripts:** This module can generate digital report cards and transcripts, capturing a student's academic performance over time.
- **Data Security and Confidentiality:** This module ensures secure storage of exam data, protecting student information and maintaining data confidentiality.

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- **Parent and Student Portals:** Parent and student portal can get access to exam schedules, results, and performance analytics, fostering transparency and communication.
- **Customization:** Institutes can customize exam templates, grading scales, and result formats to align with their specific assessment practices.
- **Notification and Reminders:** The system can send automated notifications and reminders to students and parents regarding exam schedules and upcoming assessments.

Benefits of Examination and Performance Management Module

- An Examination and Performance Management System offers invaluable advantages to educational institutions by revolutionizing the assessment process.
    - By providing seamless exam creation, scheduling, and administration, it enhances efficiency and reduces administrative burdens. Instant result generation and performance analytics enable educators to gain timely insights into student performance, identifying strengths and areas needing improvement.
    - The system's ability to generate digital report cards and transcripts streamlines reporting, promoting transparency and parent engagement.
    - Adaptive testing cater to diverse learning needs, while automated invigilation ensures exam integrity.
    - Ultimately, this system empowers educators with comprehensive tools for fair, accurate, and data-driven assessment, fostering improved learning outcomes and informed instructional strategies.

Finance Management

The Finance Module plays a pivotal role in the meticulous management of financial operations within educational institutions. This module serves as a cornerstone in the methodical handling of financial activities of educational institutions. Its role is fundamental in upholding transparency and streamlining the effectiveness of financial procedures. It finds use among diverse stakeholders within educational bodies, encompassing administrators, accountants, financial managers, as well as government officials responsible for treasury and budget planning.

Features and Functionalities of Finance Module

- **Fee Collection and Management:**
    - Enable online fee payment options for students and parents.
    - Generate fee invoices, receipts, and statements.
    - Provide visibility into outstanding balances and payment history.
- **Expense Tracking and Budgeting:**
    - Track all expenses, including salaries, utilities, supplies, and maintenance.
    - Create and manage budgets for different departments or projects.
- **Income Management:**
    - Record various sources of income, including tuition fees, donations, and grants.
    - Categorize income for accurate financial reporting.

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- **Financial Reporting:**
  - Generate a variety of financial reports such as balance sheets, income statements, and cash flow statements.
  - Provide insights into the institution's financial health and performance.
- **Accounts Payable and Receivable:**
  - Manage accounts payable by recording and tracking payments to vendors and suppliers.
  - Monitor accounts receivable by tracking outstanding payments from students and others.
- **Bank Reconciliation:** Reconcile bank statements with the ERP's financial records to ensure accuracy and identify discrepancies.
- **Audit Trail and Compliance:**
  - Maintain an audit trail of all financial transactions for accountability and compliance purposes.
  - Ensure adherence to financial regulations and standards.
- **Multi-Currency Support:** Handle transactions in multiple currencies.
- **Payroll Management:**
  - Automate payroll processes for staff, including salary calculations, deductions, and tax with holdings.
  - Generate pay slips and facilitate direct deposits.
- **Financial Planning and Forecasting:**
  - Use historical financial data to project future income, expenses, and financial performance.
  - Support strategic decision-making through financial insights.
- **Customization and Security:**
  - Customize chart of accounts, financial categories, and reporting structures to align with the institution's needs.
  - Implement robust security measures to protect financial data and ensure access control.
- **Grants Management:**
  - Grants management functionality enables organizations to efficiently track, allocate, and manage funds received through grants.
  - By categorizing grants, setting budgets, and enforcing spending limits, the system ensures that grant funds are utilized in accordance with the specified requirements.
  - The system also automates the generation of accurate financial reports, aiding transparency and accountability in reporting to grantors and regulatory bodies.
  - With data-driven insights and streamlined processes, grants management module empowers government and educational institutions to optimize resource allocation, enhance compliance, and make informed decisions that align with their educational objectives.

Benefits of Finance Module

- The Finance Module within the Learning Institutes ERP system offers a multitude of benefits by streamlining financial operations and enhancing transparency in educational institutions.

- It enables efficient fee collection, providing convenient online payment options for students and parents while offering insights into outstanding balances.
- The module's expense tracking and budgeting functionalities facilitate prudent financial management, optimizing resource allocation and ensuring adherence to budgets.
- By automating payroll processes and generating accurate financial reports, institutions can improve staff compensation processes and gain comprehensive insights into their financial health.
- The module's integration with other ERP components ensures seamless data flow, while its compliance features maintain audit trails and adhere to financial regulations.

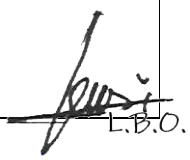
- Ultimately, the Finance Module empowers educational institutions with the tools to make informed financial decisions, enhance fiscal accountability, and foster a financially sustainable environment.

Integration of Virtual Cash flow Mechanism

A virtual cash flow system between an exchequer (Government of Kenya Treasury) and education institutions operates through a specially designed and developed digital platform that facilitates the allocation, transfer, and management of financial resources.

Here's how the Virtual Cash Flow process works:

- **Fund Allocation**: The Government of Kenya allocates funds for education based on budgets, policies, and the specific needs of educational institutions. These funds can be designated for various purposes, such as infrastructure development, teacher salaries, student scholarships, feeding programs, provision of books, uniforms and more.
- **Digital Platform Setup**: A digital platform is set up to serve as the intermediary between the exchequer and education institutions. This platform is designed to handle fund disbursement, tracking, reporting, and communication.
- **Institution Registration**: Each Educational institution registers on this digital platform and provides necessary information, such as bank account details and identification.
- **Virtual Entries**: Only virtual entries of fund credit to the Institutes will be recorded in the respective Institute's account as per the allocation from the Government of Kenya and virtual debit entries to the exchequer will be recorded for the budget allocations. No actual transfer of funds from exchequer to the education institution will happen during this phase.
- **Fund Disbursement**: The exchequer initiates fund disbursement through the digital platform against vendor invoices, staff payroll processing and other defined expenditure directly to the beneficiary accounts. Funds can also be transferred electronically to the bank accounts of registered institutions to cover miscellaneous expenses as per the predefine budget allocations.
- **Real-Time Tracking**: Educational institutions can log in to the platform to access real-time information about the received funds, including the purpose of allocation.
- **Expenditure Planning**: Institutions can plan their expenditures according to the allocated funds. This might include budgeting for salaries, infrastructure projects, educational resources, and other operational expenses.
- **Expense Reporting**: Institutions use the platform to submit detailed reports on how the funds are utilized. These reports may include itemized breakdowns of expenses, such as salaries, equipment purchases, student welfare and maintenance.



- **Verification and Validation**: The platform enables the government of Kenya to verify and validate the reported expenses. This might involve reviewing documentation, invoices, and receipts provided by the institutions.
- **Audit and Compliance**: The digital platform maintains a transparent audit trail of financial transactions, allocations, and expenses. This ensures accountability and compliance with financial regulations.
- **Communication and Support**: The platform can facilitate communication between institutions and government officials. Institutions can seek clarifications, request additional funding, and address any concerns through the platform.
- **Analytics and Insights**: The digital platform offers analytics and reporting tools that provide insights into source of funds, detailed item wise, institution wise reports of how the funds allocated funds are spent, how funds are distributed across various educational institutions, regions, and programs. This data can inform future budgeting and resource allocation decisions.
- **Adaptability and Scalability**: The virtual cash flow system can be adapted to suit the specific requirements of different educational levels, from primary schools to universities. It can also be scaled to accommodate varying sizes of institutions and address the unique needs of different regions.

Benefits of Virtual Cash Flow Mechanism

The implementation of a virtual cash flow mechanism between an exchequer and education institutions, and presence of funds within the exchequer until the point of actual payment initiation offers a multitude of advantages.

- This approach enables improved fund management, as resources remain accessible for longer periods. Consequently, Government of Kenya can optimize fund allocation, allowing for strategic planning and addressing urgent needs more effectively.
- The extended availability of funds facilitates interest generation, potentially enhancing the financial resources available for educational initiatives.
- This setup also supports seamless fund disbursement, ensuring that institutions receive allocated funds promptly, thus enabling timely planning and execution of projects.
- It enhances financial efficiency by digitizing fund allocation and transfer processes, minimizing delays and administrative burdens.
- The transparency inherent in the system fosters trust through real-time visibility into fund movements and expenditures, while accurate tracking ensures resources are utilized optimally.
- This mechanism allows for targeted allocation, enabling Government of Kenya to channel funds strategically into areas like infrastructure or teacher training.
- Fraud risks are diminished, and institutions gain flexibility to adjust funding based on evolving needs.
- Data-driven decision-making becomes feasible as policymakers access accurate financial data for informed choices.
- Equitable distribution of funds ensures broader educational access, while streamlined reporting eases administrative tasks and promotes compliance.

Administrative Module

The Administrative Module encompasses a wide array of crucial functionalities aimed at efficiently managing the administrative operations of an educational institution. The Administration Module is utilized by a range of individuals and departments within educational institutions to effectively manage and streamline administrative operations.

Features and Functionalities of Admin Module

- **User Management:** Create, manage, and update user profiles for administrators, staff, teachers, students, and parents with role-based access controls.
- **Dashboard and Analytics:** Provide a central dashboard displaying important statistics, announcements, and data visualizations to help administrators make informed decisions.
- **Timetable Management:**
  - Create and manage class schedules, teacher assignments, and room allocations.
  - Avoid scheduling conflicts and ensure efficient resource utilization.
- **Academic Management:**
  - Manage course offerings, curriculum planning, and syllabus distribution.
  - Monitor student progress, assessments, and exam results.
- **Communication and Alerts:**
  - Facilitate communication among administrators, teachers, students, and parents.
  - Send announcements, notifications, and alerts via email or SMS.
- **Document Management**:
  - Store and organize important documents, such as policies, forms, and reports.
  - Ensure easy access to authorized users.
- **Event and Calendar Management:**
  - Manage Institutes events, holidays, and important dates on a centralized calendar.
  - Allow users to RSVP and receive event notifications.

Procurement Module

The Procurement Module stands as a pivotal component within educational institutions, streamlining and optimizing the intricate processes involved in purchasing and procurement. This module serves as a cohesive platform that orchestrates the entire procurement lifecycle, from requisition to payment. It enables institutions to manage vendor relationships, track inventory, and ensure cost-effective and timely acquisition of necessary goods and services. This module finds utility across various departments, including administration, finance, and faculty, as well as with procurement and inventory management personnel.

Features and Functionalities of Procurement Module

- **Vendor Management**: The module enables Institutes to maintain a database of approved vendors, including their contact information, product offerings, and pricing.
- **Purchase Requisitions**: Faculty and staff can submit purchase requisitions for required items, which then go through an approval workflow.

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- **Purchase Orders**: The system generates and manages purchase orders based on approved requisitions, outlining the details of the purchase, including quantity, price, and delivery information.
- **Budget Integration**: This module can integrate with the budgeting system to ensure that purchases align with available funds.
- **Online Catalogs**: Institutes can integrate online catalogs from vendors, making it easier to select and order products within the system.
- **Request for Quotations (RFQs):** For larger purchases, this module can facilitate the process of requesting quotations from multiple vendors before making a decision.
- **Purchase Approvals Workflow**: This module can enforce a predefined approval process for purchase requisitions and orders, ensuring proper authorization.
- **Inventory Integration**: Integration with the Institute's asset management module allows for better stock control and tracking of items on order.
- **Receipt and Inspection**: The module tracks the receipt of ordered items and allows for inspection to ensure the quality and accuracy of the received goods.
- **Invoice Matching**: The system can automatically match invoices with purchase orders and receipts to streamline the payment process.
- **Electronic Document Storage**: Institutes can store digital copies of purchase orders, invoices, and related documents for easy access and record-keeping.
- **Integration with Accounting**: Integration with the accounting system ensures accurate recording of expenses and financial transactions related to procurement.
- **Compliance and Audit Trails**: The system maintains a history of all procurement activities, supporting transparency, compliance, and audit requirements.
- **User Roles and Permissions**: Different user roles can be assigned, allowing specific staff members to initiate, approve, or oversee procurement processes.
- **Notifications and Alerts**: The module can send automated notifications to relevant stakeholders about purchase order status, approvals, and delivery updates.

Benefits of Procurement Module

- The Procurement Module offers a range of compelling benefits for educational institutions.
    - By centralizing purchasing processes, it streamlines procurement workflows, reducing manual paperwork and administrative overhead.
    - The module enhances transparency and accountability through standardized requisition and approval procedures, ensuring that purchases align with available budgets.
    - Real-time tracking of purchase orders, receipts, and vendor performance empowers institutes to make informed decisions while optimizing inventory management.
    - Automated alerts and notifications improve communication among stakeholders, fostering timely approvals and efficient order fulfillment.
    - Integration with financial systems ensures accurate expense tracking and reporting.
- Overall, the Procurement Module facilitates cost-effective resource allocation, minimizes errors, and enhances efficiency, contributing to the financial health and operational effectiveness of educational institutions.

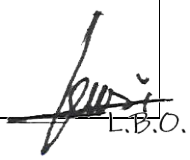
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Asset Management Module

An Asset Management is designed to efficiently track, manage, and maintain various physical assets owned by the Education Institutes. This functionality ensures optimal asset utilization, minimizes loss, and prolongs the lifespan of these resources. The Asset Management system benefits a wide spectrum of users, including facility managers, maintenance personnel, procurement teams, and administrative staff.

Features and Functionalities of Asset Management Module

- **Asset Tracking and Identification**: The module allows Institutes to track assets using unique identifiers such as barcodes, QR codes, or RFID tags, making it easy to locate and manage assets.
- **Asset Inventory**: It maintains a comprehensive inventory of Institute assets, including equipment, furniture, technology devices, and other resources.
- **Asset Allocation**: The system enables Institutes to assign assets to specific classrooms, departments, teachers, or other designated locations, ensuring accountability and proper utilization.
- **Check-In and Check-Out**: Assets can be checked in and out, allowing Institutes to monitor the movement of items and keep track of their status.
- **Maintenance Scheduling**: The module facilitates the scheduling of regular maintenance and repairs for assets, ensuring their optimal functionality and longevity.
- **Asset History and Maintenance Logs**: Institutes can maintain a record of asset history, including maintenance activities, repairs, and any issues encountered.
- **Depreciation Tracking**: For assets subject to depreciation, the module can calculate and track depreciation over time, assisting with financial planning and reporting.
- **Vendor and Warranty Information**: Institutes can store vendor details, purchase information, and warranty details for each asset, facilitating communication and management of warranties.
- **Asset Reports and Analytics**: The module generates reports and analytics on asset utilization, maintenance costs, and depreciation, aiding in decision-making and resource allocation.
- **Alerts and Notifications**: The system can send automated alerts for scheduled maintenance, warranty expiration, or asset overdue notifications.
- **Integration with Financial Systems**: Integration with the Institute's financial systems allows for accurate accounting of asset-related expenses and depreciation.
- **User Permissions and Access Control**: Institutes can assign different levels of access to staff members, ensuring that only authorized personnel can make changes to asset data.
- **Asset Disposal and Retirement**: The module facilitates the proper disposal or retirement of assets, recording the process and ensuring compliance with regulations.
- **Customization**: The module can often be customized to fit the specific needs and workflows of the Institutes, accommodating various asset types and management practices.
- **Data Security and Backup**: The module ensures the security of asset data and provides backup options to prevent data loss.
- **Scalability:** As the Institute's asset inventory grows, the module can handle the increasing number of assets without compromising performance.



Benefits of Asset Management Module

- Asset Management Module offers substantial benefits by streamlining the management of physical assets within educational institutions.
    - It centralizes asset information, from procurement to disposal, enabling efficient tracking, allocation, and maintenance.
    - This module enhances accountability, as it accurately records asset movements, assigns responsibility, and ensures optimal utilization.
    - Maintenance scheduling and historical logs extend asset lifecycles, reducing replacement costs.
    - Real-time insights into asset status facilitate informed decisions, while automated alerts ensure timely maintenance and compliance with warranties.
    - Integration with financial systems simplifies budgeting and expense tracking.
- Overall, the Asset Management Module optimizes resource allocation, reduces administrative burdens, and contributes to cost-effective asset management strategies within Institutes.

Sports and Extra circular Development

Integrating a Sports and Extracurricular Development module greatly enhances the management of these activities within the Institutes. This module finds it use with various stakeholders including students, coaches, teachers, administrators, and parents. Students can easily enroll in clubs or teams, access schedules, and monitor their performance. Coaches and teachers can effectively organize activities, track attendance, and provide personalized guidance. Administrators gain insights into participation trends and resource allocation, while parents stay informed about their child's involvement.

Features and Functionalities of Sports and Extra Circular Development Module

- **Activity Management:**
    - Create and manage various sports and extracurricular activities offered by the Institute.
    - Define activity details such as name, description, schedule, location, and associated faculty or coaches.
- **Student Registration:** Allow students to enroll in their desired activities. Track student preferences and participation history.
- **Attendance Tracking**:
    - Maintain attendance records for students participating in sports and extracurricular activities.
    - Provide real-time insights to parents and teachers about students' attendance.
- **Resource Allocation:**
    - Manage the allocation of resources such as sports equipment, facilities, and transportation.
    - Ensure efficient utilization of resources by scheduling activities without conflicts.
- **Communication Platform**:
    - Enable communication between teachers, coaches, students, and parents regarding activity updates, cancellations, or changes in schedules.
    - Send automated notifications or announcements through the system.
- **Performance Tracking:**

- Monitor and record students' progress, achievements, and performance in various activities.
- Generate reports or dashboards to provide insights on students' development.

- **Event Management:**
  - Plan and manage sports tournaments, cultural events, exhibitions, and other related activities.
  - Handle event logistics, registrations, and results through the system.
- **Scheduling and Calendar:**
  - Provide a central calendar that displays all upcoming sports and extracurricular events.
  - Avoid conflicts by integrating activity schedules with academic timetables.
- **Parental Involvement:**
  - Enable parents to view and track their child's participation, attendance, and progress in sports and extracurricular activities.
  - Allow parents to communicate with coaches and activity organizers.
- **Reporting and Analytics**: Provide administrators with comprehensive reports and analytics on participation rates, trends, and resource utilization.
- **Document Management:** Store important documents such as consent forms, medical records, and event photos in a secure manner.

Benefits of Sports and Extra circular Development Module

- The integration of a Sports and Extracurricular Development module brings forth a multitude of benefits.
  - It efficiently centralizes and automates the management of diverse activities, from sports to arts, fostering better organization and coordination.
  - This module empowers students to explore their talents and interests, promoting holistic development beyond academics.
  - It enhances communication among students, parents, teachers, and coaches, ensuring transparency and timely updates on schedules, events, and achievements.
  - The module's data-driven insights enable educators to tailor offerings to student preferences, optimize resource allocation, and assess performance effectively.
- Ultimately, by facilitating engagement, skill-building, and community involvement, the Sports and Extracurricular Development module enriches the educational experience and contributes to well-rounded, empowered individuals.

Board Management

Board of Management module can significantly streamline administrative processes and decision-making at a higher level. This module acts as a central hub for high-level management, allowing board members, trustees, and senior administrators to collaborate seamlessly on strategic initiatives, policy development, and crucial decisions. This module is primarily used by board members, trustees, Institute directors, and top-level administrators who hold responsibilities for governance, policy-making, and institutional oversight. It empowers them with timely and relevant information, facilitating well-informed choices that drive the institution's growth, development, and adherence to its mission and vision.

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Features and Functionalities of Board Management Module

- **Member Information Management**: Store and manage information about board members, including their roles, contact details, and affiliations.
- **Meeting Scheduling and Management:**
  - Plan, schedule, and manage board meetings, including setting agendas, notifying members, and recording minutes.
  - Maintain a calendar of upcoming meetings and allow members to RSVP.
- **Document Sharing and Collaboration:**
  - Enable the secure sharing of documents, presentations, reports, and other materials related to board meetings and decisions.
  - Facilitate collaboration among board members on shared documents.
- **Decision Tracking:**
  - Record and track decisions made during board meetings, along with the rationale and follow-up actions required.
  - Provide a centralized repository for tracking the status of decisions.
- **Communication Platform:**
  - Facilitate communication among board members through the system, including announcements, notifications, and discussions.
  - Ensure that important information reaches all relevant stakeholders.
- **Performance Monitoring:**
  - Monitor key performance indicators and metrics related to the Institute's strategic goals and initiatives.
  - Generate reports and dashboards to provide a clear overview of the institution's progress.
- **Budget and Financial Oversight:**
  - Manage the budget approval process, allowing board members to review and approve financial plans and allocations.
  - Provide real-time insights into the financial health of the institution.
- **Resource Allocation and Planning:**
  - Allocate resources such as funds, personnel, and facilities to various departments and projects based on board decisions.
  - Ensure optimal utilization of available resources.
- **Strategic Planning and Policy Formulation:**
  - Support the development and monitoring of the Institute's strategic plans and policies.
  - Provide a platform for collaborative discussions and brainstorming among board members.
- **Performance Evaluation and Accountability:**
  - Implement mechanisms to evaluate the performance of Institute leadership, teachers, and staff.
  - Set goals, track progress, and conduct performance reviews within the ERP system.
- **Data Analytics and Reporting:**

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- Offer advanced analytics and reporting capabilities to provide insights into various aspects of the Institute's operations.
- Enable data-driven decision-making for the board.

- **Security and Access Control:**
  - Implement robust security measures to ensure that sensitive board-related information remains confidential.
  - Define role-based access control to restrict data access based on members' roles.
- **Integration with Other Modules:** Integrate the Board of Management module with other modules such as finance, HR, and academics, to ensure seamless information flow.
- **Audit and Compliance:** Maintain records of board decisions and actions to facilitate auditing and compliance with regulations.

Benefits of Board Management Module

- The incorporation of a Board Management Module into a Learning Institutes ERP system yields a multitude of advantages. By centralizing administrative processes and communication, the module streamlines board operations, facilitating efficient decision-making and collaboration.
  - Real-time access to key documents, reports, and meeting details empowers board members to stay informed and engaged, enhancing the overall quality of discussions and outcomes.
  - The module's data analytics capabilities provide insightful metrics, enabling data-driven decisions that align with the Institute's strategic goals.
  - Budget oversight and resource allocation are optimized, ensuring responsible financial management. The module cultivates transparency, accountability, and compliance through documented decision tracking and streamlined audit processes.
- Ultimately, the Board Management Module elevates governance practices, fostering a culture of effective leadership and contributing to the continuous enhancement of the educational institution.

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Other Modules

Library Management

This module facilitates streamlined cataloging, tracking, and circulation of books, journals, and other materials. It enables users to search and access library resources digitally, borrow and return items, and manage overdue fines. The module includes features for inventory management, allowing librarians to track the availability of resources and update the collection as needed.

Transport Management

This module facilitates the planning and management of bus routes, driver assignments, and student transportation schedules. It enables parents, students, and administrators to track bus locations in real-time through GPS technology, ensuring safety and timely arrivals. In case of emergencies, it provides a reliable mechanism for communication between parents, drivers, and Institute authorities.

Placement Cell

This module serves as a liaison between students, faculty, and potential employers, aiding in the seamless transition of students from academia to the professional world. It offers functionalities to organize and publicize job opportunities, internships, and campus recruitment events. Students can create profiles, upload resumes, and apply for positions directly through the platform. The module also assists in scheduling interviews, managing selection processes, and providing feedback to students. Additionally, it enables employers to post job openings, review applications, and shortlist candidates.

Hostel Management

This module provides tools for effective room allocation, attendance tracking, meal management, and overall hostel administration. It facilitates the assignment of rooms based on factors like grade, gender, and preferences. Additionally, it streamlines attendance recording, helping administrators monitor students' presence within the hostel. The module may integrate meal planning and tracking systems, ensuring timely and organized meal distribution.

Cafeteria Management

This module streamlines the process of managing meal services, ensuring a smooth and organized dining experience for students, staff, and faculty. It typically encompasses functionalities such as menu planning, meal ordering, inventory management, and payment processing. Students can pre-order meals, view daily menus, and make dietary preferences known through the platform. The module assists cafeteria staff in managing supplies, minimizing waste, and maintaining accurate records of food consumption.

Compliance, Inspection and Enforcement Module

This module integrates functionalities that allow Institutes to manage regulatory requirements, schedule and conduct inspections, and monitor enforcement actions. It enables institutions to define compliance criteria, track regulatory changes, and ensure that policies and procedures are followed. The module streamlines the process of planning and conducting inspections, automating tasks such as scheduling, checklist creation, and documentation. It also aids in generating reports, identifying non-compliance issues, and initiating appropriate enforcement measures.

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Document Management Module

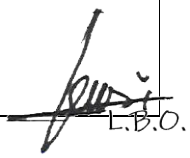
The Document Management Module offers a comprehensive solution for efficient document handling within educational institutions. It centralizes document storage, spanning from student records and attendance sheets to administrative policies and academic resources. With controlled user access, documents are safeguarded, ensuring only authorized personnel can view, edit, or remove them. The module's categorization and search functionalities enable easy document retrieval, while version control keeps track of edits and updates. Collaborative workflows are streamlined through automated processes for approval and distribution.

Feedback and Grievance Module

The Feedback and Grievance module enables easy feedback submission for students, parents, teachers, and staff across various educational aspects. It supports grievances linked to academics, misconduct, and other concerns, offering attachment options and multiple submission channels for clarity. Automatic routing and escalation mechanisms ensure swift attention to unresolved issues, while integration with ERP and LMS enhances data exchange and analytics for process improvement. Automated notifications and transparent tracking ensure timely communication and resolution, fostering an environment of open dialogue and understanding.

Third Party Tool & Systems Integrations

- The proposed solution has been meticulously crafted utilizing a modular and highly scalable framework, purposefully designed to accommodate the integration of essential third-party tools and existing systems that are already operational within the organization's ecosystem. This approach not only ensures a harmonious and efficient implementation but also lays the foundation for a technologically advanced environment that can adapt and grow with evolving needs.
    - Modular Design: At the core of this solution lies a modular design, wherein distinct components or modules are created to address specific functionalities. Each module is self-contained, allowing it to be developed, tested, and optimized independently. This modularity facilitates ease of maintenance, as updates or improvements can be applied to individual modules without impacting the entire system. Moreover, it fosters flexibility, enabling new modules to be seamlessly integrated in the future without disrupting existing operations.
    - Seamless Third-Party Integration: One of the cornerstones of this solution is its capability to seamlessly integrate with third-party tools and pre-existing systems that are integral to the organization's operations. Through well-defined application programming interfaces (APIs) and standardized protocols, the solution can establish a secure and efficient channel of communication with external systems. This integration enhances the functionality and value of the entire ecosystem by leveraging the strengths of established tools, while maintaining a cohesive user experience.
    - Preservation of Existing Investments: Incorporating pre-existing systems into the proposed solution acknowledges the investments an organization has already made in its technological infrastructure. Rather than necessitating a complete overhaul, the solution preserves these investments by providing a bridge to modernization. This approach not only optimizes resources but also reduces the potential disruption associated with transitioning to entirely new systems.
    - Future-Proofing: Anticipating future needs and advancements is paramount in any technological solution. The modular and scalable nature of this framework, coupled with its capability to



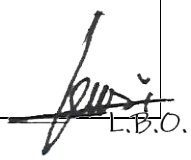
integrate third-party tools and systems, positions the organization to readily embrace emerging technologies. This future-proofing ensures that the solution can adapt to changes in the industry, organizational growth, and evolving user expectations.

- This architecture enables the integration of existing systems, allowing for a cohesive and efficient amalgamation. After conducting a thorough analysis, integration of existing systems like KUPPS, NHIF, IFMIS, KRA, TSC, and KNEC can be carried out through the development of appropriate APIs.
- This system can also be integrated with HIE Kenya by pairing the Student UID, Staff UID with AKHA (Afya Kenya Health Account) National Health Unique ID that will be created in HIE using which consent based exchange of medical health records and other relevant information can be done seamlessly.

Benefits of Third-Party Integrations

- **Efficiency:** Integrations automate manual tasks, reducing the need for duplicate data entry and improving overall workflow efficiency.
- **Data Accuracy**: Integrations ensure that data is consistent across systems, reducing errors that can occur from manual data transfer.
- **Enhanced Functionality**: By tapping into the capabilities of third-party tools, organizations can extend the functionality of their core systems without significant development efforts.
- **Real-time Insights**: Integrations enable real-time data exchange, providing up-to-date insights that facilitate informed decision-making.
- **Cost Savings**: Integrating existing tools can be more cost-effective than building new features from scratch.

Third-party tool and systems integrations have become a cornerstone of modern business operations, enabling organizations to maximize their software investments, streamline processes, and offer enhanced experiences to customers, clients, and users. Effective integrations create a cohesive ecosystem where technology seamlessly supports organizational objectives.



Smart Artificial Intelligence (AI) and Business Intelligence Features

To make the KEMIS platform even more powerful, we offer advanced AI and BI tools that help schools, government bodies, and educators do their jobs better—smarter planning, faster decisions, stronger accountability, and more personalized learning experiences.

These AI/BI modules aren't just technology add-ons—they are impact multipliers, driving efficiency, equity, and effectiveness across the education system.

Student Management

AI Features:

- Dropout prediction models
- Attendance heatmaps
- Behavioral pattern recognition
- Face recognition for attendance
- Enrollment forecasting

Impact: Institutions gain the ability to proactively support at-risk students before they fall behind. With early warning systems based on attendance, grades, and behavioral trends, school heads can intervene early with counseling, extra support, or home visits. This directly improves retention rates, especially in vulnerable communities. Real-time dashboards also allow for equity-focused decisions, helping district leaders spot underserved schools or communities that need more resources.

Staff and HR Management

AI Features:

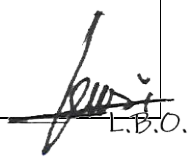
- Predictive attrition analysis
- Smart recruitment and skill-fit matching
- AI-based performance evaluations
- Sentiment analysis of staff feedback
- Teacher workload optimization

Impact: With AI insights, HR teams and school leaders can better manage talent pipelines—predicting when teachers might resign, understanding what causes burnout, and planning proactive retention strategies. Performance reviews become more well-rounded by combining student outcomes, peer feedback, and teaching logs. This fosters a more engaged, supported, and stable teaching workforce, leading to better classroom continuity and long-term system health.

Learning Management System (LMS)

AI Features:

- Personalized learning paths
- AI chat tutors for 24/7 support
- Content recommendation engines
- Learning style detection



Impact: Students no longer receive a one-size-fits-all education. With adaptive learning, each learner progresses at their own pace, receiving content that matches their current level. AI tutors act like digital assistants, answering doubts anytime—even in remote, under-resourced schools. This not only boosts student confidence and performance, but also reduces dependency on physical infrastructure, making high-quality learning accessible to every student, no matter where they are.

Examinations and Performance

AI Features:

- AI-based online proctoring (facial + motion detection)
- Automated grading using NLP for essay-type answers
- Predictive performance analytics
- Exam anomaly detection

Impact: AI enhances exam integrity, even in large-scale, decentralized exam environments. Proctoring tools ensure that online exams are fair and secure, which is essential for high-stakes tests. Automatic grading allows educators to spend less time on evaluation and more on instruction. Predictive analysis helps schools identify struggling students long before results are released—giving them a chance to intervene, not just reflect.

Finance and Procurement

AI Features:

- Smart fund flow dashboards
- Procurement recommendation engines
- Automated audit and fraud detection
- Predictive budget reallocations

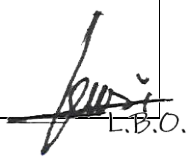
Impact: By tracking spending in real time and identifying anomalies, institutions and government bodies can maximize the value of every shilling spent. AI supports clean, efficient fund use by highlighting underused allocations, repetitive expenses, or delays in disbursement. This promotes financial discipline, trust in public spending, and better planning at both institutional and national levels. Procurement modules recommend vendors based on past performance, enabling data-backed purchasing decisions.

Board and Administration

AI Features:

- AI-generated meeting insights and summaries
- Decision recommendation engine
- Composite institutional health score
- Integrated multi-domain dashboards
- Policy simulation engine

Impact: Boards and administrators are no longer reliant on spreadsheets or fragmented reports. Instead, they get a single source of truth, updated in real time, that covers academics, finance, staffing, and infrastructure. AI tools can simulate the outcome of proposed policy changes—like budget cuts or hiring freezes—before



they're made. This leads to more thoughtful governance, faster decisions, and measurable improvements in institutional performance.

Asset, Inventory, and Infrastructure

AI Features:

- Predictive maintenance alerts
- Smart asset tracking and usage heatmaps
- Real-time geofencing for mobile assets
- Energy and utility forecasting

Impact: AI enables schools to protect and extend the life of their infrastructure, from lab equipment and computers to buses and water pumps. Maintenance is done before breakdowns happen, reducing downtime and repair costs. Usage heatmaps help in optimizing allocation, especially in multi-campus or rural setups where resources are shared. This leads to better budgeting, less wastage, and longer asset lifecycles.

Sports, Co-curricular, Hostels, and Cafeteria

AI Features:

- Student engagement tracking
- Predictive participation analysis
- Wellbeing and sentiment detection from feedback
- Co-curricular vs academic performance mapping

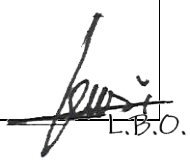
Impact: These modules support holistic student development, going beyond marks. AI shows who is thriving outside the classroom and who may be socially disengaged—helping schools take timely action. Sentiment analysis from hostel and cafeteria feedback allows for faster service improvements. Administrators can also explore how co-curricular participation affects academic results, ensuring every student is supported in developing to their full potential.

Transformative Outcomes from AI and BI in KEMIS

These features collectively bring the power of intelligent automation, real-time insights, and predictive action to the entire education system. Whether it's:

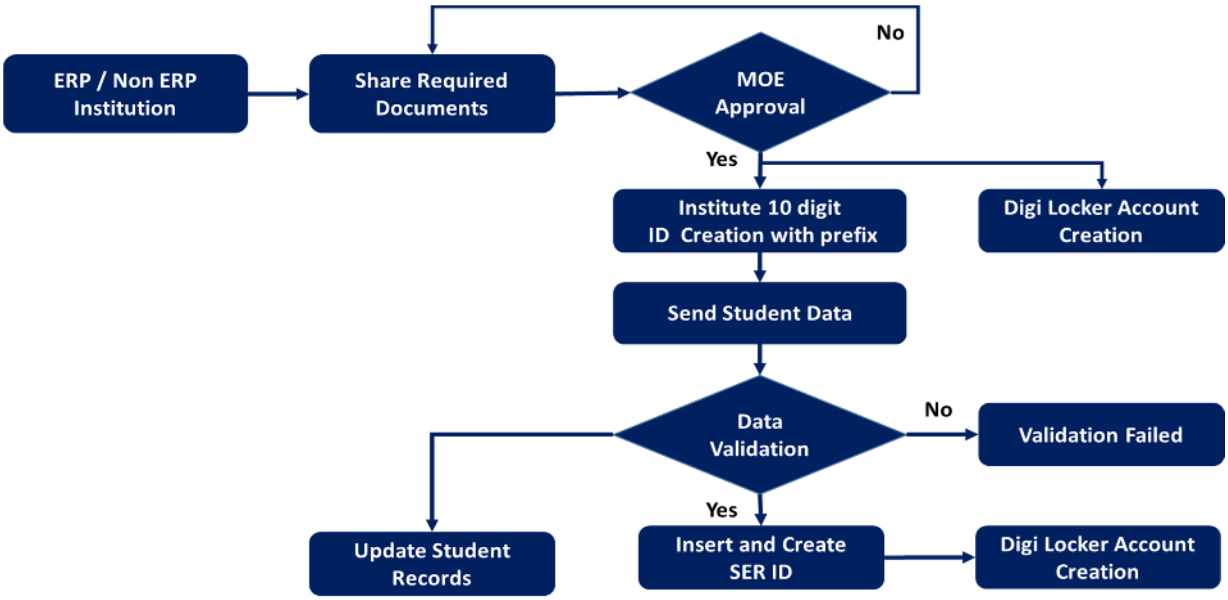
- Helping a rural school identify a child who's about to drop out,
- Giving policymakers an hour-by-hour view of national exam performance, or
- Guiding a school leader to reallocate budgets based on live spending trends

AI and BI make education smarter, more responsive, and more equitable. They help move from reactive problem-solving to proactive transformation.



Institutional Onboarding Process

Institutions undergo a streamlined and compliant onboarding process via the **Exchange Portal**:



Step 1: Statutory Document Collection

- Institutions submit all required documents (affiliation certificates, compliance proof, etc.) to establish eligibility.

Step 2: Application Submission

- Applications are sent to the Ministry of Education (MoE) for verification and validation.

Step 3: Approval & Code Generation

- Post-validation, MoE assigns a **unique 10-digit Institution Code** with a prefix indicating institution type (e.g., 'S' for schools).

Step 4: Digi Locker Integration

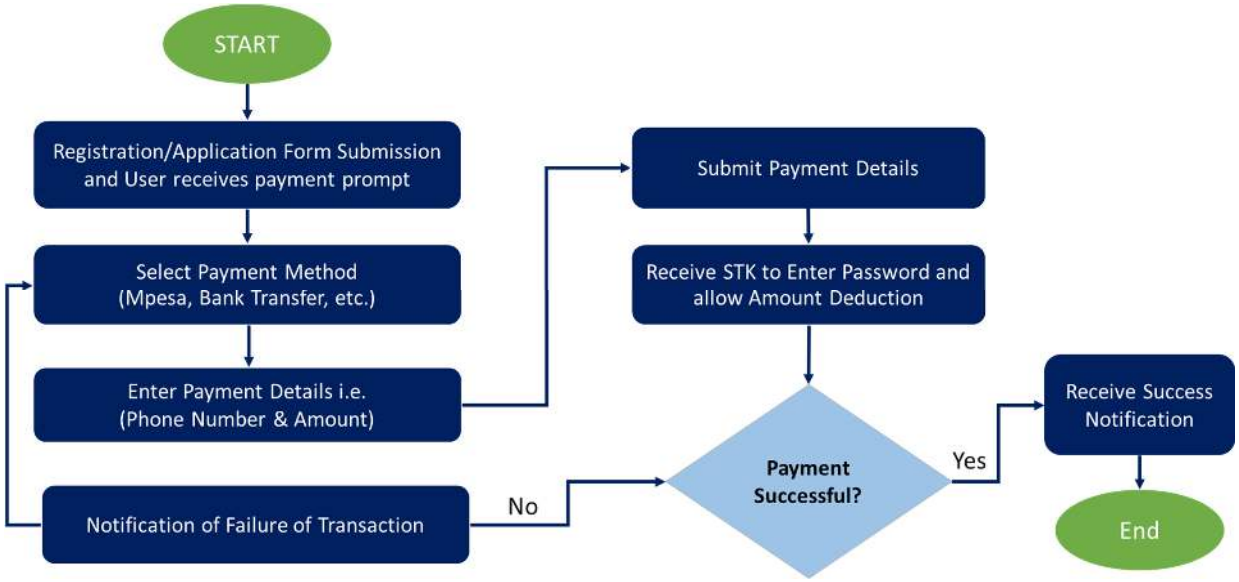
- A secure Digi Locker account is created for each institution to manage verified digital documents, facilitating:
  - Digital governance
  - Continuous updates
  - Secure and paperless records

Online Payment Process

This is a typical mobile-based digital payment workflow, especially in contexts using systems like Mpesa. It involves:

- Initial form submission
- Payment method and details input
- Real-time payment authorization via STK
- Verification and response (success or failure)

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Step 1: START

- The process begins when a user submits a Registration/Application Form.
- The user immediately receives a payment prompt.

Step 2: Select Payment Method

- The user is prompted to select a payment method, such as:
  - Mpesa
  - Bank Transfer
  - Other electronic payment options

Step 3: Enter Payment Details

- The user enters necessary payment information, including:
  - Phone Number
  - Payment Amount

Step 4: Submit Payment Details

- The user submits the entered payment information.

Step 5: Receive STK Prompt

- The user receives a Sim Tool Kit (STK) prompt on their phone.
- This prompt asks them to:
  - Enter their payment password/PIN
  - Authorize the deduction of the amount

Step 6: Payment Verification

- The system checks whether the payment was successful.

Step 7A: If Payment is Successful:

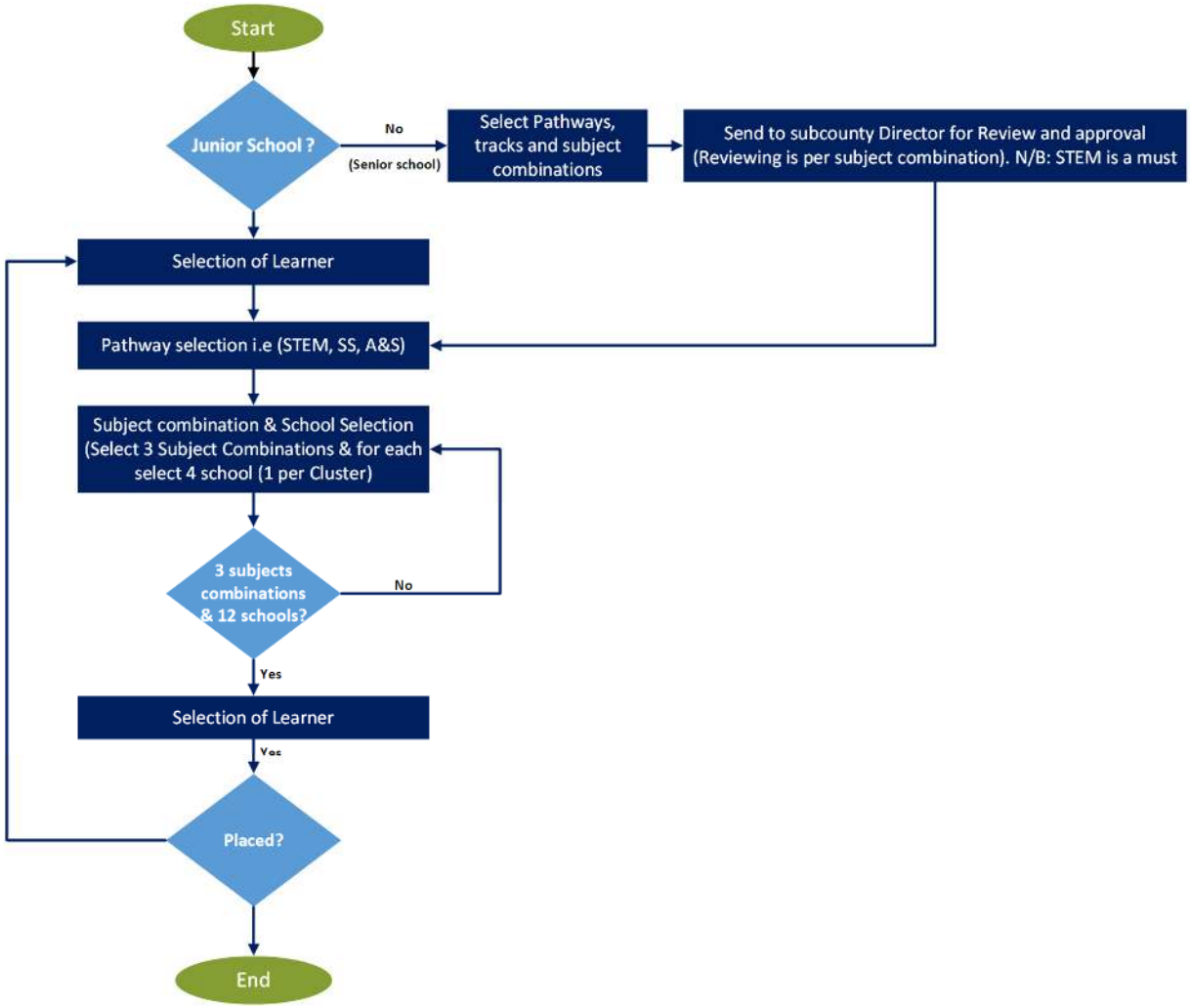
- The user receives a success notification
- The process ends.

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Step 7B: If Payment Fails:

- The user is sent a failure notification
- They are redirected back to select payment method and retry the process

Learner Registration Process



- **Step 1: Start**
  - Initiate the process of learner placement from Junior School to Senior School.
- **Step 2: Check if Learner is from Junior School**
  - **If YES** → Proceed to Step 3.
  - **If NO** (Senior School learner) →
    - Select **pathways, tracks, and subject combinations**.
    - Submit the selection to the **Subcounty Director** for **review and approval**.
    - **Note:** STEM pathway is mandatory.
- **Step 3: Selection of Learner**
  - Choose the specific learner whose placement is being processed.

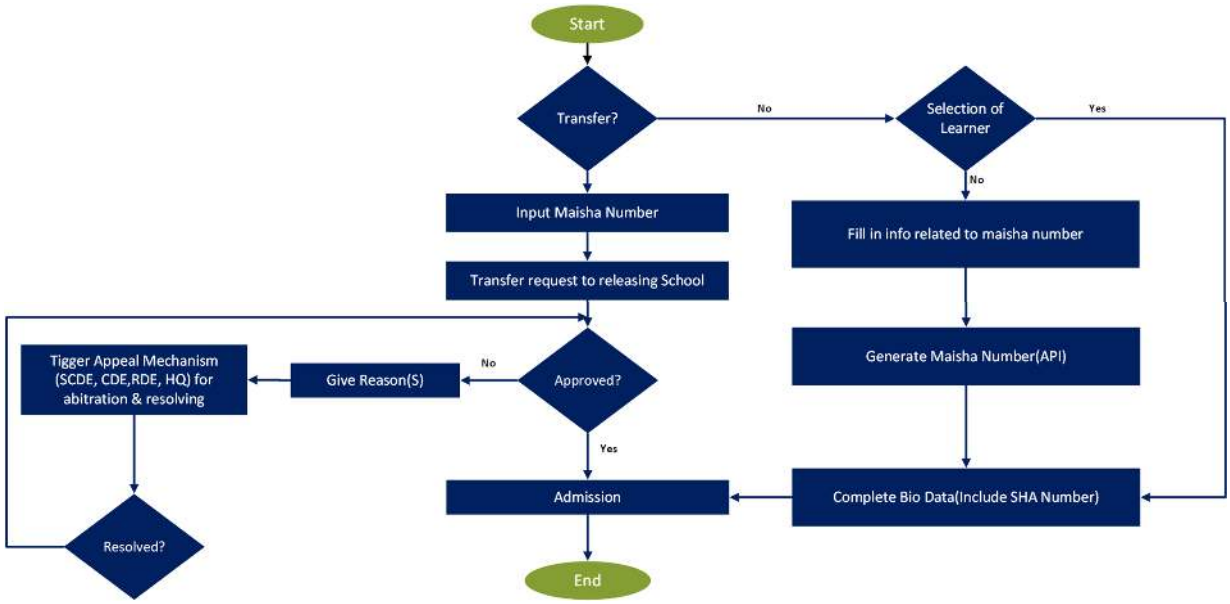
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- **Step 4: Pathway Selection**
  - Choose an educational pathway for the learner:
    - **STEM** (Science, Technology, Engineering, Math)
    - **SS** (Social Sciences)
    - **A&S** (Arts and Sports)
- **Step 5: Subject Combination & School Selection**
  - Select **3 subject combinations**.
  - For each subject combination, select **4 schools** (total of 12 schools).
    - **1 school per cluster**.
- **Step 6: Validation**
  - Check if **3 subject combinations** and **12 schools** are selected.
    - **If YES** → Proceed to Step 7.
    - **If NO** → Return to Step 5 and complete the selection.
- **Step 7: Submit for Placement**
  - Submit the selected subject combinations and schools for official placement.
- **Step 8: Placement Decision**
  - Check if the learner has been **successfully placed**.
    - **If YES** → Proceed to Step 9.
    - (If NO, loop not shown; assumed reprocessing is required.)
- **Step 9: End**
  - The process ends successfully once the learner is placed.

Student Transfer Process

- **Maisha Number**: Unique student ID required for admission or transfer.
- **Transfer Request Flow**: Involves school approval and possible appeal mechanisms.
- **Appeal Mechanism**: Structured process for dispute resolution.
- **Admission**: Final step after approval and data completion.

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Step by Step Process Flow

- **Step 1: START**
  - The process begins.
- **Step 2: Is it a Transfer Case?**
  - If YES → Go to Step 3
  - If NO → Go to Step 7
- **Step 3: Input Maisha Number**
  - The existing Maisha Number for the learner is entered.
- **Step 4: Submit Transfer Request to Releasing School**
  - A formal transfer request is sent to the learner's current school.
- **Step 5: Is the Transfer Approved?**
  - If YES → Go to Step 6, If NO → Go to Step 11
- **Step 6: Admission**
  - The learner is admitted to the new school.
- **Step 7: Does the Learner Have a Maisha Number?**
  - If YES → Go to Step 10, If NO → Go to Step 8
- **Step 8: Fill in Maisha Number Information**
  - Enter the necessary learner information required to generate a Maisha Number.
- **Step 9: Generate Maisha Number (via API)**
  - The system automatically generates a Maisha Number for the learner.
- **Step 10: Complete Bio Data (including SHA Number)**
  - Full bio-data is filled in, including the SHA (Student Health Assessment) number.
  - Then proceed to Step 6: Admission.
- **Step 11: Give Reason(s) for Rejection**

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- If the transfer is not approved, the system prompts for reasons.

- **Step 12: Trigger Appeal Mechanism**
  - Escalate the case to:
    - SCDE (Sub-County Director of Education)
    - CDE (County Director of Education)
    - RDE (Regional Director of Education)
    - HQ (Headquarters)
  - For arbitration and resolving the issue.
- **Step 13: Is the Issue Resolved?**
  - If YES → Go back to Step 5 for re-approval.
  - If NO → Process remains open until resolved.
- **Step 14: END**
  - The process concludes once the learner is successfully admitted.

Strategic Benefits

- **Transparency & Traceability:** Standardized data management and classification
- **Customization:** Institutions can enable only required modules, enhancing usability
- **Compliance & Governance:** Integrated approval workflows and digital records
- **Student-Centric Services:** Enhanced academic lifecycle management
- **Data-Driven Planning:** Real-time visibility for policymakers and administrators

Capitation & Fee Allocation Process

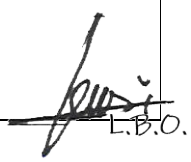
The system supports a comprehensive Capitation and Fee Management framework to manage and streamline financial contributions from multiple stakeholders, ensuring efficient allocation, accountability, and transparency.

1. **Student Classification & Fee Structure Setup**
   - The system enables the classification of students based on pre-defined funding categories such as:
     - Government (e.g., Ministry/Agency Grants)
     - Student Loan Bodies (e.g., Higher Education Loan Boards)
     - Guardian/Parent Contributions
     - External Sponsors
     - Self-Sponsored Students
   - Each classification is mapped to customizable fee contribution percentages to define how the total fee for a student will be split among different funding sources.
2. **Student Enrolment & Payment Intake**
   - Upon admission, each student is tagged with a specific funding classification.
   - As payments are received from various sources (government, loan agencies, parents, etc.), the system:
     - Records transactions against the student's profile.
     - Links payments to the applicable funding category.

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- Tracks outstanding balances and overpayments in real-time.

3. **Fee Allocation**
   - The total student fee is broken down into multiple predefined fee components, such as:
     - Accommodation & Boarding
     - Examination/Assessment Charges
     - Admission and Graduation Fees
     - Regulatory and Administrative Fees (e.g., Accreditation Body, Placement Agencies)
     - Caution Fee
     - Student ID and Miscellaneous Charges
   - Once a payment is made, the system can allocate the amount proportionally across these fee components based on the assigned classification and contribution rules.
   - The allocation engine ensures:
     - Accurate deduction of each contributor's share.
     - Prevention of duplicate allocations.
     - Compliance with institutional and regulatory fee structures.
4. **Capitation Claims and Reconciliation**
   - The system compiles capitation-eligible data based on active enrollments, student classifications, and approved contributions.
   - Authorized personnel can generate automated capitation claims reports, which are submitted to the respective funding bodies for review and approval.
   - Upon approval, the system tracks incoming capitation disbursements and automatically reconciles them with the claimed amounts.
5. **Financial Monitoring and Audit Trails**
   - The system provides:
     - Real-time dashboards for capitation status by institution/program/student.
     - Comprehensive reports detailing payments received, outstanding dues, fund allocations by category, and utilization of disbursed amounts.
     - Full audit trail of all financial transactions, user actions, and adjustments for internal and external audit readiness.
6. **Benefits of the Capitation Module**
   - Supports multi-source funding models with flexible rules.
   - Ensures automated, rules-based allocation of fees.
   - Enables accurate reporting and compliance for disbursement agencies.
   - Reduces administrative overhead in financial tracking and reconciliation.
   - Improves transparency and financial planning for both the institution and its funding partners.



Non-ERP Institutions

The proposed process for the certification and integration of Non-ERP institutions with the Exchange Portal. It aims to facilitate seamless student data exchange, ensure record integrity, and enable real-time academic tracking through a secure API interface.

An Integration framework ensures that Non-ERP institutions can securely and effectively participate in the Exchange Portal ecosystem. With robust validation, real-time data synchronization, and digital identity creation, this process enhances transparency, data integrity, and interoperability across the educational landscape.

To enable Non-ERP educational institutions to:

- Apply for certification and integrate with the Exchange Portal.
- Submit student data securely.
- Ensure student record validation, uniqueness, and real-time academic updates.
- Facilitate the generation of a unified digital identity for students through the Exchange Portal.

Process Overview

1) **Institution Certification & ID Generation**
   - Non-ERP institutions may apply for certification to connect with the Exchange Portal.
   - Upon successful approval, a **unique 10-digit Institution ID** is generated, prefixed with the respective **Institute Type**.
2) **Secure API Integration**
   - All data transactions utilize a **Secured Open API Interface** with robust authentication protocols.
   - This ensures confidentiality, integrity, and controlled access to institutional and student data.
3) **Student Data Submission & Validation**
   - Institutions submit student data in prescribed formats via API.
   - The Exchange Portal performs:
     - Data validation
     - Duplication checks
     - Cross-referencing against existing records
   - This mechanism ensures high data accuracy and prevents duplicate student entries.
4) **Student Exchange Record ID (SER ID) Creation**
   - If a student record passes all validation checks:
     - A **Student Exchange Record ID (SER ID)** is generated.
     - The student is mapped to the submitting institution.
     - A corresponding **DigiLocker account** is automatically created and linked to the SER ID.
     - All relevant record details are shared back with the institution for their reference and access.
   - If validation fails:
     - The system returns a detailed error message specifying the reasons for rejection, enabling correction and resubmission.

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5) Real-Time Data Updates

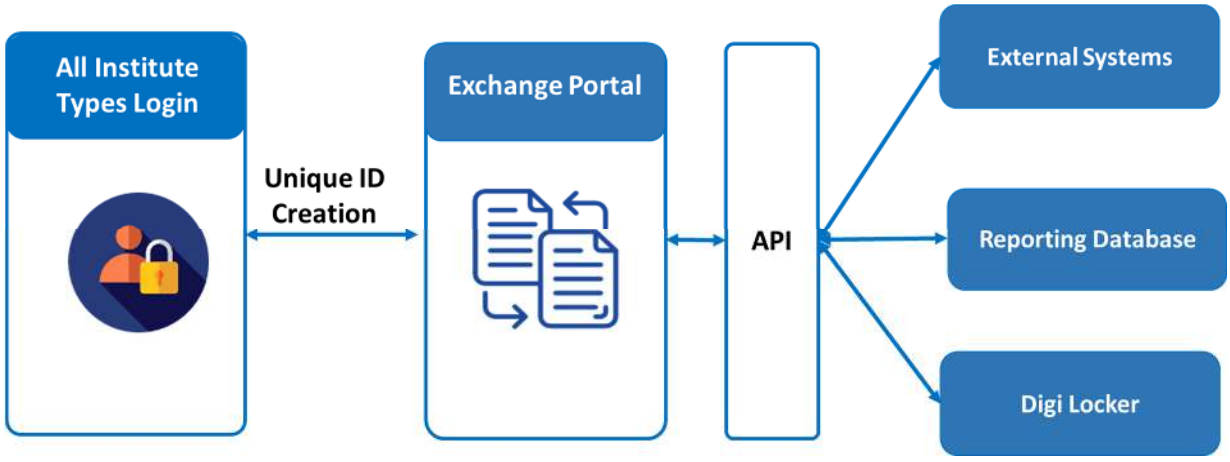
- The Exchange Portal supports dynamic updates of student records based on authenticated academic inputs, including:
  - Examination results
  - Academic progress reports
  - Attendance data
  - Other relevant milestones
- This ensures a live and accurate student record ecosystem for all integrated institutions.

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Data Layer - Exchange Portal

The Exchange Portal is a secure, scalable, and interoperable framework to integrate Non-ERP educational institutions with the national-level Exchange Portal. This integration enables the submission, validation, and maintenance of student data, including academic performance and certifications, through authenticated digital workflows. It leverages modern technologies like Kafka, MongoDB, MinIO, and ClickHouse to ensure real-time processing, robust storage, and advanced analytics.

- Exchange portal is used for specifically for all type of institutions (ERP and Non-ERP), Students and trainers information with the SER ID.
- All the marks, attendance and certification interactions between systems occur through the Exchange Portal with proper authentication.
- Any information exchange between institutions and government bodies is conducted via the Exchange Portal, with the student consent.
- All the certificates related to students, institutions, and trainers are securely stored in Digi Locker, following Token based authentication through the Exchange Portal.



Institution Onboarding & ID Generation

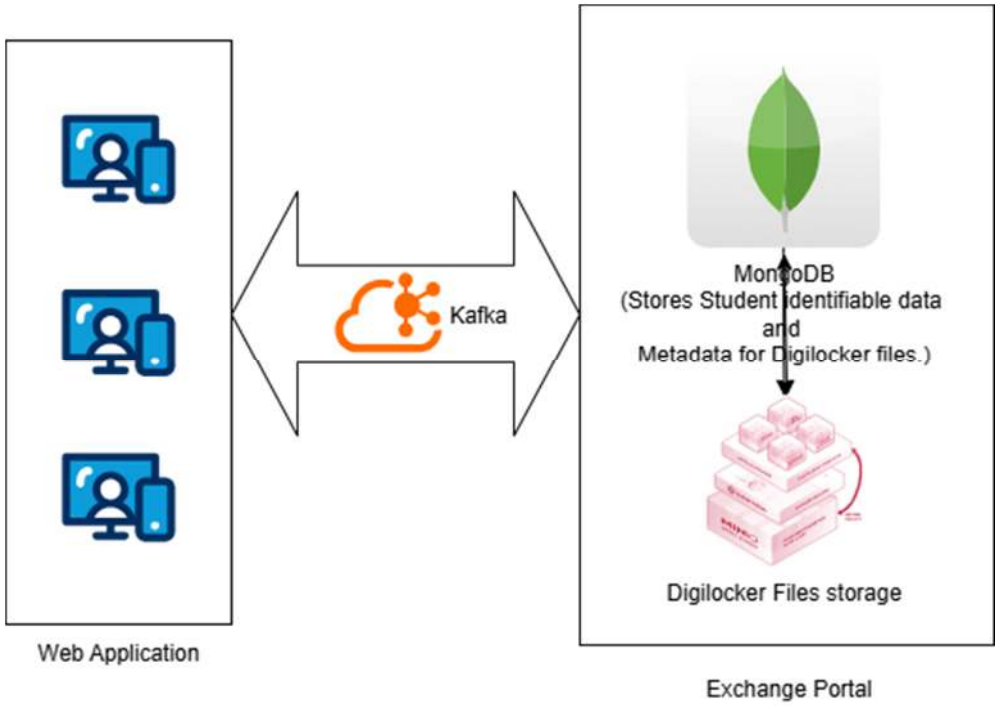
Non-ERP institutions initiate the onboarding request through the Exchange Portal. Upon verification, a 10-digit unique Institution ID is generated. The ID format includes a prefix indicating the institution type (e.g., "SC" for Schools, "CL" for Colleges). Approval status and institution profile are stored in the Exchange Portal database.

Secure API Interface

All endpoints are exposed via a Secured Open API Interface. Token-based and key-based authentication ensures authorized access. APIs follow RESTful standards with versioning, JSON schema validation, and HTTPS encryption. Rate-limiting and audit logging are implemented to prevent misuse.

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System Architecture Overview



Real-Time Academic Data Updates

- **Kafka – Real-Time Event Stream Processor**
  - Kafka functions as a high-throughput, real-time message broker that continuously handles events triggered by the web application. Whether it's uploading, retrieving, or updating documents, Kafka captures these user actions as discrete events. This enables the system to process operations asynchronously and respond to users with minimal latency.
- **MongoDB – Distributed Store for Metadata & Student Information**
  - Mongo DB is a distributed SQL database known for its high availability, strong consistency, and ability to scale horizontally. It stores both
  - **Digi Locker file metadata**, including file names, upload timestamps, and references to the actual file locations in Min IO.
  - Student identifiable data (e.g., student ID, name, contact info).
  - MongoDB used for Exchange portal system.
- **MinIO – Scalable Object Storage for Documents**
  - Min IO serves as the file storage layer, where each student's actual documents (such as certificates, ID cards, and academic records) are stored as objects. It is a high-performance object storage solution compatible with the S3 API, making it ideal for handling large volumes of unstructured data like PDFs, images, and scanned files.

Student Record Workflow

1) **Data Submission & SER ID Generation:** Institutions submit student data via structured API calls. Key fields include:

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- Name, DOB, Gender, Address
- Contact details and parental information
- Biometric/Facial ID (e.g., Iris)
- National ID and system-generated hash

2) **The Exchange Portal performs:**
   - Field-level validation
   - Duplication detection
   - Biometric/ID matching

If unique, a Shared Education Record ID (SER ID) is generated.

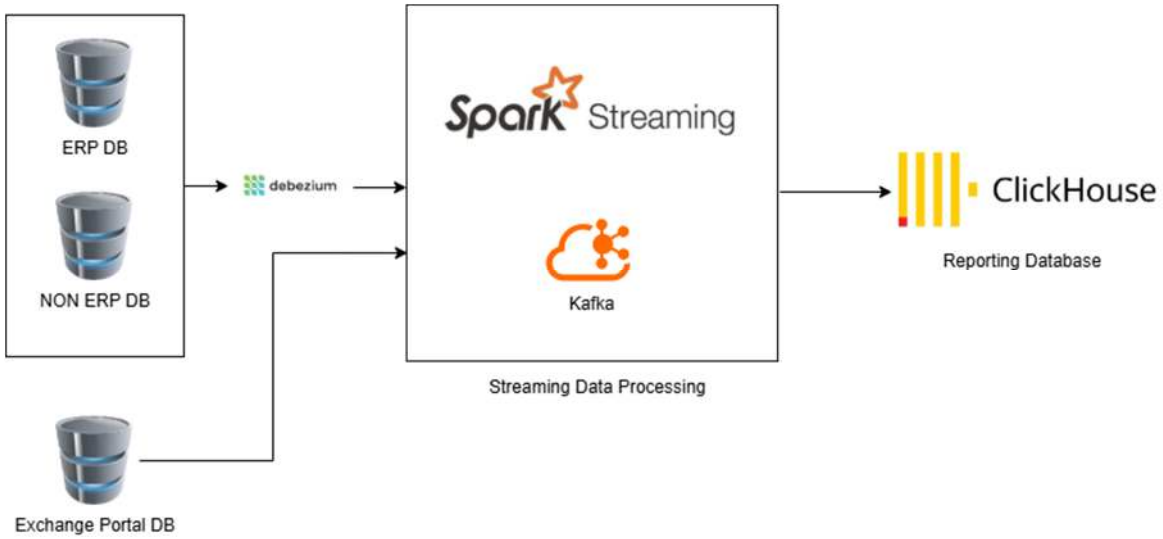
3) **Integration with DigiLocker**
   - Upon successful SER ID creation, a DigiLocker account is created and linked automatically. All academic records, certificates, and attendance logs are stored securely within the DigiLocker using MinIO, an S3-compatible object store.

Reporting & Analytics Architecture

A dedicated reporting server is deployed to replicate data in real-time from all exchange portal databases, covering both common and institution-specific modules, Exchange portal as well as from various external systems such as payment gateways and educational organizations.

This server is optimized for high-speed data access and supports informed decision-making within the system.

Data replication is achieved through a structured process of streaming, processing, and storage—following the architecture illustrated here.



- **Real-Time Replication & Change Capture:** Debezium listens to PostgreSQL database changes. All changes are published to Kafka for downstream consumption.
- **Stream Processing:** Spark streaming processes Kafka events in micro-batches. Supports complex transformations and enrichments.

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- **Analytical Storage:** Processed data is stored in ClickHouse, optimized for querying large-scale datasets. Enables dashboards, visualizations, and compliance reporting.

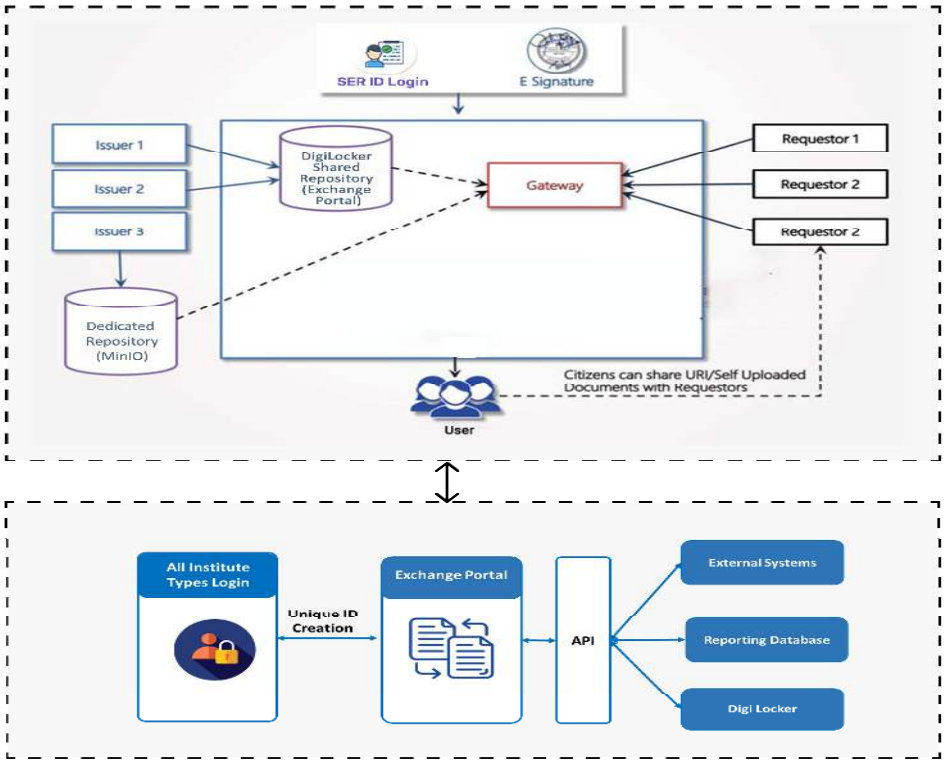
Digi Locker Architecture

DigiLocker is a flagship initiative under the Digital India program aimed at transforming India into a digitally empowered society. It serves as a cloud-based platform for issuing, storing, sharing, and verifying documents and certificates in a secure and paperless manner.

In the context of the Exchange Portal for educational institutions, DigiLocker plays a critical role in:

- Securely storing academic records such as certificates, mark sheets, attendance, and ID documents.
- Facilitating document access and verification for students, institutions, and third-party requestors (government bodies, employers, etc.).
- Enabling authenticated data exchange through integration with national-level infrastructure using APIs.

The provided diagram illustrates the **Exchange Portal and DigiLocker Integration Architecture** in two main layers:



The provided diagram illustrates the **Exchange Portal and DigiLocker Integration Architecture** in two main layers:

Upper Layer: Document Exchange and Access via DigiLocker

Components:

- **Issuers (Issuer 1, 2, 3):**
  - Government or institutional bodies that issue verified documents (e.g., schools, universities, exam boards).

- These documents are pushed into the DigiLocker Shared Repository.

- **DigiLocker Shared Repository (Exchange Portal):**
  - Centralized repository holding verified documents.
  - Acts as the **core document vault** connected to the Exchange Portal.
  - All documents are securely stored and mapped to students via their **SER ID (Shared Education Record ID)**.
- **Dedicated Repository (MinIO):**
  - Cloud-based **object storage layer** for large files like PDFs, images, and certificates.
  - Supports scalability and performance for document storage.
- **Gateway:**
  - **Access control and routing hub**, ensuring only authenticated requestors (Requestor 1, 2, etc.) can access documents.
  - Handles permissioning, logging, and delivery of documents.
- **Requestors (1, 2, 3):**
  - External agencies, institutions, or government departments that retrieve documents for verification or processing.
  - Citizens can **authorize sharing** of their documents with requestors using **URI or manually uploaded content**.
- **User:**
  - The **citizen/student** who logs in using their **SER ID** and optionally provides **E-Signature** to authenticate actions and document sharing.

Lower Layer: Institution and Exchange Portal Integration

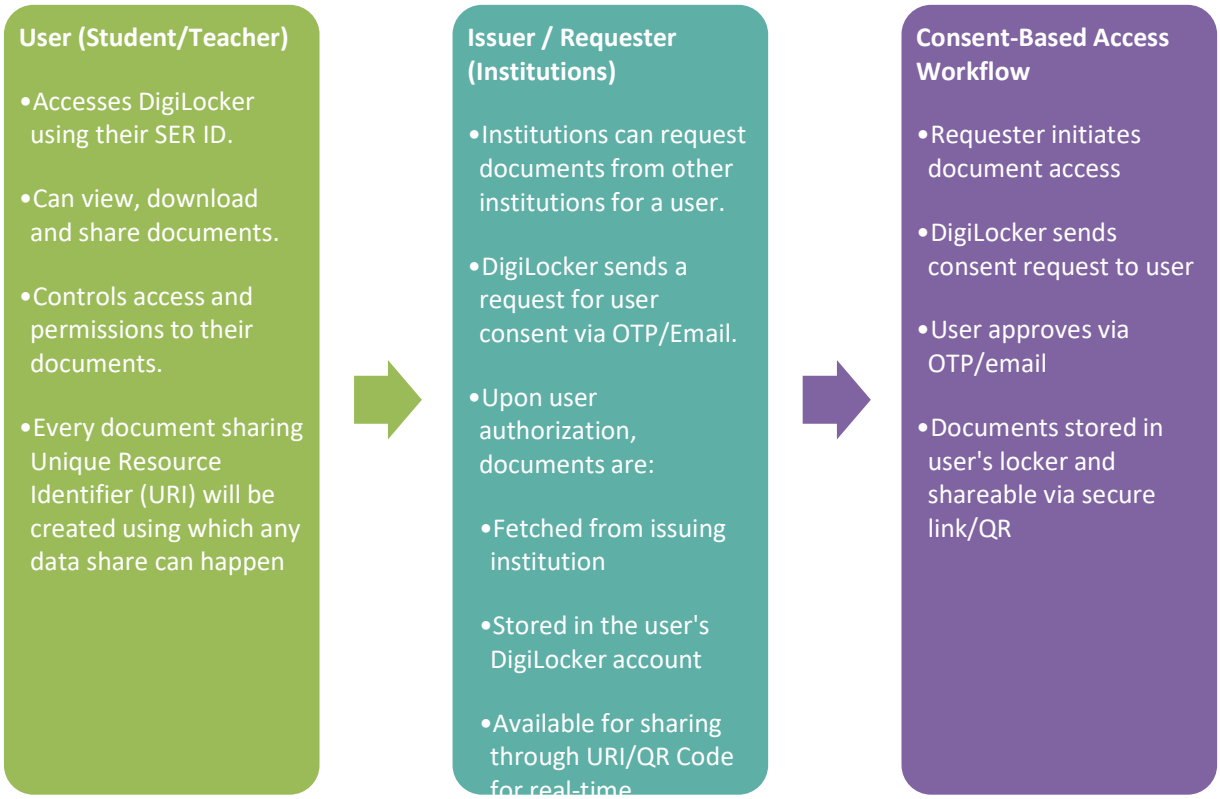
Components:

- **All Institute Types Login:**
  - Interface for ERP and Non-ERP institutions to log in and **initiate integration**.
  - Institutions receive a **Unique Institution ID** upon approval.
- **Exchange Portal:**
  - Core platform for maintaining institutional and student records.
  - Facilitates ID generation, data validation, and API communication.
- **API Layer:**
  - Acts as the **integration interface** between the Exchange Portal and external systems.
  - Provides endpoints for data submission, retrieval, and status checking.
- **External Systems:**
  - Third-party bodies like certification agencies, UGC/AICTE, and employer verification portals.
- **Reporting Database:**
  - Maintains real-time replicas and analytics-friendly versions of the data using tools like **Debezium, Kafka, Spark, ClickHouse**.
- **DigiLocker:**

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- Final secured repository for user records.
- Synced with the Exchange Portal and accessible through citizen consent and SER ID-based login.

DigiLocker Process



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Dashboard

The Exchange Portal integrates a robust **Business Intelligence (BI) and Analytics Dashboard** to offer real-time visibility, predictive insights, and performance tracking across all key stakeholders—including students, institutions, government bodies, and administrators. This unified dashboard ecosystem is powered by a combination of **ClickHouse OLAP engine**, AI analytics, and data streaming technologies.

Key Functional Layers

- **Real-Time Interactive Dashboard**
  - Provides live visibility into data from registered institutions and students.
  - Supports drill-down analytics by entity type (Student, Teacher, Institution, Region).
  - Customizable widgets for MoE officials, state departments, institutional heads, etc.
  - Supports multi-dimensional views across temporal scales (daily, weekly, term-wise).
- **AI-Powered Analytics Layer**
  - Integrated AI models utilize both historical and streaming data (via Spark + Kafka pipeline) to:
    - Detect academic anomalies and attendance fluctuations.
    - Predict student dropout risks, absenteeism trends, and performance deterioration.
    - Recommend data-driven interventions for education officers.
  - AI models are continuously trained using incremental learning techniques to adapt to changing patterns.
- **Biometric-Academic Correlation**
  - Utilizes Iris-based attendance data collected via biometric authentication devices.
  - Correlates attendance with academic performance using machine learning classifiers.
  - Insights drive policy-level decisions (e.g., automated alerts, funding triggers, academic counseling).

Data Sources and Architecture

ClickHouse - OLAP Engine

- **Columnar storage model** enabling ultra-fast queries across billions of rows.
- Data from **student records, attendance, test results, and institutional metrics** is replicated into ClickHouse from MongoDB via Kafka.
- Supports **dashboards segmented by education domain**:
  - Early Childhood Development & Education (ECDE)
  - Primary & Secondary Education
  - Technical and Vocational Education and Training (TVET)
  - Higher Education/Universities

Spark Streaming & Kafka Integration

- Near real-time ingestion of change data using **Debezium CDC streams**.
- Spark processes micro-batches to generate trend metrics and AI feature sets.

- Kafka ensures **high-throughput data pipelines**, making the system scalable and fault-tolerant.

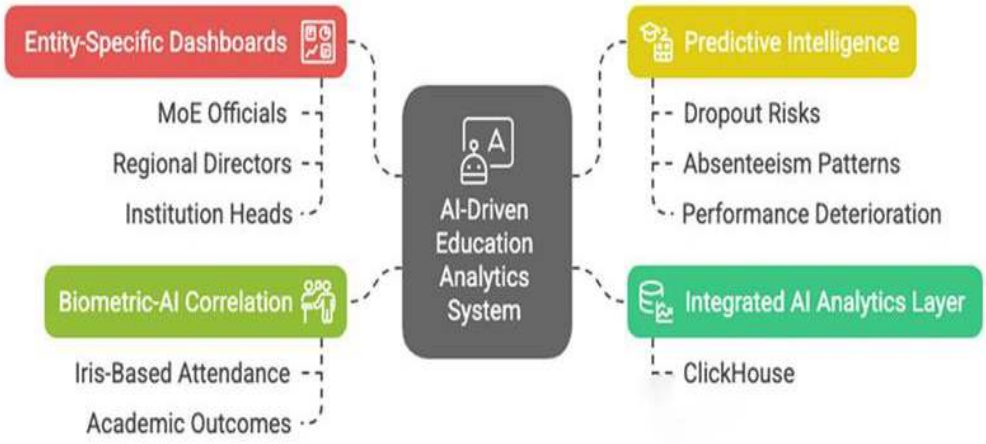
Reports and Exportable Insights

- Stakeholders can generate **customizable, exportable reports** for:
  - Compliance and regulatory audits
  - Strategic educational planning
  - Real-time performance summaries
- Reports are available in **PDF, CSV, and interactive web formats**.
- Support for **scheduled report delivery** and **user-defined KPIs**.

Governance and Access Control

- Role-Based Access Control (RBAC) ensures that each user only views dashboards relevant to their access level.
- All dashboard components are built to be **GDPR and national data policy compliant**, supporting audit trails and secure access.

AI-Powered Performance & Attendance Dashboard



- **Integrated AI Analytics Layer**: Leveraging ClickHouse, the system computes real-time trends across academic performance, institutional KPIs, and behavioral insights.
- **Entity-Specific Dashboards**: Custom dashboards for MoE officials, regional directors, and institution heads, powered via replicated OLAP stores—segmented by ECDE, Primary, Secondary, TVET, and University data nodes.
- **Predictive Intelligence**: Machine learning models forecast dropout risks, absenteeism patterns, and performance deterioration—supporting preemptive interventions.
- **Biometric-AI Correlation**: Cross-analysis of Iris-based attendance data vs. academic outcomes to drive policy decisions.

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Transforming Core Modules with AI

Module	Current Features	Added AI Layer	Impact	Example Use Case
Academic Management	Student lifecycle management, cohorting, credit transfers, and TVET compliance	Predictive course recommendations, dropout risk analysis	Personalized learning paths, improved retention	AI identifies struggling students and recommends remedial courses
Examination Management	Exam card issuance, attendance tracking, and result approvals	Automated grading, fraud detection, result trend analysis	Faster, fairer grading, early cheating detection	AI flags anomalies in exam patterns, prompting investigations
Student Portal	Application management, fee payments, and secure logins	Chatbot support, personalized notifications, adaptive interfaces	Enhanced user experience, reduced admin load	AI suggests financial aid options based on student profiles
E-learning System	Digital content delivery, assignments, and assessments	Adaptive learning sequences, content personalization, real-time feedback	Higher engagement, better learning outcomes	AI adjusts course difficulty based on student performance
Timetabling	Room and time slot management, conflict resolution	Dynamic schedule optimization, lecturer availability prediction	Efficient resource use, fewer scheduling issues	AI reschedules low-attendance classes for better turnout
Student Affairs	Event management, student services, and resource access	Sentiment analysis, mental health risk detection	Proactive well-being support, early identification of struggling students	AI recommends wellness events to at-risk students
Library Integration	Book cataloging, inventory management, and borrowing	Book recommendations, usage pattern analysis	Better resource allocation, improved discovery	AI suggests reading materials based on course content
Research Management	Project tracking, research documentation, and funding management	Automated literature reviews, research trend forecasting	Faster research cycles, more impactful outputs	AI connects researchers with overlapping interests

Module	Current Features	Added AI Layer	Impact	Example Use Case
Admin & HR Management	Payroll, leave tracking, and recruitment	Resume screening, workforce sentiment analysis	Faster hiring, better talent retention	AI suggests internal promotions based on employee performance
Finance	Budgeting, payments, and financial reporting	Anomaly detection, expense forecasting	Improved financial accuracy, fraud prevention	AI flags unusual transactions for review
Procurement	Full procurement lifecycle, tender management, and vendor portals	Supplier scoring, predictive demand analysis	Streamlined procurement, better vendor selection	AI ranks vendors based on performance and reliability
Inventory Management	Stock tracking, reorder management, and audit trails	Demand forecasting, real-time inventory alerts	Reduced stockouts, optimized storage	AI predicts supply needs based on historical usage
Hostel & Cafeteria Management	Room allocation, meal planning, and maintenance scheduling	Occupancy prediction, personalized meal recommendations	Better resource planning, enhanced student satisfaction	AI suggests meal plans based on student preferences
Transport/Fleet Management	Vehicle scheduling, route optimization, and maintenance tracking	Predictive maintenance, fuel efficiency optimization	Reduced vehicle downtime, lower operational costs	AI schedules preventive maintenance based on usage patterns
Certificate Issuance	Automated certificate generation and distribution	Fraud detection, dynamic credential verification	Faster, more secure credentialing	AI verifies certificate authenticity in real-time
Smart ID Card Printing	ID card generation and student verification	Biometric data analysis, security anomaly detection	Enhanced campus security, faster ID issuance	AI detects unauthorized access attempts

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Module	Current Features	Added AI Layer	Impact	Example Use Case
Audit	Data integrity checks, compliance monitoring	Anomaly detection, predictive threat alerts	Stronger data security, continuous compliance	AI flags suspicious system activity
Quality Assurance Management	Institutional quality audits, performance tracking	Continuous improvement recommendations, AI-driven audit trails	Sustained quality improvements, faster issue resolution	AI suggests process improvements based on audit findings
Utilities	Process automation, communication tools	Smart resource allocation, performance optimization	More efficient operations, better resource utilization	AI reallocates server resources during peak usage
Security	System access controls, threat detection	Behavioral anomaly detection, adaptive security protocols	Stronger system protection, faster threat mitigation	AI blocks unusual login patterns
Dashboards & Dynamic Reports	Real-time data visualization and custom report generation	Predictive analytics, data-driven insights	Faster, more informed decision-making	AI highlights emerging trends in student performance

External API Integrations

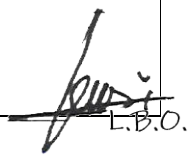
The system supports extensive external integrations for seamless operations across financial services, educational authorities, and public infrastructure. These integrations allow for real-time information exchange, transaction processing, and regulatory compliance.

Supported Integrations

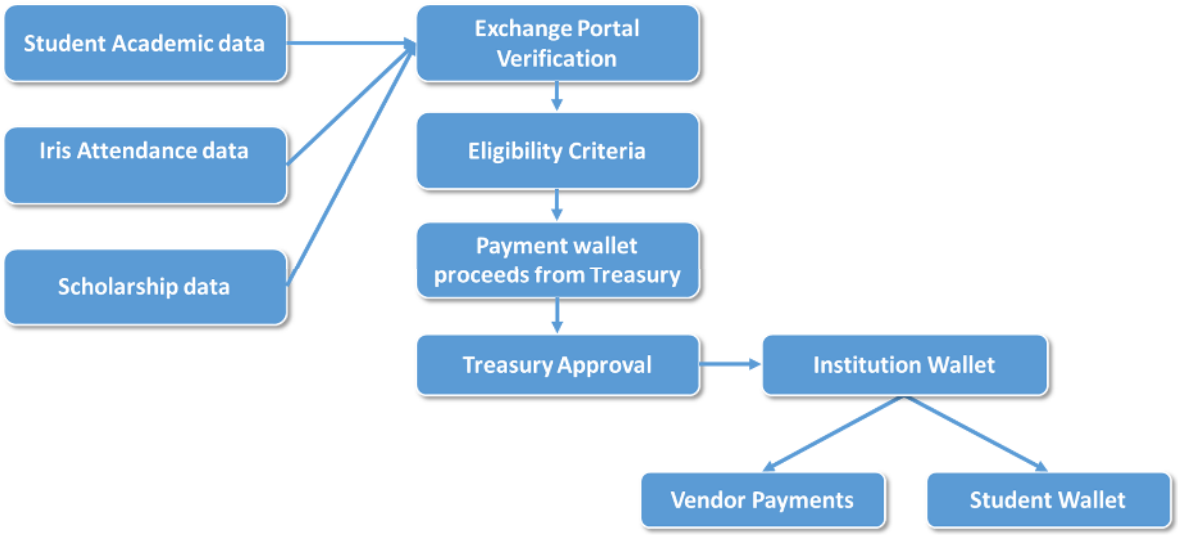
- Payment Gateways
- Bank Integrations
- E-Wallets (Institution & Student level)
- Vendor Registration APIs
- Government Systems (KRA, KNEC, KUCCPS, KICD, KEMI, TSE)
- Other Services: MOH, OAG, partner systems, SMS/Email services

Payment Wallet Process

The process flow starts with verifying a student's academic data through the Exchange Portal, followed by cross-referencing Iris Attendance data to assess eligibility criteria for scholarships. Once eligibility is confirmed, approved scholarship data triggers the Treasury to allocate funds to a designated payment wallet. The



Treasury Approval step ensures compliance before transferring funds to the Institution Wallet, which manages financial distribution. From there, the Institution Wallet facilitates Vendor Payments for academic services and disburses approved funds to individual Student Wallets, completing the cycle of academic verification, funding allocation, and financial transactions.



Institutional and Student Wallets

Institutional Wallet:

- Ledgers for each institution managing credits/debits with vendors, students, and government bodies.

Student Wallet:

- Personalized ledgers tracking all financial transactions.
- Transparency into institutional and student expenses.

Incentive Distribution Workflow

- **Student Data Capture:** Biometric (Iris), scholarship, and academic data collected at institution level.
- **Data Processing in Exchange Portal:** Validation and eligibility checks performed.
- **Submission to Government:** Verified eligible student data submitted for incentive authorization.
- **Government Validation:** Student identity and eligibility authenticated.
- **Incentive Transfer to Institution:** Government transfers funds to institutional wallet.
- **Processing into Student Wallet:** Institutions credit vendors and students accordingly.

Open API Secured Architecture

The API Secured Architecture described here emphasizes security and controlled access through multiple layers of protection. At its core, Token-Based Authentication and Two-Factor Authentication (2FA) ensure that only verified users can interact with the system. Upon successful login, a JWT (JSON Web Token) access token is generated, which serves as a secure credential for subsequent interactions. Every API request must include this token, allowing the system to authenticate the user's identity and permissions. The API Gateway acts as a

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gatekeeper, validating tokens and enforcing access policies to ensure only authorized requests proceed. This layered security model minimizes unauthorized access and data breaches.



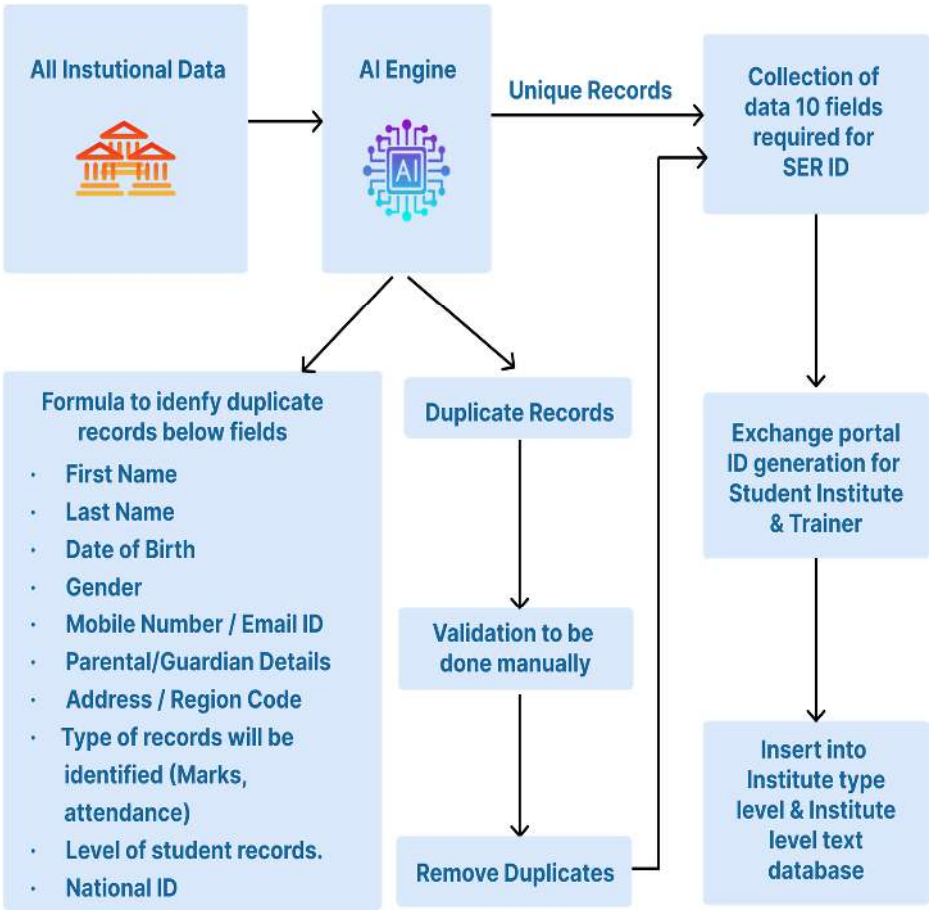
The architecture supports several **Key Exchange Portal APIs**, each tailored to specific functionalities:

- **Institution Certification API**: Enables institutions to submit, manage, and update certifications, ensuring compliance with standards.
- **Student Certificate Issuance API**: Facilitates the issuance of digitally verified certificates, enhancing trust and reducing fraud.
- **Student Consent API**: Captures explicit user authorization before accessing or sharing sensitive data, aligning with privacy regulations.
- **Certification Verification API**: Allows real-time validation of credentials via ID, QR codes, or URIs, streamlining verification processes.
- **Course Material Update API**: Manages content updates with version control, ensuring accuracy and auditability of educational resources.
- **Education Organization API**: Fetches data from reporting servers, enabling institutions to access consolidated insights for decision-making.

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Data Migration

Data migration is the process of transferring data from one system, storage type, or format to another, typically during system upgrades, replacements, or consolidations. It involves planning, extraction, transformation, validation, and loading of data to ensure accuracy, integrity, and minimal disruption to operations. Successful data migration requires thorough analysis of source and target systems, handling of data dependencies, and rigorous testing to avoid data loss or corruption. It is crucial in scenarios like moving to cloud platforms, adopting new applications, or merging enterprise systems.



Data Migration Process Flow:

1) **Data Collection & Initial Processing**
   - **Input**: All institutional data (student records, marks, attendance, etc.) is aggregated from various sources.
   - **Key Fields for SER ID**: 10 mandatory fields are extracted, including:
     - First Name, Last Name, Date of Birth (DOB), Gender, Mobile Number/Email ID, Parental/Guardian Details, Address/Region Code, Type of Record (Marks/Attendance), Level of Student (e.g., Grade 10), and National ID.
2) **AI-Based Data Analysis**
   - **AI Engine Processing**:

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- **Duplicate Detection**: Uses a predefined formula to scan records across key identifiers (First Name, Last Name, DOB, National ID, etc.). Machine learning algorithms flag potential duplicates based on similarity thresholds.
- **Data Quality Checks**: Identifies inconsistencies (e.g., mismatched names), missing fields (e.g., incomplete addresses), and irregular patterns (e.g., invalid DOB formats).
- **Record Categorization**: Classifies records by type (Marks, Attendance) and student level (e.g., K-12, Undergraduate).

3) Data Cleaning & Validation

- **Automated Cleansing**:
  - Standardizes formats (e.g., dates as DD/MM/YYYY, uppercase names).
  - Validates fields against rules (e.g., mobile numbers must have 10 digits).
- **Duplicate Check**:
  - Cross-references flagged duplicates using key identifiers.
  - Separates unique records from duplicates for further processing.

4) Unique Record Identification & SER ID Generation

- **Unique Records**:
  - Validated clean records are assigned a **Student Entity Registry (SER) ID**, a unique identifier tied to the student's lifetime academic profile.
  - SER ID-linked data is stored in the **Exchange Portal** for centralized access.
- **Metadata Tagging**: Records are tagged with institution type (e.g., school, university) and student level for filtering.

5) Centralized Database Entry

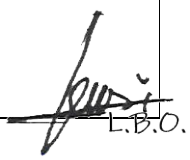
- **Common Database Storage**:
  - Verified records are stored in a **centralized repository**, tagged to their respective institutions for traceability.
  - Supports future updates (e.g., new marks, attendance changes) through SER ID linkage.

6) Handling Duplicates

- **Manual Verification**:
  - Duplicate records flagged by the AI engine are held in a pending queue.
  - Institutions manually review duplicates (e.g., confirm if two "John Doe" entries are the same person).
- **Resolution**:
  - Approved duplicates are merged into a single SER ID.
  - Rejected duplicates are either discarded or corrected and reprocessed.

7) Exchange Portal ID Generation

- **Role-Based IDs**:
  - **Student ID**: Linked to SER ID for accessing academic records.
  - **Institute ID**: Assigned to institutions for managing student data.
  - **Trainer ID**: For educators to update course materials or attendance.



8) Final Database Insertion

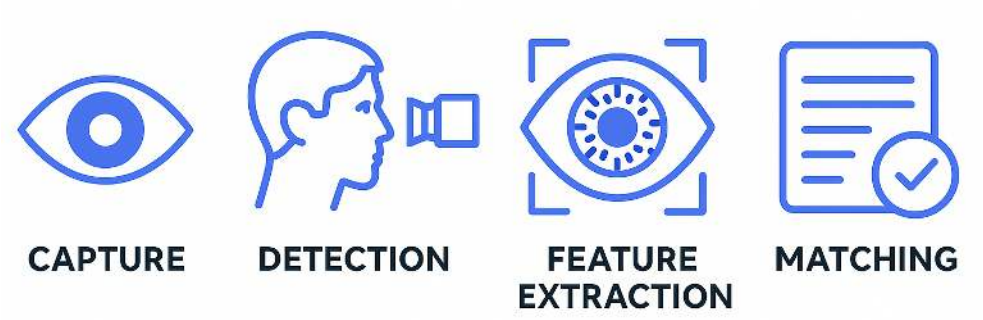
- **Hierarchical Storage**:
  - Records are inserted into **Institute Type-Level** databases (e.g., schools vs. colleges) and **Institute-Level** text databases (e.g., "XYZ University").
  - Ensures data segregation and compliance with institutional policies.

Key Enhancements to the Workflow

- **Dynamic AI Formula**: The duplicate detection formula adapts over time, improving accuracy as more data is processed.
- **Version Control**: Course Material Update API (implied) ensures synchronized updates across SER ID-linked records.
- **Compliance**: Student Consent API ensures GDPR/regional privacy laws are followed during data sharing.

Iris Recognition

Iris recognition is a biometric identification method that uses unique patterns in the colored part of the eye (the iris) to verify or authenticate an individual's identity. It is considered highly accurate and secure due to the complex, stable, and distinctive nature of iris patterns, which remain unchanged throughout a person's life. The process typically involves capturing a high-resolution image of the eye using near-infrared light, extracting the iris features, and comparing them against a stored template in a database. Iris recognition is widely used in security systems, border control, and access management due to its speed, reliability, and low false match rates.

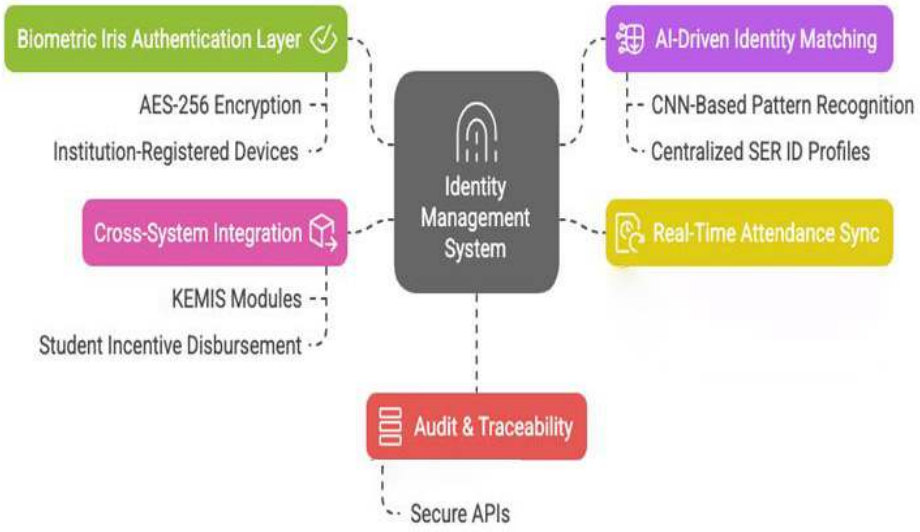


Technical Stages of Iris Recognition

- **Capture**:
  - A high-resolution camera captures a detailed image of the iris (the colored ring around the pupil).
  - Works even in low-light conditions and requires minimal user cooperation (non-intrusive).
- **Detection**:
  - Software isolates the iris from the rest of the eye (excluding eyelids, eyelashes, and reflections).
  - Ensures only the unique iris pattern is analyzed.
- **Feature Extraction**:
  - Advanced algorithms convert the iris pattern into a digital template by identifying 240+ unique data points (e.g., furrows, crypts, ridges).
  - This template is a mathematical representation, not a stored image, enhancing privacy.

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- **Matching**:
  - The extracted template is compared against a centralized database of pre-registered templates.
  - Uses probabilistic matching (e.g., Hamming distance) to confirm identity with >99% accuracy.



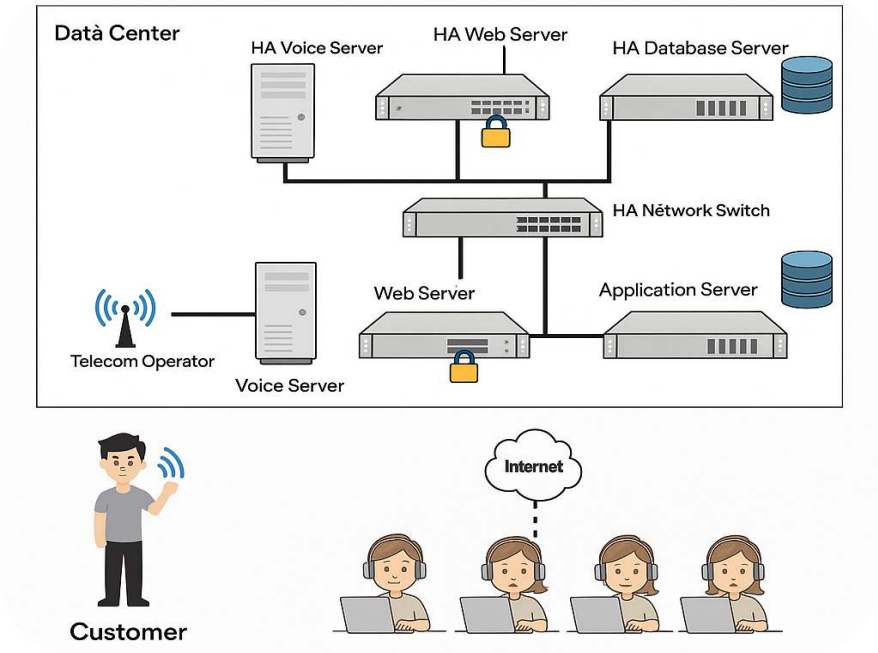
- **Biometric Iris Authentication Layer**: Secure iris scans captured via institution-registered devices and transmitted to the Exchange Portal using AES-256 encrypted channels.
- **AI-Driven Identity Matching:** Deep learning models (CNN-based pattern recognition) validate biometric data against centralized SER ID profiles in real-time—minimizing fraud and duplication.
- **Real-Time Attendance Sync:** Attendance logs auto-synced with institutional and government dashboards.
- **Cross-System Integration:** Data seamlessly flows into KEMIS modules—impacting student incentive disbursement, resource allocation, and compliance enforcement.
- **Audit & Traceability:** All entries are hashed with historical access enabled via secure APIs.

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Helpdesk / Call Center

Dhanush Helpline Center Solution help businesses meet and exceed the service level expectations of customers, while driving employee Productivity & controlling Operational Cost. Whether you have a large contact center with multiple sites or you are simply looking for a more efficient way of distributing calls amongst a team, Dhanush Call Centre is the solution you need, to manage the communication in your growing business.

Technical Architecture



Dhanush Call Center Solution:

- **First call resolution:** Rout e calls to the most appropriately skilled agent based on a variety of criteria, including customer identity or information collected by IVR.
- **Spot call trends:** Understand what is happening with calls and spot trends over time to ensure efficient operations
- **Build an effective team:** Equip the team tasked with managing calls with the tools they need to deliver efficient and effective service to the customers.
- **Comprehensive reporting:** Flexible, real-time and historical reporting provides call center management with the information for effective management.
- **Tools to simplify management:** It provides tools to manage everything, from your IVR to your workforce, so that you ensure optimal efficiency.
- **Fit and scale:** It fit s seamlessly into existing infrastructure and can expand to accommodate your growing business from 5 agents to 1000+ agents.

Key Features:

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Dhanush solution just suits to any process within your contact center. On top of it, customization is possible to any extent. It's robust performance and Strong feature set are a fit for your world class contact centre.

- ACD (Automatic Call Distribution)
- Inbuilt tools for External CRM Integration
- Integrated Voice logger
- Inbuilt IP-PBX with CTI capability
- Multiple process handling
- Comprehensive reporting
- Live monitoring of Agents, Queues, Calls, Servers, PRI Link, SIP Channels



Handling Inbound Communication

Dhanush Call Centre Solution presents a Unified solution to handle almost all types of communication from customers.

- Incoming call routing based on called number, Caller 10, Date & time etc.
- IVRS & Pop-up Configuration tools.
- Skill based distribution
- Call Routing to the IVR, Agents Queues or Voice Mail to the external number

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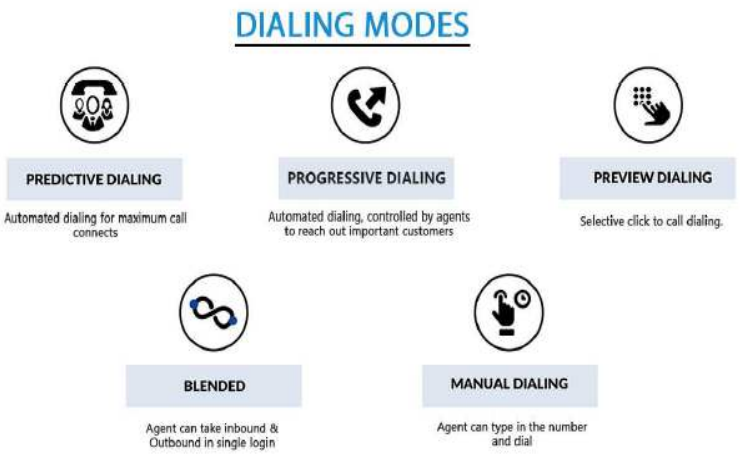


Handling Outbound Campaigns:

The tools given in Dhanush Call Center Solution helps in Acquisition, Qualification and Verification of your Sales Campaign. It has well defined tools which take care of every step of your Survey Campaigns, Customer Retention or Payment reminders.

To handle your campaigns you get:

- Calling List / Lead List Management
- Campaign wise CRM pop-up configuration
- Lead Re- Attempts
- Alternate number dialing for single contact (chasing)
- DNC (do not call) List Management
- Call Back Scheduling



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Agent's Interface

Dhanush Call Centre Solution presents easy to use agent interface with tools to effectively manage the customer communication.



- Use any OS (Linux, Windows or Mac) on agent workstations.
- Agents can use Softphone, Analog Phone, Dial pad or IP- Phone.
- Screen Pop-Up with Multi Tab display
- Call Conferencing, Call Transfer and Call Hold
- Integrated screen for voice, chat, e-mail, social media, video call and e-mail
- Handy tools for Customer call History, Call waiting in queue, Redial, Call script, Agent call history, break types etc.

Managing Contact/Helpdesk Center Process

Effective and Efficient management of your Contact Center is the most important aspect of Dhanush Solution. Supervisor gets the right tools and monitoring mechanism to control the operations:

- Multiple Process creation, Role creation and System Access Rights based on roles.
- Comprehensive monitoring tools show real time view of process, Queues, Auto Dialing, Agent Status, Abandoned Calls etc.
- Designing of Agent Pop-up screen based on process need.
- Use your favorite CRM with Seamless integration.
- External & Internal Barge-in, coach mode, conferencing.
- IVRS Studio for designing your own IVRS flows, schedule them for office hours, holiday etc.

System Administrator's monitoring and control will become much easier



- Inbound call handling based on called number, caller ID, time of the day, holidays and route them to Agents, IVRS, Voice Mail, External phone or just an extension.
- System monitoring tools to show the real time view of CPU, Hard Disk and RAM usage, Vital process running status, network status etc.
- Telecom monitoring tools show real time status of PRI line, SIP channels, PRI card etc.

Infrastructure

Connectivity

Introduction

A critical enabler of this digital transformation is **reliable internet connectivity** across all educational institutions and Ministry offices. Our team understands that the success of KEMIS depends on ensuring that every school, regardless of location, has consistent access to the platform and its services. Therefore, our key deliverables include:

- Nationwide deployment of internet connectivity using a hybrid model.
- Provision of network equipment.
- Technical support and maintenance services.
- Integration of connectivity infrastructure with KEMIS modules and applications.

Technical Approach

Our technical approach is designed to ensure **maximum coverage**, **reliability**, and **scalability** of internet connectivity across Kenya's diverse geographic and infrastructural landscape. We will conduct a site-by-site assessment to determine the most appropriate connectivity solution based on existing infrastructure, terrain, and user needs.

We will deploy a **multi-technology strategy** that includes:

- **Fiber Optic Networks**: For high-speed, high-capacity connections in urban and peri-urban areas.
- **Wireless Radio Links**: For flexible deployment in semi-rural and rural areas with moderate infrastructure.
- **VSAT** (Very Small Aperture Terminal): Satellite-based connectivity for remote and underserved regions.

This approach ensures that all institutions can access KEMIS services with minimal latency and high uptime. Our team will also provide network monitoring tools, redundancy planning, and cybersecurity measures to safeguard data and ensure uninterrupted service.

Proposed Solution Architecture

Our proposed solution architecture for connectivity is built on a **layered, modular design** that aligns with the overall KEMIS ecosystem. It includes:

1. Connectivity Layer

- Fiber backbone in high-density regions.
- Point-to-point and point-to-multipoint wireless radio deployments.
- VSAT terminals for satellite uplink/downlink in remote areas.

2. Access Layer

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- Routers, switches, and Wi-Fi access points for local distribution.
- End-user devices (e.g., tablets, laptops) for school administrators and teachers.

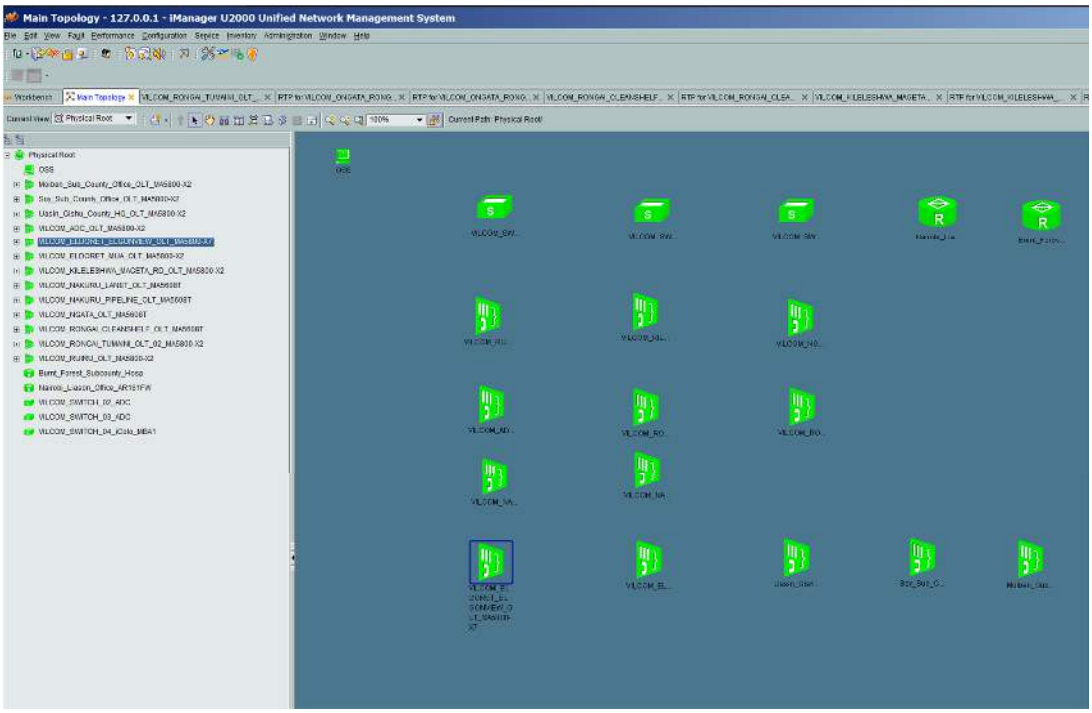
3. Integration Layer

- Secure VPN tunnels and firewalls to connect with KEMIS cloud services.
- APIs for real-time data synchronization and system interoperability.

4. Monitoring & Support Layer

- Centralized network operations center (NOC) for performance tracking.
- Helpdesk and field support teams for troubleshooting and maintenance.

Network Management System (NMS)



The NMS to be used will be compatible with other vendor Customer Premises Equipment, active and passive, to enhance a scalable and modular build of the network environment to meet various network management requirements and supports smooth upgrade from single-domain management to multi-domain management in order to meet the requirements of integrated network development:

End-to-End (E2E) Service Provisioning

The NMS supports E2E scheduling of IP, WDM, MSTP, microwave, and access services, achieving quick service delivery to fully meet customer requirements.

Quick and Accurate Fault Locating:

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The NMS employs an intelligent fault analysis system to accurately locate a fault within seconds. It also supports correlation analysis of alarms to filter out approximately 85% of irrelevant alarms and improves the accuracy and efficiency of fault locating.

Visualized IP Management:

The NMS enables integrated and visualized management and one-click configuration. These features make the learning of IP technologies much easier for traditional O&M engineers and help operators achieve a total reduction in O&M costs.

Quick Integration with OSS Using Rich Northbound Interfaces (NBIs):

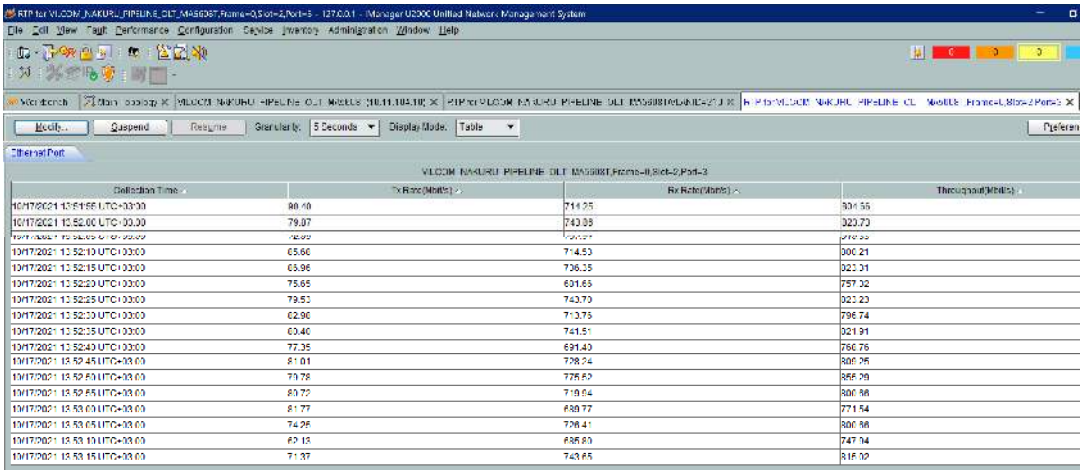
The NBIs supported by the NMS include SNMP, CORBA, XML, and FTP. This will streamline the transport, IP, and access domains with any interface.

- Helpdesk and field support teams for troubleshooting and maintenance.

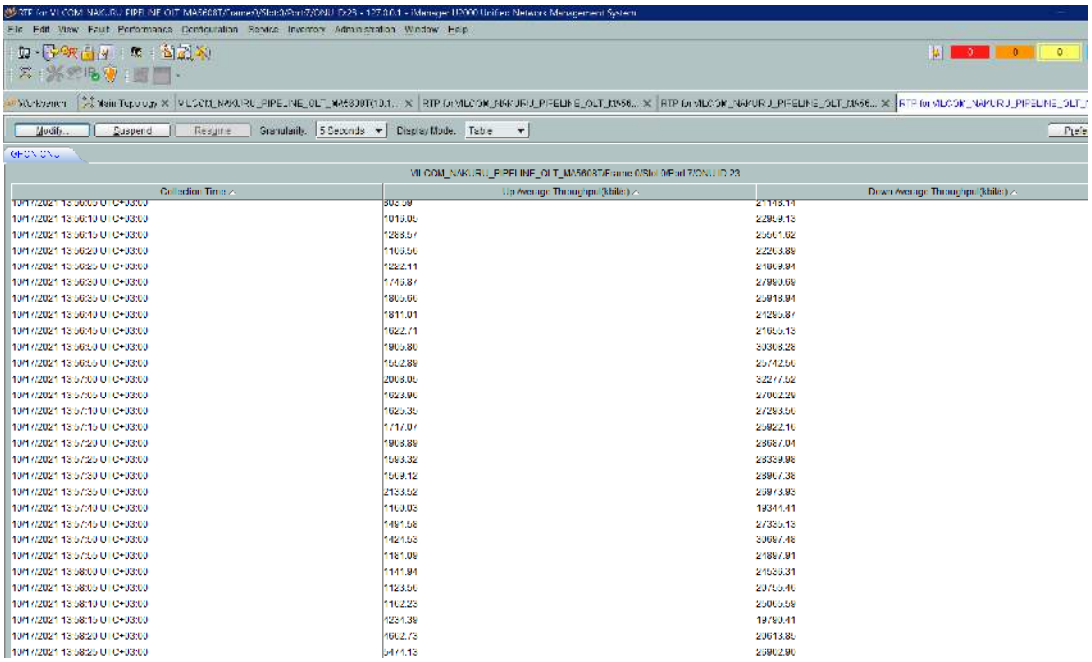
  During the implementation of the project the Ministry of Education will provide:

  - Personnel at the national and county level who will be trained on the use of monitoring tools, basic troubleshooting of the network, overseeing the service level agreement and reporting on the same.
  - A centralized Network Operations Center to be fully equipped, for monitoring, management and Incidence reporting

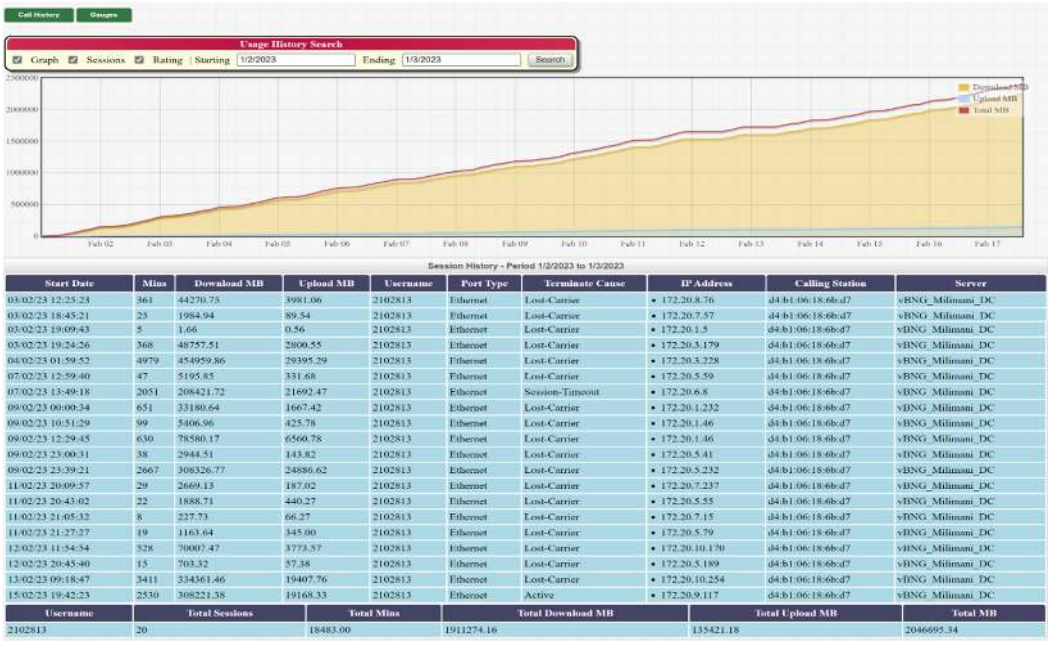
- **Network Monitoring** : Realtime Throughput Monitoring
  The system is able to monitor how much bandwidth is consumed in real-time on every level of the network.



Realtime terminal device monitoring
For every institution, the system will be able to monitor traffic while troubleshooting or taking reports as shown below.



Historical Usage Monitoring



Usage History Search

Graph Sessions Rating Starting 1/2/2023 Ending 1/3/2023 Search

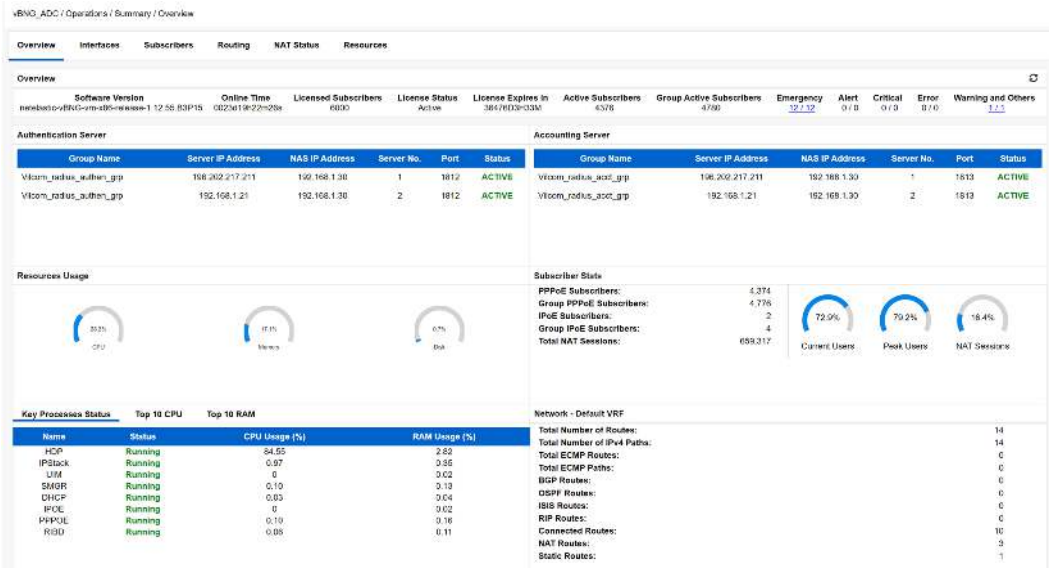
Session History - Period 1/2/2023 to 1/3/2023

Start Date	Mins	Download MB	Upload MB	Username	Port Type	Terminate Cause	IP Address	Calling Station	Server
03/02/23 12:25:23	361	44270.75	3981.06	2102813	Ethernet	Lost-Carrier	• 172.20.8.76	d4:b1:06:18:6b:d7	vBNG_Milimani_DC
03/02/23 18:45:21	25	1984.94	89.54	2102813	Ethernet	Lost-Carrier	• 172.20.7.57	d4:b1:06:18:6b:d7	vBNG_Milimani_DC
03/02/23 19:09:43	5	1.66	0.56	2102813	Ethernet	Lost-Carrier	• 172.20.1.5	d4:b1:06:18:6b:d7	vBNG_Milimani_DC
03/02/23 19:24:26	368	48757.51	2800.55	2102813	Ethernet	Lost-Carrier	• 172.20.3.179	d4:b1:06:18:6b:d7	vBNG_Milimani_DC
04/02/23 01:59:52	4979	454959.86	29395.29	2102813	Ethernet	Lost-Carrier	• 172.20.3.228	d4:b1:06:18:6b:d7	vBNG_Milimani_DC
07/02/23 12:59:40	47	5195.85	331.68	2102813	Ethernet	Lost-Carrier	• 172.20.5.59	d4:b1:06:18:6b:d7	vBNG_Milimani_DC
07/02/23 13:49:18	2051	208421.72	21692.47	2102813	Ethernet	Session-Timeout	• 172.20.6.8	d4:b1:06:18:6b:d7	vBNG_Milimani_DC
09/02/23 00:00:34	651	33180.64	1667.42	2102813	Ethernet	Lost-Carrier	• 172.20.1.232	d4:b1:06:18:6b:d7	vBNG_Milimani_DC
09/02/23 10:51:29	99	5406.96	425.78	2102813	Ethernet	Lost-Carrier	• 172.20.1.46	d4:b1:06:18:6b:d7	vBNG_Milimani_DC
09/02/23 12:29:45	630	78580.17	6560.78	2102813	Ethernet	Lost-Carrier	• 172.20.1.46	d4:b1:06:18:6b:d7	vBNG_Milimani_DC
09/02/23 23:00:31	38	2944.51	143.82	2102813	Ethernet	Lost-Carrier	• 172.20.5.41	d4:b1:06:18:6b:d7	vBNG_Milimani_DC
09/02/23 23:39:21	2667	308326.77	24886.62	2102813	Ethernet	Lost-Carrier	• 172.20.5.232	d4:b1:06:18:6b:d7	vBNG_Milimani_DC
11/02/23 20:09:57	29	2669.13	187.02	2102813	Ethernet	Lost-Carrier	• 172.20.7.237	d4:b1:06:18:6b:d7	vBNG_Milimani_DC
11/02/23 20:43:02	22	1888.71	440.27	2102813	Ethernet	Lost-Carrier	• 172.20.5.55	d4:b1:06:18:6b:d7	vBNG_Milimani_DC
11/02/23 21:05:32	8	227.73	66.27	2102813	Ethernet	Lost-Carrier	• 172.20.7.15	d4:b1:06:18:6b:d7	vBNG_Milimani_DC
11/02/23 21:27:27	19	1163.64	345.00	2102813	Ethernet	Lost-Carrier	• 172.20.5.79	d4:b1:06:18:6b:d7	vBNG_Milimani_DC
12/02/23 11:54:54	528	70007.47	3773.57	2102813	Ethernet	Lost-Carrier	• 172.20.10.170	d4:b1:06:18:6b:d7	vBNG_Milimani_DC
12/02/23 20:45:40	15	703.32	57.38	2102813	Ethernet	Lost-Carrier	• 172.20.5.189	d4:b1:06:18:6b:d7	vBNG_Milimani_DC
13/02/23 09:18:47	3411	334561.46	19407.76	2102813	Ethernet	Lost-Carrier	• 172.20.10.254	d4:b1:06:18:6b:d7	vBNG_Milimani_DC
15/02/23 19:42:23	2530	308221.38	19168.33	2102813	Ethernet	Active	• 172.20.9.117	d4:b1:06:18:6b:d7	vBNG_Milimani_DC

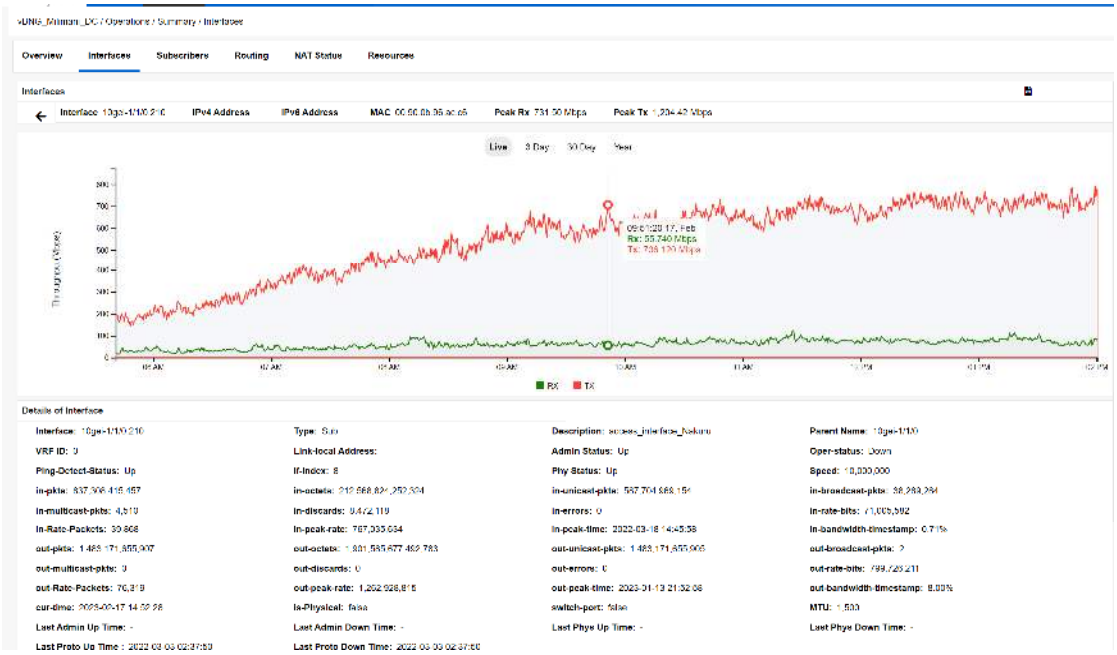
Username	Total Sessions	Total Mins	Total Download MB	Total Upload MB	Total MB
2102813	20	18483.00	1911274.16	135421.18	2046695.34

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Live BNG Status Monitoring



Live BNG Throughput Monitoring:



This architecture ensures that connectivity is not only available but also optimized for the demands of a national education data system.

5. Support and Maintenance

To ensure the systems' success implementation of the following mechanisms will be put in place for accountability, resilience and reliability:-

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Definition of the SLA metrics agreed upon by both parties subject to improvement as need arises.
Redundancy and failover mechanisms with the system.
Set-up of 24/7 monitoring tools to ensure that any service degradation, drops, customer feedback is well documented and worked upon with the needed urgency, thus ensuring the defined SLA is met at all times

Agreements of high target SLA with other service providers to ensure that the reliance on their services does support the whole objective of the scope's SLA.
Preventive maintenance and optimization; regular performance reviews, policy adjustment based on traffic patterns, regular firmware upgrades and configuration audits.

Clear documentation and reporting; SLA compliance reports, incident reports and analysis to be prepared which will give rise to the development of a continuous improvement plan.

Disaster Recovery and Business continuity; the network will be built with failover and recovery capabilities in mind which will be checked on a regularly basis.

Technology Deployment Strategy

The objective of the project shall be to:

- Provide **minimum 5 Mbps** scalable internet connectivity to each basic education school and minimum of 10 **Mbps** scalable internet for secondary schools.
- Ensure **99.9% uptime** with redundancy and failover mechanisms.
- Enable seamless integration with KEMIS, eLearning platforms, and cloud-based services.
- Support **real-time data synchronization** for NEMIS, TVET-MIS, and HEMIS modules.

The deployment shall be based on the structure below:

1. Fiber Optic Technology

Target: Urban and peri-urban schools (approx. 10,000 institutions).

Approach:

Utilize existing national fiber backbone (Mobile Network Operators, NOFBI, KPLC, KPC and other Network Facilities Providers).

Deploy last-mile fiber to schools within 5 km of fiber PoPs.

Use GPON or Active Ethernet for distribution.

2. Wireless Radio (Point-to-Multipoint)

Target: Semi-urban and rural schools (approx. 15,000 institutions).

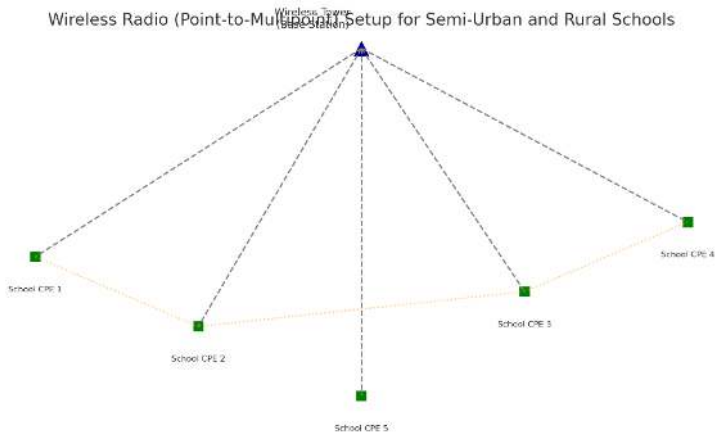
Approach:

Deploy high-capacity base stations on towers (existing or new).

Use licensed/unlicensed spectrum (5 GHz, 3.5 GHz) with CPEs at schools.

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Mesh topology for resilience and scalability.



1. **Line of Sight (LoS) Optimization:** Conduct terrain analysis to ensure unobstructed paths.
2. **Height Advantage**: Mount radios on tall buildings/masts for wider coverage.
3. **Licensed Band Preference**: For reliability in interference-prone zones.
4. **Redundant Links**: Mesh paths and dual-homed backhaul for critical institutions.
5. **QoS Implementation**: Prioritize education and admin traffic over recreational browsing.
6. **Solar Power Backup**: Essential for rural locations with unreliable grid power.
7. **Bandwidth Management**: Deploy bandwidth shapers and usage monitors per school.

3. VSAT (Very Small Aperture Terminal)

Target: Remote and underserved areas (approx. 10,000 institutions).

Approach:

Deploy Ka-band or Ku-band VSAT terminals with 1.2m–1.8m dishes.

Use HTS (High Throughput Satellites) for cost-effective bandwidth.

Solar-powered systems with battery backup for off-grid schools.

Each school has a satellite dish and modem connected directly to a geostationary satellite.

Ideal for areas lacking terrestrial infrastructure (e.g., mountainous, remote counties).

Backhauled to the internet via a centralized VSAT Hub/NOC.

Use Ka/Ku band with adaptive modulation for weather resilience.

Solar power kits for off-grid installations.

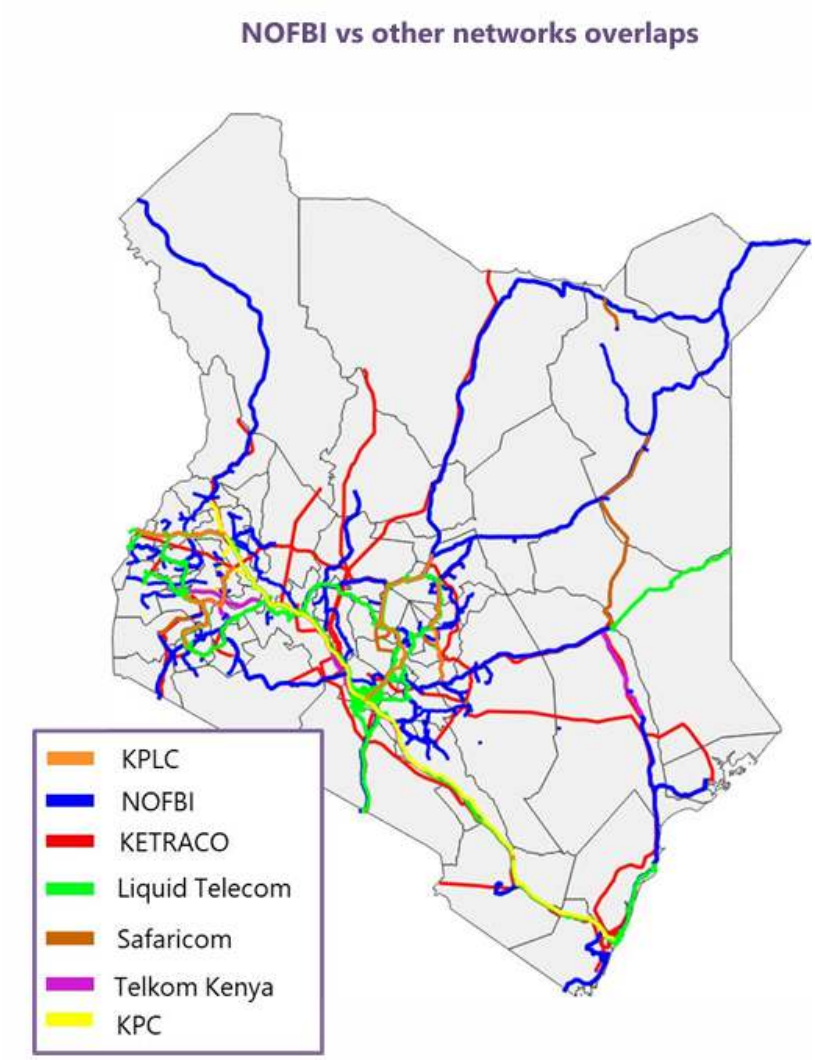
Include traffic shaping & caching to reduce latency and bandwidth use.

Use auto-acquire antennas for easier deployment and maintenance.

Features of the network deployed

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1. **Use of existing Infrastructure**



In a need to be cost efficient, the solution deployed will make use of the existing infrastructure, to enhance reachability of even the remote areas of the nation.

2. **Network Security**

To enhance network security, technologies such as **Software Defined Wide Area Network (SD-WAN)** and **Multiprotocol Label Switching (MPLS)** with breakout at HQ will be considered.

SD-WAN enhances network security by offering centralized policy management, end-to-end encryption, and built-in security features such as firewalls and intrusion prevention. It provides real-time visibility into network traffic, enabling faster threat detection and response. With application-aware routing and secure direct internet access, SD-WAN ensures sensitive data is transmitted through the most secure paths without

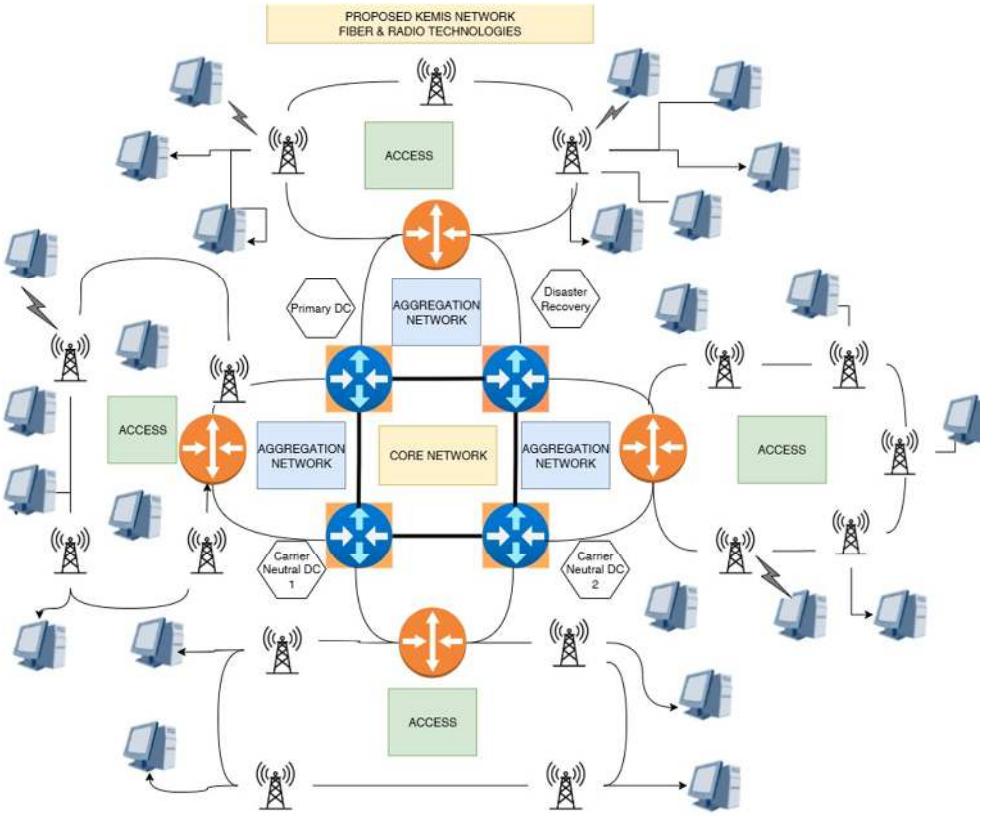
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sacrificing performance. Additionally, it scales easily across locations while maintaining consistent security and integrates seamlessly with modern security architectures like SASE for comprehensive, cloud-based protection.

MPLS enhances network security by creating private, isolated network paths that do not traverse the public internet, significantly reducing exposure to external threats. Traffic is directed based on labels rather than IP routing, which limits opportunities for interception or manipulation. While not inherently encrypted, MPLS networks are trusted and often used with additional security layers like IPsec for sensitive data. The controlled, predictable routing and strict QoS policies also help ensure reliable performance and reduce attack surfaces compared to traditional internet-based VPNs.

3. Network Redundancy

Dual-homed ring topology enhances network resilience by connecting each node to two separate paths (rings), ensuring uninterrupted connectivity even if one link or node fails. This setup provides high availability, fast fault recovery (typically with sub-50ms failover in optical rings), load balancing between paths, and improved performance through reduced congestion. It also supports efficient bandwidth utilization and simplifies maintenance, as one ring can remain operational while the other undergoes updates or repairs.



Computer and Storage

Hosting Infrastructure Environment

The Kenya Education Management Information System (KEMIS) will be hosted at the Konza National Data Centre (KNDC), in full alignment with the Government of Kenya's policies on data sovereignty, cybersecurity, and the localization of critical public sector infrastructure as per the Digital Master Plan 2022-2023.

KNDC is an Uptime Tier III certified data center be design and construction ,Leed Platinum ,TIA 942-A certified offering high levels of redundancy, fault tolerance, and guaranteed uptime (≥99.982%). It is a vendor and carrier neutral Data center designed to support mission-critical systems such as KEMIS through the following capabilities:

Key Features:

i. Tier III Design – 99.982% uptime, redundant power, cooling, and network systems.

ii. Hybrid & Multi-Cloud – Supports private, public, and hybrid cloud deployments.

iii. Government & Enterprise Focus – Hosts critical e-government services, enterprise data, and smart city applications.

iv. Disaster Recovery – Backup and business continuity solutions for public and private sectors.

v. Local Data Sovereignty – Reduces reliance on foreign data centers, ensuring compliance

vi. with Kenya's Data Protection Act (2019)

Security & Compliance

- Multi-layered physical and network security including biometric access, CCTV surveillance, and perimeter defense.
- Alignment with the Kenya Data Protection Act, ISO/IEC 27001, and GoK cybersecurity standards.
- Hosting within Kenyan jurisdiction ensures full compliance with national data sovereignty mandates, avoiding risks associated with offshore data residency.

High Availability & Redundancy

- Dual power sources, redundant cooling systems, and N+1 architecture to ensure uninterrupted service.
- Real-time monitoring and automatic failover mechanisms to maintain business continuity during hardware or network failures.

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Disaster Recovery & Backup

- Geo-redundant DR site capability, with routine replication and data backup procedures.
- Support for air-gapped backups and offsite archival aligned with Ministry data retention and resilience requirements.

Scalability & Future-Readiness

- Integrated cloud-ready environment enabling hybrid deployment models (on-prem + cloud).
- Capacity to dynamically scale resources to accommodate national rollout, increasing user load, and additional modules (e.g., Capitation, HR, Special Needs, BI/AI).
- Optimized for containerized workloads, microservices, and modern DevOps pipelines for continuous deployment and integration.

Support for Advanced Analytics

- High-performance compute infrastructure supports Business Intelligence (BI) and AI/ML workloads, powering real-time insights for policymakers and education managers.
- Integration-ready with analytics tools and reporting dashboards planned under KEMIS.

Strategic Interconnectivity

- Secure interconnects with other government and other API-driven platforms.
- Leverages the national broadband backbone and e-Government infrastructure for secure access by county, sub-county, and institutional users.

Konza Cloud

The Konza Cloud is a cloud platform at the Konza National Data Centre available to host any Iaas, PaaS and SaaS solutions. It is designed to support Kenya's digital transformation by offering secure, scalable, and high-performance cloud services to both public and private sector entities. In addition it is a sovereign cloud infrastructure hosted at the Konza National Data Center, in Kenya. In addition KoTDA has partnered with industry leaders and IT companies to offer bundled solutions such as security, manged services, Business applications, SaaS solutions, ERP's , revenue management, E-Board, among others to all its customers.

Cloud computing is typically delivered through three primary service models, each offering different levels of control, flexibility, and management:

a. Infrastructure as a Service (IaaS): Provides virtualized computing resources over the

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internet, including servers, storage, and networking which is Ideal for customers and developers who need to manage operating systems, applications, and middleware. Its benefits are High scalability, cost-efficiency, and control over infrastructure.

b. Platform as a Service (PaaS): Offers a platform allowing customers to develop, run, and manage applications without dealing with the underlying infrastructure. It is suitable for developers focused on building and deploying applications quickly. Its advantages are that it Accelerates development, reduces complexity, and supports collaboration.

c. Software as a Service (SaaS): This platform delivers software applications over the internet on a subscription basis. This is beneficial to End-users access applications via web browsers without managing the infrastructure or platform. It is Easy access, automatic updates, and reduced IT overhead.

Key Features of Konza Cloud:

i. On-Demand Self-Service: Konza Cloud enables users to provision computing resources such as virtual machines, storage, and network configurations without requiring human intervention from the service provider. This self-service model allows for rapid deployment and scaling of services, improving agility and reducing time-to-market.

ii. Resource Pooling: Resources in Konza Cloud are pooled to serve multiple clients using a multi-tenant model. This means computing, storage, and network resources are dynamically assigned and reassigned according to demand, with abstraction from the physical hardware location.

iii. Elasticity and Scalability: Konza Cloud supports rapid elasticity, allowing resources to be scaled up or down automatically based on real-time demand. This ensures optimal performance during peak usage and cost savings during low-demand periods. Scalability is both horizontal (adding more instances) and vertical (upgrading existing resources)

iv. Security: Security is a foundational element of Konza Cloud. It includes:

Data encryption at rest and in transit. Access control and identity management.

Compliance with national data protection regulations. Shared responsibility model, where Konza secures the infrastructure while clients manage their data and applications

v. Multi-Tenancy: Konza Cloud uses virtualization to support multiple tenants on shared infrastructure while ensuring data isolation and privacy. This architecture enhances resource utilization and cost efficiency without compromising security.

vi. Resilience and High Availability: Konza Cloud is built with redundant systems, automated failover, and disaster recovery capabilities. Services are distributed across multiple nodes and data centers to ensure continuity even in the event of hardware or network failures.

vii. Measured Service: All resource usage in Konza Cloud is monitored, controlled, and reported. This enables: Transparent billing based on actual consumption. Usage analytics for optimization. Accountability and auditability for compliance.

viii. Automation: Konza Cloud leverages automation for provisioning, scaling, monitoring, and maintenance. This reduces manual intervention, minimizes errors, and accelerates service Delivery.

ix. Broad Network Access: Services are accessible over standard internet protocols from a wide range of devices (e.g., desktops, laptops, mobile devices), enabling remote access and collaboration.

x. Flexibility and Customization: Users can tailor their cloud environments by selecting specific operating systems, storage types, and compute configurations. This flexibility supports diverse workloads and application requirements.

xi. Data Hosting & Storage – Offers secure and scalable cloud storage solutions for businesses and government institutions.

xii. Disaster Recovery & Backup – Provides robust backup and recovery solutions to ensure data resilience.

xiii. Hybrid & Multi-Cloud Solutions – Supports integration with other cloud platforms for flexibility.

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xiv. Security & Compliance – Designed to meet local and international data protection

regulations.

xv. Colocation Brand name for the centralized portfolio for all products and services offered by Konza National Data Centre & Smart City Solutions or its ICT vendors.

Hosting KEMIS at the Konza National Data Centre ensures a resilient, secure, compliant, and future-ready environment for one of Kenya's most critical digital transformation initiatives in education. It forms the backbone for national-level decision-making, policy execution, and transparent education service delivery.

Security and Compliance Layer

The security architecture of the Education Module within the Integrated Kenya Management Information System (KEMIS) will be designed to ensure the confidentiality, integrity, and availability of education data across all levels of the education sector. These security components will be integrated to protect the system from both internal and external threats, ensure compliance with data protection regulations, and support the vision of a secure, digital-first education infrastructure in Kenya.

To achieve this, the system will incorporate a comprehensive set of security solutions, including Firewalls, Web Application Firewalls (WAFs), Anti-DDoS (ADDoS) protection, Endpoint Security, Security Operations Center (SOC) Monitoring, and Load Balancers. These components will work together to protect the critical EMIS infrastructure platform against the increasing sophistication of cyber threats, thereby ensuring secure access whilst always maintaining high system performance and reliability.

1. **Firewalls**

Firewalls will serve as the primary perimeter defense mechanism for the KEMIS infrastructure. They will enforce strict access control policies by filtering traffic based on IP addresses, ports, and protocols. The firewall layer will be configured to support:

- **Network segmentation** between core KEMIS services (e.g., student data, finance, HR) to limit lateral movement in case of a breach.
- **Deep Packet Inspection (DPI)** to detect and block malicious payloads targeting KEMIS APIs and services.
- **Policy-based routing** to enforce differentiated access for internal users, external partners, and third-party systems.

This security layer will ensure that only authorized traffic reaches the KEMIS core, reducing the attack surface and enhancing system resilience.

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2. **Web Application Firewall(WAF)**

The WAF layer will provide application-layer protection for KEMIS web portals and APIs. It will be deployed inline with the application delivery path to inspect HTTP/S traffic in real time. Key capabilities will include:

- **Protection against OWASP Top 10 vulnerabilities**, such as SQL injection, cross-site scripting (XSS), and cross-site request forgery (CSRF).
- **Bot mitigation** to prevent credential stuffing, scraping, and brute-force attacks on login and registration endpoints.
- **Virtual patching** to shield KEMIS applications from known vulnerabilities before official patches are applied.

The WAF will ensure secure and uninterrupted access to KEMIS services for students, teachers, administrators, and policymakers.

3. **Anti-DDoS (ADDoS) Protection**

To safeguard KEMIS's availability, an ADDoS layer will be integrated to detect and mitigate distributed denial-of-service attacks. This layer will include:

- **Traffic scrubbing services** to filter out malicious traffic before it reaches the KEMIS infrastructure.
- **Rate-based detection** to identify and block slow-rate attacks targeting login and reporting modules.
- **Geo-fencing and IP reputation filtering** to block traffic from high-risk regions or known malicious sources.

ADDoS protection will ensure that KEMIS remains accessible during peak periods such as national examinations, admissions, and reporting cycles.

4. **SOC Monitoring**

The Security Operations Center (SOC) will be established to provide 24/7 monitoring and incident response for the KEMIS environment. The SOC will leverage:

- **Security Information and Event Management (SIEM)** tools to aggregate and correlate logs from KEMIS components.
- **Threat intelligence feeds** to enrich alerts with contextual data and improve detection accuracy.
- **Automated playbooks** for rapid containment of threats, such as isolating compromised accounts or endpoints.

SOC monitoring will ensure proactive threat detection, rapid response, and continuous improvement of KEMIS's security posture.

5. **Load Balancers**

Load Balancers will be deployed to ensure high availability, scalability, and performance of KEMIS services. They will support:

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- **SSL offloading** to reduce the cryptographic load on backend servers.
- **Health checks and failover** to automatically reroute traffic to healthy nodes in case of server failure.
- **Layer 7 routing** to direct traffic based on URL paths, user roles, or application logic.

This will ensure that KEMIS remains responsive and resilient, even under high user demand or partial system outages.

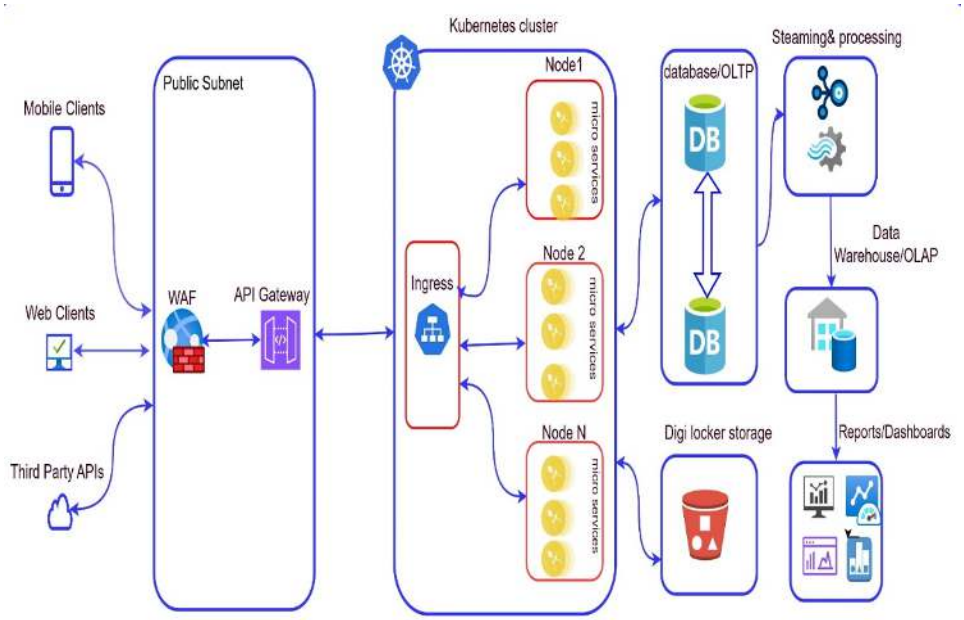
Policy and Regulations

KEMIS aligns with the **Kenya National Digital Masterplan (2022-2032)** and the Ministry of Education's National Education Sector Strategic Plan (2023-2027), ensuring full policy integration. Its implementation adheres to:

- **Data Protection Act (2019)** for privacy and security of personal data.
- **ICT Authority standards** for system development, deployment, and hosting.
- **MoE policies** on learner registration, capitation disbursement, curriculum management, and assessment data governance.
- **Konza Technopolis regulations** for systems hosted within the National Data Centre.

Further, KEMIS supports Kenya's commitment to **SDG 4 (Quality Education)** by enabling data-driven policy formulation, effective resource allocation, and national education performance tracking.

Server Architecture



Technical Architecture Components

1) Modular Microservices Architecture Enabling Independent Deployment

The system is built on a **modular microservices architecture**, where applications are decomposed into small, loosely coupled services, each responsible for a specific business function (e.g., user authentication, payment processing, notifications). This design allows **independent deployment**, enabling teams to update, scale, or replace individual services without disrupting the entire system.

- **Benefits**:
  - **Agility**: Teams can deploy features or fixes rapidly using CI/CD pipelines (e.g., Jenkins, GitLab CI).
  - **Fault Isolation**: Failures in one service (e.g., enrollment module) do not cascade to others.
  - **Technology Flexibility**: Services can use different programming languages (e.g., Python for analytics, Java for transactions) or databases (SQL for OLTP, NoSQL for logs).
- **Implementation**: Containerized using Docker and managed via orchestration platforms like Kubernetes.

2) Kubernetes Orchestration with Auto-Scaling, Self-Healing, and Rolling Updates

Kubernetes (K8s) serves as the backbone for container orchestration, ensuring scalability, resilience, and operational efficiency:

- **Auto-Scaling**:
  - **Horizontal Pod Autoscaler (HPA)**: Dynamically adjusts the number of pod replicas based on CPU/memory usage or custom metrics (e.g., API request rates).
  - **Cluster Autoscaler**: Adds or removes worker nodes in cloud environments (e.g., AWS EKS, Azure AKS) to match workload demands.
- **Self-Healing**: Automatically restarts failed containers, replaces unresponsive nodes, and redistributes workloads to healthy pods.
- **Rolling Updates**: Enables zero-downtime deployments by incrementally updating pods while keeping the application available.

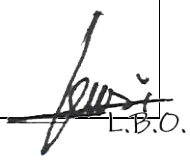
3) Secure API Access via API Gateway and Web Application Firewall (WAF)

API security is enforced through:

- **API Gateway** (e.g., AWS API Gateway, Kong):
  - **Traffic Management**: Routes requests to appropriate microservices based on endpoints.
  - **Authentication/Authorization**: Integrates with OAuth2, JWT, or OpenID Connect for role-based access control.
  - **Rate Limiting**: Prevents abuse by throttling excessive requests from a single client.
- **Web Application Firewall (WAF)**:
  - Protects against OWASP Top 10 threats (e.g., SQL injection, XSS) using predefined or custom rules.
  - Logs and monitors suspicious activity for real-time threat detection (e.g., AWS WAF with CloudWatch).

4) Supports Multiple Clients Including Mobile, Web, and Third-Party APIs

The architecture is designed for cross-platform compatibility:



- **RESTful APIs/GraphQL**: Standardized interfaces enable seamless integration with web (React, Angular), mobile (iOS/Android SDKs), and third-party systems.
- **Backward Compatibility**: Versioned APIs (e.g., /v1/users, /v2/users) ensure existing clients remain functional during upgrades.
- **SDKs and Documentation**: Pre-built libraries and Swagger/OpenAPI specs accelerate client-side development.

5) Ingress Controller Routes Traffic Efficiently to Microservices

Ingress Controllers (e.g., NGINX, Traefik) manage external traffic:

- **Path-Based Routing**: Directs requests to specific services (e.g., /payments to the payment microservice).
- **SSL/TLS Termination**: Offloads encryption/decryption at the edge, reducing backend load.
- **Load Balancing**: Distributes traffic across pods to prevent overload (e.g., round-robin, least connections).

6) High-Availability OLTP Database with Master-Slave Setup for Data Consistency

Transactional workloads are handled by **OLTP databases** (e.g., PostgreSQL, Amazon Aurora):

- **Master-Slave Replication**:
  - **Write Operations**: Directed to the master node for ACID compliance.
  - **Read Scalability**: Slave nodes handle read queries, reducing master load.
  - **Failover**: Automatic promotion of a slave to master during outages.
- **Data Consistency**: Synchronous replication for critical transactions (e.g., financial records) and asynchronous for less critical data.

7) Real-Time Streaming and OLAP Support for Analytics and Dashboards

Real-Time Streaming (e.g., Apache Kafka, AWS Kinesis):

- Processes high-velocity data (e.g., user activity logs) for instant insights.
- Integrates with **OLAP databases** (e.g., Snowflake, Amazon Redshift) optimized for analytics:
  - Columnar storage accelerates complex queries.
  - Supports BI tools (Tableau, Power BI) for interactive dashboards.

8) Digi Locker-Compatible Object Storage for Secure Document Handling

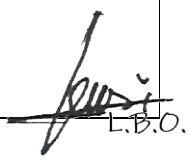
Object Storage (e.g., AWS S3, MinIO):

- Stores documents (e.g., certificates, IDs) in compliance with **Digi Locker** standards.
- **Security Features**:
  - Encryption (AES-256 at rest, TLS in transit).
  - Versioning and audit trails for compliance.
  - Fine-grained access controls via IAM policies.

9) Horizontally Scalable and Fault-Tolerant Infrastructure for Growth and Resilience

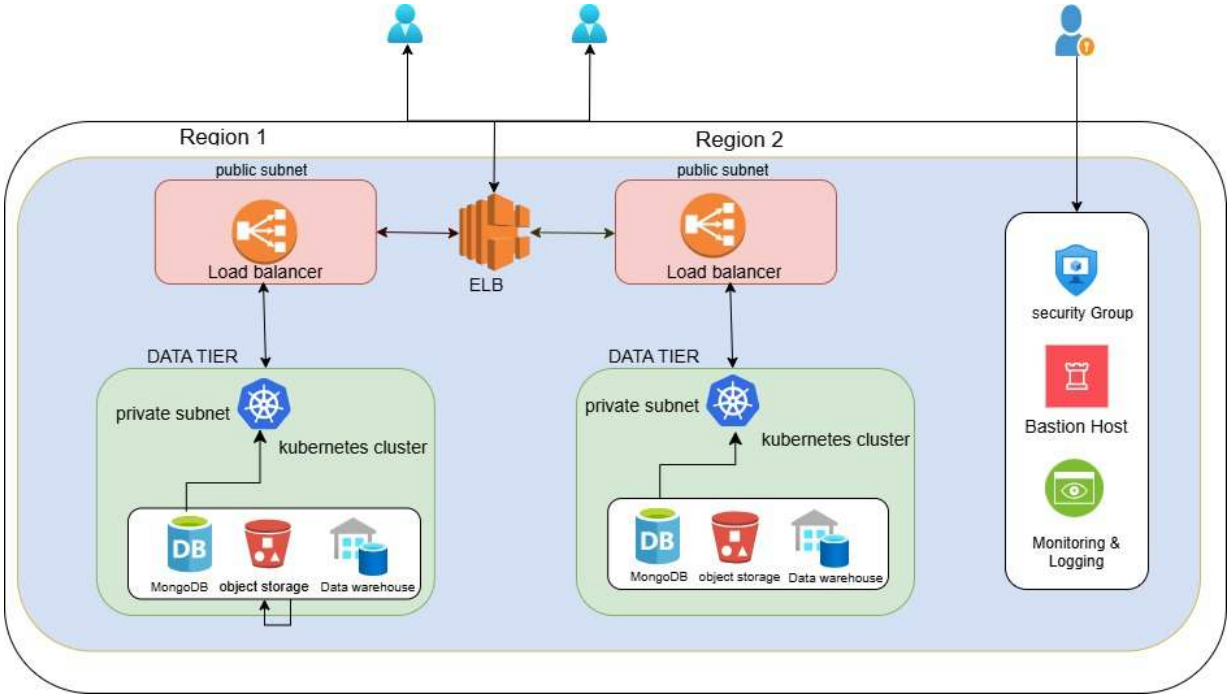
The infrastructure ensures **elastic scalability** and **high availability**:

- **Horizontal Scaling**: Auto-scaling groups in the cloud (AWS ASG, GCP Instance Groups) add/remove instances based on load.



- **Fault Tolerance**:
  - Multi-AZ deployments for redundancy.
  - Disaster recovery via cross-region replication (e.g., AWS S3 Cross-Region Replication).
- **Infrastructure as Code (IaC)**: Tools like Terraform and Ansible automate provisioning, ensuring consistency across environments.

Disaster Recovery (DR) Architecture



- **Multi-Region High Availability & Disaster Recovery:** The core design uses two distinct regions, each with its own API Gateway, compute (Kubernetes), and data tier, fronted by a global ELB. This provides resilience against single-region failures.
- **Managed API Gateway Layer:** Utilizes regional API Gateways as the entry point within each region, handling routing, security, and other cross-cutting concerns for the backend micro services.
- **Containerized Microservices on Kubernetes:** Employs Kubernetes within private subnets in each region for orchestrating, scaling, and managing the backend micro services.
- **Network Security & Segmentation:** Leverages public/private subnets to isolate backend resources. Access for administrators is secured via a dedicated path involving a Security Group and a Bastion Host.
- **Regional Data Persistence:** Each region has its own dedicated data tier (PostgreSQL, Object Storage, Data Warehouse). This implies a need for a cross-region data replication/synchronization strategy (not explicitly shown) if full failover capability is required.
- **Centralized Load Balancing:** An Elastic Load Balancer (ELB) acts as the primary ingress point, distributing traffic across the regional API Gateways.
- **Dedicated Observability:** Includes a specific component for Monitoring & Logging, essential for managing the health and performance of a distributed system.

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Benefits of KEMIS

- **Students:** Engages in all assigned subjects and communicates with their respective teachers.
- **Teachers:** Generates events, Class or subjects according to the thematic areas defined.
- **Parents:** Access seamless parent-teacher communication through features like a parent portal, allowing access to attendance, grades, assignments, and direct teacher communication.
- **Institutions:** Streamline and centralize education data nationwide for government policy and decision-making.
- **Government:**
    - Efficient Data Management: Simplify data collection, storage, and analysis, reducing errors and manual record-keeping.
    - Real-Time Reporting: Access real-time reports on student performance, attendance, and disciplinary actions for timely interventions.
    - Enhanced Collaboration: Facilitate seamless communication and collaboration among teachers, parents, and administrators to create a conducive learning environment.
    - Curriculum Management: Provide easy access to curriculum documents, lesson plans, and teaching resources for quality education delivery.
    - Financial transparency and reporting: Strengthen fund disbursement and accountability from the treasury to all learning institutions.
- **Virtual Wallet**
    - Is a smartphone, desktop, or notebook application that securely stores information, facilitates money transfers, and provides banking services through passcodes or pins. It leverages mobile device capabilities to enhance access to financial products and services
- **Financial transparency and reporting**
    - Strengthen the disbursement and accountability of funds from the treasury (Exchequer) to all learning intuitions
- **Budgetary Controls**
    - By establishing an annual or term spending budget for each institution, the treasury can allocate funds across various major spending categories. This breakdown encourages careful consideration of expenses, reducing the likelihood of overspending. If overspending occurs in one category, adjustments can be consciously made by reallocating funds from other areas where savings are possible.
- **Set a savings goal**
    - By having the application, treasury will be able to create a savings goal and make it easier it easier to hit savings targets by implementing roundup and automatic deposit functions.
- **Timely Bill Payments**
    - The virtual wallet includes an alert system set by the treasury to notify when spending reaches a certain percentage of the budget for the term/year, preventing overspending. Early alerts prompt timely adjustments to stay within budget. Reminders for bill payments prevent oversight, avoiding penalty interest or fees
- **Spend Tracking**

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- Tracking spending against a budget enables the treasury to identify unnecessary expenditures and prioritize areas for change effectively.

Additional Benefits of KEMIS

- **Job Creation**: With the need for human resources to support the rollout of system, shall create jobs for young people at all levels
- **Cost Saving:** Through Resource Allocation Efficiency, The system will enable the government to track data such as student-teacher ratios and allocation of resources as per the demand
- **Bridging the Educational Gap:** By implementing KEMIS, resources can be allocated more equitably through data-driven insights. Schools in interior and marginalized regions can access curriculum materials, lesson plans, and progress reports, ensuring that no student is left behind.
- **Resource Allocation Tracking:** KEMIS assigns a **Personal Identification Number** to each student, allowing policymakers to monitor data such as student-teacher ratios and resource allocation per school.

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SECTION:2B

TECH-1B: Technical Compliance

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Technical Specifications & Requirements

General Technical Requirements

The technical requirements and specifications provided below are the minimum requirement that must be met during the proposal. The specifications are as below

S No.	General Requirement	Comply (Y/N)	Bidder Response
General Requirements			
1	Language Support: All information technologies must be provided in English language.	Yes	Complied. English is the default system language across all modules.
2	Dates: All information technologies MUST properly display, calculate, and transmit date data. The date must be in the DDMMYYYY format and time zone must be EAT.	Yes	Fully supported. Date format is configurable, and EAT is supported as the system time zone.
3	The system should be developed with trending technology standards. It should be based on open standards.	Yes	Developed using open-source, scalable, and latest technology frameworks
4	Employ technology agnostic system solutions and devices to be usable with emerging technologies in perpetuity.	Yes	The solution is browser-based, device-independent, and can be deployed on cloud or on-prem infrastructure.
5	The system should be modular allowing for replacement & phased implementation of additional modules.	Yes	Solution is modular with independent microservices architecture, supporting phased roll-out.
6	Allow for flexible configurations based on the user environment. The system must be easy to configure e.g. the form is dynamic, and the fields can be added and removed and edited with ease.	Yes	The system offers configurable forms, workflows, roles, and fields without the need for coding.
7	Patch Management: Develop a patch management strategy to address security vulnerabilities.	Yes	Regular patch updates are planned with version control and backward compatibility.
8	Versioning and Upgrades: Plan for system upgrades to incorporate new features and address evolving security requirements.	Yes	Versioning strategy and release management is implemented. Minor and major releases are documented.

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9	Licensing: The licensing should be perpetual and paid once upon acquiring a device or system. No limitation to use of the licenses by Government.	Yes	One-time perpetual licensing model is available for Government deployments. No usage limits.
Scalability and Performance			
10	Modular Architecture: Design a modular system to facilitate scalability and future enhancements.	Yes	Designed using SOA and microservices architecture for modular scalability.
11	Technology Agnostic: Develop a system that can adapt to emerging technologies and standards.	Yes	Technology-neutral and compatible with third-party APIs, cloud platforms, and devices.
12	Solution architecture should have the ability to scale up as and when new applications and services are added and transaction volumes increase without compromising the performance of the overall solution.	Yes	Scalable architecture with load balancing and clustering support for high availability.
13	It should provide for scalability on the application, web servers, database servers, application integration servers, and all other solution components. Provide for vertical and horizontal scalability.	Yes	Vertical and horizontal scalability supported on all components.
14	The system must be designed to accommodate a growing number of users, both in number of users/accesses, data processing, data analytics, visualization, and reports.	Yes	Benchmarked for high concurrent users and data volume growth.
15	The system technical design (hardware, database, etc.) must be able to scale to support projected transaction volumes over time.	Yes	Architecture supports scale-out strategies to meet growing transactional demand.
16	The system must be able to identify duplicate records and de-duplicate them.	Yes	In-built de-duplication engine with configurable matching logic (exact/fuzzy).
17	The system must be able to perform as load (user and transactions) increases following micro service design.	Yes	Performance-optimized microservices architecture ensures no lag with load.

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18	The system transaction response to user data entry should be a minimum of 2 seconds (turnaround time) and a maximum of 5 seconds (turnaround time) on an online workstation.	Yes	Guaranteed average response time < 2 seconds under optimal conditions.
19	The system must allow users to monitor system availability and performance.	Yes	Admin dashboards for performance monitoring, uptime logs, and alerting supported.
20	The system can sync data with the main server (in case of offline use).	Yes	Offline mode available with sync mechanism using background jobs and queueing.
21	The system must track and record all changes (update/add/delete) to the data by system and by users.	Yes	Full audit trail available, including user-wise data changes (add/update/delete).
22	The solution must create person-centric records and have the ability to search and view vital events of a person.	Yes	Person-centric master record maintained with linked events and actions.
Availability and Accessibility			
23	The solution should be designed to remove all single points of failure. The solution should provide the ability to recover from failures, thus protecting against multiple component failures.	Yes	High Availability (HA) and Disaster Recovery (DR) configurations supported.
24	The solution should be available 99.99% of the time.	Yes	Designed for 99.99% uptime using cluster nodes and redundant infrastructure.
25	The system must allow users to work online and offline. If offline, data should be synchronized when an internet connection is available.	Yes	Online and offline modes supported with automatic synchronization on reconnection.
User Interface			
26	The system should have a highly customizable & intuitive user-friendly interface with extensive online help facilities, including:	Yes	UI is responsive, intuitive, and built on Angular/React with tooltips and guides.
27	User Registration: Define the fields required for user registration (e.g.,	Yes	Customizable registration fields with validation supported.

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	name, email, and password) and specify any validation rules.		
28	Authentication Methods: Specify the supported authentication methods (e.g., username/password, biometrics, multi-factor authentication) and their implementation in the UI.	Yes	Supports username/password, OTP, and multi-factor authentication (MFA).
29	Password Policy: Define password complexity requirements and any other security measures related to password management.	Yes	Enforced complexity: length, special characters, expiry, and history.
30	User Profile Management: Specify the functionalities available for users to manage their profiles, including updating personal information, changing passwords, and managing security settings.	Yes	Users can update profiles, passwords, and security settings in UI.
31	Consent Management: Define how the UI handles user consent for data processing and sharing. Specify the design and flow for obtaining and managing user consent.	Yes	Consent capture and audit trail provided as per GDPR principles.
32	Forgotten Password/Account Recovery: Describe the process and UI elements for users to recover their accounts or reset forgotten passwords securely.	Yes	Password reset through OTP/email/SMS with secure validation checks.
33	Security Tokens and Session Management: Specify how security tokens are handled in the UI, including session expiration, refresh mechanisms, and token storage.	Yes	OAuth 2.0/JWT tokens with refresh and session timeout supported.
34	Error Handling and Messaging: Define error messages and how they are presented to users. Include clear instructions for resolving common issues.	Yes	Informative error messages with resolution instructions.
35	Responsive Design: Ensure that the UI is responsive and accessible across various devices and screen sizes.	Yes	Fully responsive UI across mobile, tablet, desktop screens.

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36	Accessibility: Specify how the UI complies with accessibility standards (e.g., WCAG) to ensure that it is usable by people with disabilities.	Yes	Complies with WCAG 2.1 accessibility guidelines.
37	Branding and Theming: Define guidelines for branding and theming to maintain a consistent and recognizable visual identity.	Yes	Theming and branding as per client requirements supported.
38	User Feedback: Specify how the UI provides feedback to users during actions such as login, registration, or account updates.	Yes	Real-time status messages and success/error indicators provided.
39	User Notifications: Define how the system notifies users of important events (e.g., account activity, security alerts) and the channels used for notifications.	Yes	In-app, email, and SMS notifications configurable for key events.
40	Localization: If the system serves a global audience, specify how the UI supports multiple languages and cultural preferences.	Yes	Multi-language support with locale-based formatting enabled.
41	User Education and Help: Provide user education features and help documentation within the UI to assist users in understanding security practices, features, and functionalities.	Yes	Inbuilt help section, tooltips, and user training guides included.
42	Cross-Browser Compatibility: Ensure compatibility with major web browsers to provide a consistent experience for users.	Yes	Compatible with Chrome, Firefox, Edge, and Safari.
43	Integration with Authentication Providers: If the system integrates with third-party authentication providers, specify how the UI accommodates these integrations.	Yes	SSO and integration with providers like Google, Azure AD supported.
44	Session Timeout and Auto Logout: Define session timeout periods and auto-logout mechanisms to enhance security.	Yes	Configurable session timeout and auto-logout implemented.

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User Authentication			
45	The system should provide multi-factor authentication of users using OAuth 2.0.	Yes	Supported with TOTP or SMS/Email OTPs using OAuth 2.0.
46	Each user must be authenticated with a unique user-id/username, password, and one-time login code generated by the application while logging on to the application. The User IDs/Usernames should be case sensitive.	Yes	Enforced unique, case-sensitive usernames and OTP authentication.
47	User accounts management activities include but are not limited to new user creation, user maintenance, and user authentication (during login).	Yes	Full user management module for creation, update, and access logs.
48	All new user accounts must have a system-generated random password when created. A secure way of communicating the initial password to the user should be utilized, e.g., via an email account or SMS.	Yes	System-generated secure passwords sent via secure channel (email/SMS).
49	The system must prompt users to change their passwords the first time they log on to the application. During password change, if the new password doesn't comply with the complexity policy, the error message should describe every complexity rule that the new password does not comply with.	Yes	Mandatory password reset on first login with detailed feedback.
50	The system must support password expiry features with a configurable frequency. This should be parameterized to allow flexibility in adjusting this value as required (from non-expiry to activation of expiry).	Yes	Password expiry configurable in admin panel.
51	The system should not support automatic logins to guard against brute force attacks. The login page should include a code generating mechanism.	Yes	CAPTCHA and rate limiting protect against brute force attacks.

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52	The system shall generate a code at login. The code shall be sent to the registered e-mail or SMS through a registered mobile phone number. The code shall be entered on the login page to grant authentication.	Yes	Secure OTP sent to registered email/SMS for login verification.
53	These password features should be configurable to support future complexity requirements.	Yes	Password complexity, expiry, reuse, lockout fully configurable.
54	The solution should implement a secure self-service password recovery mechanism in the event the user forgets their password using verification of existing parameters.	Yes	OTP/email/SMS-based recovery using verified parameters.
55	The login page and all subsequent authenticated pages must be exclusively accessed over Transport Layer Security (TLS). All active sessions must be encrypted.	Yes	TLS 1.3 enforced across all endpoints; sessions encrypted.
56	The solution should support expiring of newly created accounts if not used for a configurable period of time. This should be parameterized to allow flexibility in adjusting this value as required. An auto-generated alert should be sent to the users some set days before the account is deactivated.	Yes	Configurable expiry and alert mechanism supported.
57	The password must be changed after a configurable duration. This should be parameterized for flexibility. An auto-generated password change alert should be sent to the users some set days before the password expires.	Yes	Fully parameterized password expiry with reminders.
58	The solution must support password lockout after a configurable number of unsuccessful login attempts. This should be parameterized to allow flexibility in adjusting this value as required.	Yes	Lockout threshold configurable; alerts generated.

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59	The solution must log out a user account after the session has been idle for a configurable duration. This should be parameterized to allow flexibility in adjusting this duration as required.	Yes	Session timeout settings customizable per role or policy.
60	The solution must not allow the re-use of a past password until a set period of time and a set number of password changes have been made. This should be parameterized to allow flexibility in adjusting this value as required.	Yes	Password history maintained; reuse prevention enforced.
Workflow Automation – Functional			
61	The bidder should map the business process and automate all the processes.	Yes	All core business processes are digitized and workflow-enabled.
62	The system should provide for hosting of commonly used forms and documents so that users can open, fill, sign, and forward them for processing and online approval without printing them.	Yes	Dynamic forms module supports online form creation and e-sign.
63	The system should allow for digital signatures for online approvals.	Yes	Digital signature (PKI/eSign API) supported for approvals.
64	Automatic alerts e.g., notification for pending work to officers.	Yes	Alerts via SMS, Email, In-App for pending actions.
65	The system should support time and event-based reminders and automatic escalations to relevant users after specified time intervals for pending work items, completed items, items pending with specific users, etc.	Yes	Workflow engine supports auto-escalation and reminders.
66	The system should provide a facility for assigning tasks and deadlines for users in a workflow.	Yes	Tasks and SLAs can be assigned via workflow manager.
67	The system should provide for the change of deadlines based on user requirements.	Yes	Admins/users can reassign tasks and deadlines as needed.
Documentation			

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68	System inception report.	Yes	Provided at project initiation with timelines and scope.
69	BRDs, System Analysis and Design Documents	Yes	Delivered post-requirement gathering and system study.
70	Provide technical documentation:	Yes	Complete technical documentation handed over on deployment.
71	User manuals.	Yes	User guides for all roles/modules provided.
72	Operation manuals.	Yes	SOPs and system operations manuals included.
73	Maintenance manuals.	Yes	Manuals for admin and maintenance teams provided.
74	Create a backup and disaster recovery plan.	Yes	DR plan, RTO/RPO strategies documented and implemented.
Business Continuity			
75	Scheduled backup and real-time replication of data.	Yes	Daily/weekly backups with real-time replication to DR site.
76	The system should provide automated backup and restore functionality.	Yes	Automated backup scheduler with restore testing supported.
77	Transaction rollback after crash, system integrity check for file and data corruption.	Yes	Transaction rollback and integrity checks performed automatically.
78	Ability to email reports directly on backups.	Yes	Backup summary reports sent via email to designated admins.
79	Redundancy: Establish redundant systems for disaster recovery.	Yes	Redundant app, DB, and infra nodes configured.
80	Load balancer: To manage and process high traffic requests.	Yes	Load balancing through HAProxy/Nginx supported.
Usability – NON Functional			
81	The use of the tool should be easy and intuitive in order to reach users with different levels of computer use experience.	Yes	Designed for all user levels with minimal learning curve.

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82	The system should be able to generate prompts for users on actions or document verifications.	Yes	Guided prompts and validations supported on all screens.
83	The system must provide the option on every page to view the headings, menus, labels, and any software control values.	Yes	UI consistently displays headings, labels, values on each page.
Error Handling			
84	All written software to be subjected to a comprehensive error handling regime.	Yes	Try-catch handlers, fallback routines, error logging implemented.
85	Error and warning messages should be informative and identify the error as completely as possible (e.g., identify the module, the procedure or functions, the identifier of the error, etc.).	Yes	All errors detailed with source and recommended action.
86	All error and warning messages shall be written into the system logs.	Yes	All warnings/errors logged with timestamps.
87	Critical errors shall be emailed to all relevant software support personnel.	Yes	Admins auto-notified for critical failures.
Location – NON FUNCTIONAL			
88	The system must maintain a record of all entities with their unique IDs, location, and geo-codes.	Yes	Location master maintained with geo-tagged entities.

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Institution Education & Financial Management Information Systems (IEFMIS)

ECD Education – EFMIS

S No.	Technical Specifications	Complied (Y/N)	Bidder Response
1	The system should facilitate the registration of all schools providing ECDE within the county, creating a single point of entry for all facilities supported by the County Government.	Yes	Dhanush will develop a centralized ECDE school registration module integrated with county-level access.
2	The system should collect and maintain information on the infrastructural position of each school and integrate with NEMIS to ensure proper checks are maintained.	Yes	Dhanush will implement infrastructure profiling and ensure seamless integration with NEMIS.
3	The system should provide attendance management by recording all pupils in a given class, using biometrics (fingerprint and facial recognition) for verification, and updating attendance positions.	Yes	Dhanush will provide biometric-based attendance (fingerprint/facial recognition) integrated with class lists.
4	The system should generate daily attendance reports and dashboards for relevant units within the County, and include CCTV integration for monitoring pupil movement.	Yes	Real-time dashboards and CCTV integration will be incorporated for attendance monitoring by Dhanush.
5	The system should manage capitation for ECDE centers, using pupil registration and monitoring tools to process capitation entitlements based on pupil numbers and community needs.	Yes	Dhanush will automate capitation allocation and reporting based on real-time enrollment data.
6	The system should split capitation amounts between direct disbursement to schools and allocations for learning materials, feeding materials, and other expenditures managed by the County Government.	Yes	Dhanush will implement configurable capitation disbursement modules for direct and in-kind allocations.
7	The system should automate supply chain management processes, including requisition requests, request reviews,	Yes	Dhanush will provide an end-to-end supply chain automation module from requisition to dispatch.

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	purchase order issuance, receipt, and dispatch of goods and services.		
8	The system should provide a mechanism for schools to submit requisition requests, aggregate needs, and process them centrally for procurement.	Yes	Centralized procurement request aggregation will be provided via school-level dashboards.
9	The system should automate the receipt of goods and services, verifying them against purchase orders, and recording the receipt to improve inventory accuracy and financial control.	Yes	Dhanush will enable real-time goods receipt tracking and validation against purchase orders.
10	The system should automate the dispatch of goods to respective schools based on approved requisitions, providing a tracking mechanism from receipt to final delivery.	Yes	Dispatch tracking and delivery acknowledgment modules will be included for school-level logistics.
11	The system should support nutrition programs by recording pupil health assessments, scheduling balanced meals, and introducing supplementary feeding programs for malnourished children.	Yes	Dhanush will provide modules for health screening, feeding program schedules, and malnutrition tracking.
12	The system should provide an education dashboard to aggregate and display key metrics related to student performance, attendance, learning progress, behavior, engagement, teacher feedback, and demographic insights.	Yes	Interactive education dashboards with real-time KPIs will be available for stakeholders.
13	The system should automate HR management functions, including recruitment, payroll, teacher records, performance management, benefits administration, and managing teacher assignments and attendance data.	Yes	Full HR automation including payroll, performance, and attendance will be provided by Dhanush.

Basic Education - EFMIS

S No.	Technical Requirement	Complied (Y/N)	Bidder Response
Student Management			

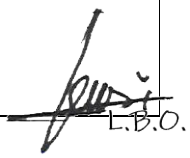
1	The system should manage the entire student admissions process, including application submission, review, and acceptance.	Yes	Dhanush will provide a digital admission workflow supporting submission, review, and acceptance.
2	The system should allow for the tracking of admission status and communication with applicants.	Yes	Real-time admission tracking and communication module with email/SMS alerts will be implemented.
3	The system should handle student transfers between institutions, including the transfer of academic records.	Yes	A centralized transfer module will support academic record portability.
4	The system should support the approval process for student transfers.	Yes	Approval workflows will be included for transfer requests.
5	The system should generate unique identification numbers for each student.	Yes	Auto-generated unique IDs will be created at registration.
6	The system should manage student identification cards, including issuance and renewal.	Yes	ID card issuance and renewal workflows will be integrated.
7	The system should support biometric identification for students, such as fingerprint or facial recognition.	Yes	Biometric integration (fingerprint/facial) will be supported.
8	The system should securely store and manage biometric data.	Yes	Biometric data will be encrypted and stored securely with compliance.
9	The system should track student attendance, including daily check-ins and check-outs.	Yes	Real-time biometric and manual attendance recording will be available.
10	The system should generate attendance reports for administrative and parental review.	Yes	Attendance dashboards and exportable reports will be provided.
11	The system should provide an electronic diary for students to track assignments and events.	Yes	An e-diary feature for students will be accessible via web/mobile apps.
12	The system should manage a noticeboard for school announcements and disciplinary records.	Yes	Digital noticeboard and behavior tracking modules will be included.
Faculty			

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13	The system should manage teacher identification, including issuance of ID cards.	Yes	Teacher profile management and ID card issuance system will be deployed.
14	The system should support biometric identification for teachers.	Yes	Biometric authentication for staff attendance will be implemented.
15	The system should manage information for non-teaching staff, including personal details and job roles.	Yes	Dedicated non-teaching staff management module with roles tracking.
16	The system should track attendance and leave for non-teaching staff.	Yes	Leave and attendance tracking integrated with HR/payroll system.
17	The system should track teacher attendance, including daily check-ins and check-outs.	Yes	Daily check-in/check-out tracking integrated with dashboards.
18	The system should generate attendance reports for administrative review.	Yes	Reports with filters and trends for review will be included.
19	The system should manage leave requests and approvals for all staff.	Yes	Self-service leave request with approval workflows.
20	The system should track leave balances and generate leave reports.	Yes	Leave balance calculations and reporting per staff category.
Academics			
21	The system should manage class schedules, including room assignments and teacher allocations.	Yes	Class and teacher scheduling with room assignment tools.
22	The system should track student enrolment in classes and generate class rosters.	Yes	Class rosters auto-generated post-enrollment.
23	The system should manage library resources, including book checkouts and returns.	Yes	Integrated library management system will be provided.
24	The system should track overdue books and generate library usage reports.	Yes	Alerts for overdue items and report generation.
25	The system should manage course offerings, including course descriptions and prerequisites.	Yes	Curriculum and course catalog module will support dependencies.
26	The system should generate and manage timetables for students and teachers.	Yes	Dynamic timetable generation for students and teachers.

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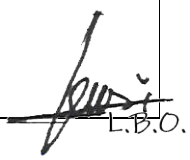
27	The system should manage curriculum details, including course content and learning objectives.	Yes	Curriculum builder with objectives, topics, and resources.
28	The system should support updates and revisions to the curriculum.	Yes	Curriculum versioning and update logs supported.
29	The system should manage student assessments, including exam scheduling and grading.	Yes	Assessment scheduling, grading, and results publishing.
30	The system should generate assessment reports and track student performance.	Yes	Graphical and tabular assessment analytics available.
31	The system should generate gradebooks for teachers to record student grades.	Yes	Teachers can enter, view, and export student grades.
32	The system should produce report cards for students, including grades and comments.	Yes	Auto-generated report cards with comments and signatures.
33	The system should issue certificates for academic achievements and extracurricular activities.	Yes	Certificate generation engine with templates and rules.
34	The system should authenticate certificates to prevent fraud.	Yes	QR-code or block chain-based validation features available.
Financials			
35	The system should manage fee structures, including tuition and other charges.	Yes	Flexible fee configuration and allocation per student.
36	The system should generate invoices and track payments.	Yes	Auto-invoicing, online tracking, and alerts.
37	The system should manage scholarships and bursaries, including application and award processes.	Yes	End-to-end scholarship tracking and disbursement module.
38	The system should track scholarship and bursary disbursements.	Yes	Real-time disbursement dashboard integrated with payment systems.
39	The system should handle invoicing for fees and other charges.	Yes	Central invoicing engine covering all charge types.
40	The system should generate receipts for payments received.	Yes	Digital and downloadable receipts generation.
41	The system should manage financial accounts, including income and expenses.	Yes	School-level accounting system with reports and reconciliation.



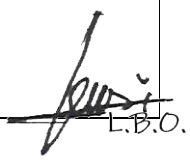
42	The system should generate financial reports for administrative review.	Yes	Role-based access to detailed income/expense statements.
43	The system should manage capitation funds, including allocation and tracking.	Yes	KCB shall provide capitation trackers by school, term, and learner category.
44	The system should generate reports on capitation fund usage.	Yes	KCB shall provide reports with fund allocation, usage, and variance analysis.
45	The system should manage digital wallets for students and staff.	Yes	KCB will provide wallet features for students and staff with transaction logs.
46	The system should track wallet transactions and balances.	Yes	KCB will provide a secure digital wallet ledger and reporting.
47	The system should integrate with bank accounts for financial transactions.	Yes	KCB shall provide bank integration via APIs or manual reconciliation upload.
48	The system should reconcile bank statements with system records.	Yes	KCB shall provide bank reconciliation dashboard and variance resolution.
49	The system should manage purchases and expenditures with vendors and suppliers.	Yes	Procurement lifecycle management with vendor database.
50	The system should track purchase orders and payments.	Yes	PO generation, tracking, and payment logs.
51	The system should track other revenue sources, such as donations and grants.	Yes	Track grants, donations, and third-party contributions.
52	The system should generate reports on other revenues.	Yes	Comparative reports for all revenue heads.
53	The system should manage payroll for non-teaching staff, including salary calculations and disbursements.	Yes	Integrated payroll module with statutory deductions.
54	The system should generate payroll reports and track payroll expenses.	Yes	Payroll register and salary slip generation.
eLearning			
55	The system should provide infrastructure support for eLearning in marginalized areas.	Yes	Offline support and low-bandwidth adaptive delivery.
56	The system should ensure reliable access to eLearning resources in these areas.	Yes	LMS-integrated content delivery with caching support.

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57	The system should manage and deliver educational content, including multimedia resources.	Yes	Multimedia content management integrated with LMS.
58	The system should support content updates and revisions.	Yes	Content version control and publishing workflows.
59	The system should support extra-curricular activities, including clubs and societies.	Yes	Club/society enrollment and event scheduling system.
60	The system should track participation in extra-curricular activities.	Yes	Participation logs, certificates, and dashboards.
61	The system should manage sports, music, and drama activities, including scheduling and participation.	Yes	Co-curricular planning, attendance, and performance tracking.
62	The system should track achievements in sports, music, and drama.	Yes	Achievements database linked to student profile.
63	The system should manage school events, including planning and scheduling.	Yes	Calendar and resource planning tools.
64	The system should track event participation and generate event reports.	Yes	Event reports and engagement statistics.
ERP			
65	The system should manage school assets, including inventory and maintenance.	Yes	Asset register with depreciation and maintenance logs.
66	The system should track asset usage and generate asset reports.	Yes	Movement tracking and utilization dashboards.
67	The system should manage human resources, including staff records and performance evaluations.	Yes	HRMS module including performance appraisals.
68	The system should support recruitment and onboarding processes.	Yes	Workflow-driven hiring and document management.
69	The system should manage stores and inventory, including stock levels and reordering.	Yes	Inventory logs, reordering alerts, and audit trails.
70	The system should track inventory usage and generate inventory reports.	Yes	Daily consumption reports and alerts for low stock.

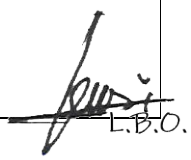


71	The system should manage student and staff accommodation, including room assignments and maintenance.	Yes	Room allocation and availability dashboard.
72	The system should track accommodation usage and generate accommodation reports.	Yes	Room usage statistics and maintenance reports.
Transport			
73	The system should manage the school fleet, including vehicle maintenance and scheduling.	Yes	Fleet management with vehicle servicing and availability.
74	The system should track fleet usage and generate fleet reports.	Yes	GPS integration and utilization logs.
75	The system should manage transport routes, including route planning and optimization.	Yes	Route mapping, optimization, and planning tools.
76	The system should track route usage and generate route reports.	Yes	Trip logs and time/mileage reports.
77	The system should ensure transport safety, including driver management and vehicle inspections.	Yes	Driver logs, inspection checklists, and compliance tracking.
78	The system should track transport incidents and generate safety reports.	Yes	Incident reporting and safety analytics.
Institution Management			
79	The system should manage the Board of Management/Council, including member records and meeting schedules.	Yes	Board member database with term and designation tracking.
80	The system should track BOM/Council decisions and generate reports.	Yes	Meeting minutes and decision repository.
81	The system should manage school leadership details, including roles and responsibilities.	Yes	Leadership role assignment and profile tracking.
82	The system should support leadership evaluations and performance tracking.	Yes	360° feedback and appraisal management for leadership roles.



TVET Education - EFMIS

S No.	Technical Requirement	Compliance (Y/N)	Bidder Response
Student Management			
1	The system should manage the entire student admissions process for TVET programs, including application submission, review, acceptance, and enrolment	Yes	Fully supported via centralized admission management module.
2	The system should track admission status, communication with TVET applicants, and integration with external application systems	Yes	Provides real-time admission tracking and external system APIs.
3	The system should handle student transfers between departments, faculties, and other TVET institutions, including the transfer of academic records and credits	Yes	Transfer workflows and academic record portability are built-in.
4	The system should support the approval process for student transfers within TVET institutions and maintain a history of transfers	Yes	Automated approval workflows and historical transfer logs supported.
5	The system should generate unique identification numbers for each student and manage student identification cards, including issuance and renewal	Yes	Unique ID generation and card issuance features available.
6	The system should integrate with national identification systems for verification purposes specific to students	Yes	Supports API-based verification with national ID systems.
7	The system should support biometric identification for students, such as fingerprint, facial recognition, and iris scanning	Yes	Biometric integration (fingerprint, face, iris) available via supported hardware.
8	The system should securely store and manage biometric data for students, ensuring compliance with data protection regulations	Yes	Biometric data encrypted and stored per data protection compliance.



9	The system should track student attendance, including daily check-ins and check-outs, and support integration with TVET classroom management systems	Yes	RFID/biometric attendance system integrated with academic modules.
10	The system should generate detailed attendance reports for administrative, parental, and regulatory review	Yes	Attendance dashboards and downloadable reports available for all stakeholders.
11	The system should provide an electronic diary for students to track assignments, events, and deadlines	Yes	Digital diary accessible via web and mobile platforms.
12	The system should manage a noticeboard for institution announcements, events, and disciplinary records	Yes	Centralized noticeboard module with admin controls and history tracking.
Faculty			
1	The system should manage faculty identification for TVET programs, including issuance of ID cards and integration with national identification systems	Yes	Faculty ID and verification supported via integrated HR and ID systems.
2	The system should support biometric identification for faculty members, including fingerprint, facial recognition, and iris scanning	Yes	Biometric identification for faculty fully supported via standard hardware APIs.
3	The system should manage information for non-teaching staff in the institutions, including personal details, job roles, and integration with HR systems	Yes	Comprehensive non-teaching staff records and HR system integration supported.
4	The system should track attendance and leave for non-teaching staff in the institutions, including integration with payroll systems	Yes	Attendance and leave tracking integrated with payroll and HRMS.
5	The system should track faculty attendance in TVET institutions, including daily check-ins and check-outs, and support integration with classroom management systems	Yes	Faculty attendance tracked with biometric support and academic system integration.
6	The system should generate detailed attendance reports for administrative	Yes	Regulatory-compliant reports auto-generated for admin review.

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	review and regulatory compliance specific to TVET institutions		
7	The system should manage leave requests and approvals for all staff in the institutions, including integration with HR and payroll systems	Yes	Automated leave request and approval workflows with system-wide notifications.
8	The system should track leave balances, generate leave reports, and support compliance with labor regulations specific to the institutions	Yes	Leave balance tracking, reporting, and compliance supported out of the box.
Academics			
1	The system should manage class schedules, including room assignments, teacher allocations, and integration with timetabling systems.	Yes	Dynamic scheduling engine supports room and teacher allocation with timetable integration.
2	The system should track student enrollment in classes, generate class rosters, and support integration with learning management systems (LMS).	Yes	Class-wise enrollment tracking and LMS integration available.
3	The system should manage library resources, including book checkouts, returns, and integration with digital library systems.	Yes	Integrated library management with physical and digital resource support.
4	The system should track overdue books, generate library usage reports, and support integration with academic databases.	Yes	Automated alerts for overdue books and library usage reporting supported.
5	The system should manage course offerings, including course descriptions, prerequisites, and integration with curriculum management systems.	Yes	Full course catalog with curriculum integration and prerequisite management.
6	The system should generate and manage timetables for students and faculty, including integration with scheduling systems.	Yes	Timetable generation tool integrated with academic calendar and scheduling systems.
7	The system should manage curriculum details, including course content, learning	Yes	Curriculum mapping with accreditation alignment features.

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	objectives, and integration with accreditation bodies.		
8	The system should support updates and revisions to the curriculum, including version control and historical records.	Yes	Version-controlled curriculum management supported.
9	The system should manage student assessments, including exam scheduling, grading, and integration with LMS.	Yes	End-to-end exam lifecycle management with LMS grading sync.
10	The system should generate assessment reports, track student performance, and support integration with academic analytics systems.	Yes	Real-time performance analytics and assessment report generation enabled.
11	The system should generate gradebooks for faculty to record student grades, including integration with LMS.	Yes	Digital gradebook with LMS synchronization and access controls supported.
12	The system should produce report cards for students, including grades, comments, and integration with student portals.	Yes	Auto-generated report cards with customizable templates and portal access.
13	The system should issue certificates for academic achievements and extracurricular activities, including integration with digital credentialing systems.	Yes	Secure digital and physical certificate issuance supported with credential APIs.
14	The system should authenticate certificates to prevent fraud, including integration with verification services.	Yes	Blockchain-based and QR code verification system implemented for certificates.
15	The system should provide a secure login for students, faculty, and administrators, including multi-factor authentication.	Yes	Role-based secure login with MFA and session timeout controls.
16	The system should offer a mobile-friendly interface for access on smartphones and tablets.	Yes	Fully responsive interface and dedicated mobile app for Android/iOS.
17	The system should support notifications and alerts for important academic events and deadlines.	Yes	Multi-channel (SMS, email, in-app) alerts and reminders configured.

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18	The system should include a dashboard for administrators to monitor system performance and usage statistics.	Yes	Real-time admin dashboard with performance metrics and user stats.
19	The system should support data export and import functionalities for integration with external systems.	Yes	Excel, CSV, and API-based import/export functionalities supported.
20	The system should ensure data privacy and compliance with relevant regulations (e.g., GDPR).	Yes	Compliant with GDPR and national data protection laws; includes audit logs and access control.
21	The system should provide backup and recovery options to prevent data loss.	Yes	Automated daily backups with multi-location redundancy and disaster recovery protocols.
22	The system should offer customization options to tailor features to specific institutional needs.	Yes	Modular and configurable platform with institution-specific customization capabilities.
23	The system should support communication tools for messaging between students, faculty, and administrators.	Yes	Built-in messaging and chat tools with notification integration.
24	The system should include analytics tools to track and report on academic performance and trends.	Yes	Comprehensive analytics suite for performance monitoring and trend forecasting.
25	The system should support online payment processing for tuition and other fees.	Yes	Secure payment gateway integration with online fee collection dashboard.
26	The system should integrate with human resource management systems for faculty and staff management.	Yes	HRMS integration for end-to-end staff lifecycle management.
27	The system should provide tools for managing extracurricular activities and events.	Yes	Event and activity scheduler with participation tracking features.
28	The system should support integration with virtual classroom platforms for remote learning.	Yes	Zoom, Google Meet, MS Teams integrations available for virtual learning.
29	The system should include a helpdesk or support module for technical assistance.	Yes	24/7 helpdesk module with ticketing system and support escalation matrix.

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30	The system should offer multilingual support to cater to diverse user groups.	Yes	Interface and content available in multiple regional and international languages.
Financials			
1	The system should manage fee structures, including tuition fees, miscellaneous charges, and integration with financial management systems	Yes	Configurable fee structure module with integration to ERP/Finance systems.
2	The system should generate invoices for fees and other charges, track payments, and support integration with payment gateways	Yes	Auto-invoice generation, payment tracking, and real-time payment gateway sync.
3	The system should manage scholarships and bursaries, including application processes, award decisions, and integration with financial aid systems	Yes	Scholarship/bursary workflows supported from application to award stage.
4	The system should track scholarship and bursary disbursements, ensuring integration with student accounts	Yes	Seamless linking of disbursements to student ledgers with status tracking.
5	The system should handle invoicing for tuition and other charges, including seamless integration with financial management systems	Yes	Invoicing engine with GL-code-based accounting and auto-reconciliation.
6	The system should generate receipts for payments received, with integration into student portals for easy access	Yes	Instant receipt generation with student portal and email notifications.
7	The system should manage financial accounts, including tracking income and expenses, and integration with accounting systems	Yes	Ledger-based accounting module with income-expense tracking and analytics.
8	The system should generate financial reports for administrative review, with integration into financial analytics systems	Yes	Financial reporting dashboard with export and drill-down capabilities.
9	The system should manage capitation funds, including allocation, tracking, and integration with financial management systems	Yes	KCB shall provide capitation module with fund allocation and utilization reporting features.

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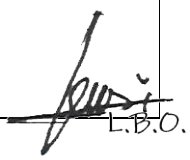
10	The system should generate detailed reports on capitation fund usage, including integration with regulatory reporting systems	Yes	KCB shall provide capitation utilization reports aligned with audit and compliance formats.
11	The system should manage digital wallets for students and staff, including integration with payment gateways	Yes	KCB will provide Digital wallet module supports balance management and payment gateway integration.
12	The system should track digital wallet transactions and balances, ensuring integration with student and staff portals	Yes	KCB will ensure all wallet transactions are recorded with portal view and downloadable statements.
13	The system should integrate with bank accounts for financial transactions, including reconciliation with system records	Yes	KCB shall support direct bank integration with automated reconciliation and alerts.
14	The system should support multi-currency transactions and generate bank reconciliation reports	Yes	KCB shall provide Multi-currency support and reconciliation reports available via finance dashboard.
15	The system should manage purchases and expenditures with vendors and suppliers, including integration with procurement systems	Yes	Procurement and vendor management modules with finance linkage available.
16	The system should track purchase orders, payments, and generate expenditure reports	Yes	PO lifecycle tracking with real-time expenditure analytics and reports.
17	The system should track other revenue sources, such as donations and grants, including integration with fundraising systems	Yes	Donor/grant tracking supported with receipts, donor records, and impact reporting.
18	The system should generate reports on other revenues, ensuring integration with financial analytics systems	Yes	Real-time revenue dashboards and reporting tools integrated with financial BI.
19	The system should manage payroll for non-teaching staff, including salary calculations, disbursements, and integration with HR systems	Yes	Payroll management engine includes salary processing and HRMS integration.

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20	The system should generate payroll reports, track payroll expenses, and support compliance with labor regulations	Yes	Statutory-compliant payroll reports and monthly/yearly expense tracking supported.
21	The system should support budgeting and forecasting, including the creation of budget plans and tracking actuals against budgets	Yes	Budgeting and forecasting module includes variance analysis and multi-year planning.
22	The system should provide audit trails for all financial transactions to ensure transparency and accountability	Yes	Every transaction logged with timestamp, user ID, and system action for audit readiness.
23	The system should support compliance with local and international financial regulations and standards	Yes	KCB shall ensure the system complies with IFRS, GAAP, and local financial policies with compliance alerts.
24	The system should offer user role management to control access to financial data based on user roles and permissions	Yes	Role-based access control (RBAC) ensures financial data visibility by authorization.
25	The system should include a robust data backup and recovery mechanism to protect against data loss	Yes	Financial data backed up daily with full recovery support and high-availability architecture.
26	The system should provide real-time financial dashboards for quick insights into financial health and performance	Yes	Live dashboards display income, expenditure, fund utilization, and liquidity metrics.
27	The system should support integration with learning management systems (LMS) to streamline financial processes related to course enrolments and fees	Yes	LMS integration ensures automated fee tracking and payment tagging per enrollment.
28	The system should offer mobile access to allow users to manage financial tasks on-the-go	Yes	Mobile-optimized financial modules allow payments, approvals, and report viewing.
29	The system should include tools for managing fixed assets, including tracking asset depreciation and maintenance schedules	Yes	Asset lifecycle management tool with depreciation methods and service schedules.
30	The system should support integration with government funding and grant management systems to streamline the application and reporting processes	Yes	Built-in interfaces for government portals, including grant submission and compliance reporting.

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eLearning			
1	The system should provide infrastructure support for eLearning in marginalized areas, including offline access and low-bandwidth optimization	Yes	eLearning optimized for offline access with caching and low-bandwidth support.
2	The system should ensure reliable access to eLearning resources, including integration with LMS and content delivery networks	Yes	LMS integration and CDN-backed resource delivery ensure high availability.
3	The system should manage and deliver educational content, including multimedia resources and integration with digital libraries	Yes	Content library supports video, PDF, SCORM, and integration with digital repositories.
4	The system should support content updates, revisions, and integration with content management systems	Yes	Version-controlled content updates and CMS APIs available.
5	The system should support extra-curricular activities, including clubs, societies, and integration with student engagement platforms	Yes	Modules for clubs and societies with tracking and communication tools.
6	The system should track participation in extra-curricular activities, including integration with student portals	Yes	Participation data logged in student profiles and displayed on dashboards.
7	The system should manage sports, music, and drama activities, including scheduling, participation, and integration with event management systems	Yes	Built-in tools for managing co-curricular events and scheduling.
8	The system should track achievements in sports, music, and drama, including integration with student records	Yes	Student record integration captures and displays achievement milestones.
9	The system should manage university events, including planning, scheduling, and integration with event management systems	Yes	University-wide event calendar with registration, planning, and reporting tools.
10	The system should track event participation, generate event reports, and	Yes	Auto-report generation for event participation with analytics integration.



	integrate with student engagement platforms		
11	The system should support mobile access to allow users to manage eLearning tasks on-the-go	Yes	Mobile app and responsive web interface available for complete eLearning access.
12	The system should provide real-time dashboards for monitoring eLearning activities and performance	Yes	Live dashboards track content engagement, learner progress, and completion metrics.
13	The system should offer user role management to control access to eLearning resources based on user roles and permissions	Yes	RBAC-based access to courses, materials, and assessments by user group.
14	The system should include a robust data backup and recovery mechanism to protect against data loss	Yes	Daily backups and redundancy in cloud-based LMS ensure eLearning continuity.
15	The system should support integration with government education systems for reporting and compliance	Yes	APIs and data export options for government compliance reporting supported.
16	The system should provide tools for managing student assessments, including quizzes, exams, and grading	Yes	Comprehensive assessment engine with auto-marking, grading, and manual review options.
17	The system should support integration with virtual classroom tools for live teaching sessions	Yes	Compatible with Zoom, Google Meet, MS Teams for real-time sessions.
18	The system should offer analytics and reporting tools to track student progress and performance	Yes	Detailed progress reports, activity logs, and performance dashboards available.
19	The system should support multi-language content to cater to diverse student populations	Yes	Multi-language content support with localization capabilities for UI and material.
20	The system should include features for student feedback and surveys to improve the learning experience	Yes	Feedback forms, course surveys, and satisfaction tools integrated within the LMS.
ERP			
1	The system shall manage TVET assets, including inventory, maintenance, and	Yes	Centralized asset management with inventory control and maintenance tracking supported.

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	integration with asset management systems		
2	The system shall track asset usage, generate asset reports, and ensure compliance with regulatory requirements	Yes	Usage logs, depreciation tracking, and compliance-aligned reports available.
3	The system shall manage human resources, including staff records, performance evaluations, and integration with HR systems	Yes	End-to-end HR management including onboarding, appraisal, and HRMS integration.
4	The system shall support recruitment and onboarding processes, including integration with applicant tracking systems	Yes	Recruitment module with applicant pipeline tracking and onboarding workflows.
5	The system shall manage stores and inventory, including stock levels, reordering, and integration with procurement systems	Yes	Real-time inventory tracking, automated reordering, and procurement system integration.
6	The system shall track inventory usage, generate inventory reports, and ensure compliance with regulatory requirements	Yes	Inventory logs with consumption, expiry, and regulatory compliance reports.
7	The system shall manage student and staff accommodation, including room assignments, maintenance, and integration with housing management systems	Yes	Accommodation assignment engine with maintenance logs and housing policy rules.
8	The system shall track accommodation usage, generate accommodation reports, and ensure compliance with housing regulations	Yes	Reports on occupancy, usage, and housing standards compliance built-in.
9	The system shall provide real-time dashboards for monitoring asset and inventory status	Yes	Visual dashboards for asset lifecycle, usage statistics, and inventory health.
10	The system shall offer user role management to control access to ERP resources based on user roles and permissions	Yes	Fine-grained role and permission matrix with audit tracking across ERP modules.
11	The system shall include a robust data backup and recovery mechanism to protect against data loss	Yes	Full-system and modular backups with automated restore points and DR readiness.

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12	The system shall support mobile access to allow users to manage ERP tasks on-the-go	Yes	Mobile ERP interface and app available for key functions like approvals and reporting.
13	The system shall provide audit trails for all transactions to ensure transparency and accountability	Yes	Tamper-proof logs with timestamp, user activity tracking, and audit export features.
14	The system shall ensure compliance with local and international regulations and standards	Yes	Compliant with ISO/IEC 27001, GDPR, and local regulatory frameworks.
15	The system shall integrate with financial management systems for seamless financial operations	Yes	ERP–Finance module integration ensures real-time syncing of accounts and transactions.
16	The system shall support budgeting and forecasting, including the creation of budget plans and tracking actuals against budgets	Yes	Built-in budgeting tool with forecast comparison, approval workflow, and alerts.
17	The system shall manage payroll for staff, including salary calculations, disbursements, and integration with HR systems	Yes	Payroll engine calculates earnings, deductions, and interfaces with HRMS and banks.
18	The system shall generate payroll reports, track payroll expenses, and ensure compliance with labor regulations	Yes	Compliant payroll reporting, payslip generation, and labor law integration provided.
19	The system shall support integration with government education systems for reporting and compliance	Yes	Seamless exchange of academic, financial, and HR data with government portals.
20	The system shall offer analytics and reporting tools to track performance and generate insights	Yes	ERP analytics module delivers actionable insights across HR, finance, and operations.
21	The system shall support integration with government funding and grant management systems to streamline the application and reporting processes	Yes	APIs and report templates available for grant application, disbursement, and compliance.
22	The system shall include features for student feedback and surveys to improve the learning experience	Yes	Built-in survey builder with analytics and real-time feedback dashboard.

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23	The system shall support multi-language content to cater to diverse student populations	Yes	Multilingual interface and localized content support available.
24	The system shall provide tools for managing student assessments, including quizzes, exams, and grading	Yes	Assessment engine includes question banks, quiz/exam builder, and grading rubrics.

High Education - EFMIS

S No	Technical Requirement	Compliance (Y/N)	Bidder Response
Student Management			
1	The system should manage the entire student admissions process, including application submission, review, acceptance, and enrolment.	Yes	Fully automated admission lifecycle with online forms, workflow, and enrolment dashboard.
2	The system should allow for the tracking of admission status, communication with applicants, and integration with external application systems.	Yes	Admission tracker with email/SMS updates and API for third-party systems.
3	The system should handle student transfers between departments, faculties, and other institutions, including the transfer of academic records and credits.	Yes	Transfer management module with academic credit portability and approval workflow.
4	The system should support the approval process for student transfers and maintain a history of transfers.	Yes	Transfer logs with approval stages and audit history retained.
5	The system should generate unique identification numbers for each student and manage student identification cards, including issuance and renewal.	Yes	Auto-generated student IDs linked to card printing and renewal process.
6	The system should integrate with national identification systems for verification purposes.	Yes	API-based integration with national ID systems for student identity validation.

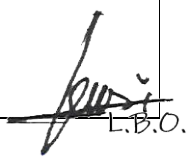
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7	The system should support biometric identification for students, such as fingerprint, facial recognition, and iris scanning.	Yes	Biometric module supports multiple modalities for student verification.
8	The system should securely store and manage biometric data, ensuring compliance with data protection regulations.	Yes	Encrypted storage with access controls and compliance with privacy norms.
9	The system should track student attendance, including daily check-ins and check-outs, and support integration with classroom management systems.	Yes	Real-time attendance logging with integration to academic timetables.
10	The system should generate detailed attendance reports for administrative, parental, and regulatory review.	Yes	Multi-level attendance reports viewable by faculty, admin, and guardians.
11	The system should provide an electronic diary for students to track assignments, events, and deadlines.	Yes	eDiary available via student portal and mobile app.
12	The system should manage a noticeboard for university announcements, events, and disciplinary records.	Yes	Digital noticeboard module with role-based announcement control.
Faculty			
13	The system should manage faculty identification, including issuance of ID cards and integration with national identification systems.	Yes	Faculty ID issuance linked with national ID verification system.
14	The system should support biometric identification for faculty members, including fingerprint, facial recognition, and iris scanning.	Yes	Biometric attendance and authentication system available for faculty.
15	The system should manage information for non-teaching staff, including personal details, job roles, and integration with HR systems.	Yes	HRMS-integrated staff record management module.

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16	The system should track attendance and leave for non-teaching staff, including integration with payroll systems.	Yes	Leave and attendance sync with payroll for non-teaching staff.
17	The system should track faculty attendance, including daily check-ins and check-outs, and support integration with classroom management systems.	Yes	Faculty attendance integrated with timetable and lecture logs.
18	The system should generate detailed attendance reports for administrative review and regulatory compliance.	Yes	Reports aligned with university and regulator formats.
19	The system should manage leave requests and approvals for all staff, including integration with HR and payroll systems.	Yes	Workflow-enabled leave module integrated with HR/payroll systems.
20	The system should track leave balances, generate leave reports, and support compliance with labor regulations.	Yes	Real-time leave balance display and rule-based compliance tracking.
Academics			
21	The system should manage class schedules, including room assignments, teacher allocations, and integration with timetabling systems.	Yes	Timetable management with drag-and-drop scheduling and conflict checks.
22	The system should track student enrollment in classes, generate class rosters, and support integration with learning management systems (LMS).	Yes	LMS-integrated class roster with enrollment tracking and dashboard.
23	The system should manage library resources, including book checkouts, returns, and integration with digital library systems.	Yes	Library module with barcode/RFID support and digital catalog integration.
24	The system should track overdue books, generate library usage reports, and support integration with academic databases.	Yes	Alerts for overdue books and analytics dashboard for usage trends.

25	The system should manage course offerings, including course descriptions, prerequisites, and integration with curriculum management systems.	Yes	Course catalog with academic hierarchy and program dependencies.
26	The system should generate and manage timetables for students and faculty, including integration with scheduling systems.	Yes	Timetables auto-generated and sync with calendars and room bookings.
27	The system should manage curriculum details, including course content, learning objectives, and integration with accreditation bodies.	Yes	Curriculum repository with exportable formats for accreditation use.
28	The system should support updates and revisions to the curriculum, including version control and historical records.	Yes	Version-controlled curriculum management with audit trails.
29	The system should manage student assessments, including exam scheduling, grading, and integration with LMS.	Yes	Assessment engine with LMS sync for auto-graded and manual exams.
30	The system should generate assessment reports, track student performance, and support integration with academic analytics systems.	Yes	Dashboards show assessment KPIs and performance trends.
31	The system should generate gradebooks for faculty to record student grades, including integration with LMS.	Yes	Gradebook tied to LMS submissions with export/import capabilities.
32	The system should produce report cards for students, including grades, comments, and integration with student portals.	Yes	Auto-generated report cards accessible on student dashboard.
33	The system should issue certificates for academic achievements and extracurricular activities, including integration with digital credentialing systems.	Yes	Certificate generation with QR codes and digital credentialing APIs.



34	The system should authenticate certificates to prevent fraud, including integration with verification services.	Yes	Blockchain-ready digital verification for secure credential validation.
Financials			
35	The system should manage fee structures, including tuition, other charges, and integration with financial management systems.	Yes	Flexible fee module with term-wise breakdown and finance integration.
36	The system should generate invoices, track payments, and support integration with payment gateways.	Yes	Real-time invoicing with multiple payment gateway support.
37	The system should manage scholarships and bursaries, including application, award processes, and integration with financial aid systems.	Yes	Scholarship lifecycle managed with rules-based eligibility engine.
38	The system should track scholarship and bursary disbursements, including integration with student accounts.	Yes	Auto-posting of disbursements to student financial ledgers.
39	The system should handle invoicing for fees and other charges, including integration with financial management systems.	Yes	All charges invoiced and synced with accounting system.
40	The system should generate receipts for payments received, including integration with student portals.	Yes	Receipts available for download from portal and sent by email/SMS.
41	The system should manage financial accounts, including income, expenses, and integration with accounting systems.	Yes	General ledger with real-time income/expense tracking and ERP integration.
42	The system should generate financial reports for administrative review, including integration with financial analytics systems.	Yes	MIS, trial balance, P&L, and customizable financial dashboards available.
43	The system should manage capitation funds, including allocation, tracking, and integration with financial management systems.	Yes	KCB shall provide fund allocation workflows with real-time tracking and audit logs.

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44	The system should generate reports on capitation fund usage, including integration with regulatory reporting systems.	Yes	KCB shall provide regulatory reports auto-generated with fund utilization summary.
45	The system should manage digital wallets for students and staff, including integration with payment gateways.	Yes	KCB will provide eWallets for campus transactions, linked to bank/payment gateways.
46	The system should track wallet transactions and balances, including integration with student and staff portals.	Yes	KCB will provide wallet usage analytics with top-ups, refunds, and balance view.
47	The system should integrate with bank accounts for financial transactions, including reconciliation with system records.	Yes	KCB shall provide Bank reconciliation module with daily sync and discrepancy alerts.
48	The system should support multi-currency transactions and generate bank reconciliation reports.	Yes	KCB shall provide Multi-currency ledger support and FX gain/loss tracking included.
49	The system should manage purchases and expenditures with vendors and suppliers, including integration with procurement systems.	Yes	Purchase and vendor management integrated with eProcurement.
50	The system should track purchase orders, payments, and generate expenditure reports.	Yes	PO lifecycle with real-time expense reports and approvals.
51	The system should track other revenue sources, such as donations, grants, and integration with fundraising systems.	Yes	Donations and grants linked with dedicated accounting streams.
52	The system should generate reports on other revenues, including integration with financial analytics systems.	Yes	Revenue classification and graphical analytics available.
53	The system should manage payroll for non-teaching staff, including salary calculations, disbursements, and integration with HR systems.	Yes	Payroll module includes attendance-based salary computation and disbursement.

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54	The system should generate payroll reports, track payroll expenses, and support compliance with labor regulations.	Yes	Payroll summary, statutory deductions, and compliance reports provided.
eLearning			
55	The system should provide infrastructure support for eLearning in marginalized areas, including offline access and low-bandwidth optimization.	Yes	Lightweight content delivery and offline-first mobile app available.
56	The system should ensure reliable access to eLearning resources, including integration with LMS and content delivery networks.	Yes	CDN-integrated content with 99.9% uptime SLA for eLearning.
57	The system should manage and deliver educational content, including multimedia resources and integration with digital libraries.	Yes	SCORM/AICC-compatible content player and content repository.
58	The system should support content updates, revisions, and integration with content management systems.	Yes	Content versioning with CMS and instructor-level permissions.
59	The system should support extra-curricular activities, including clubs, societies, and integration with student engagement platforms.	Yes	Student activity module tracks memberships, events, and milestones.
60	The system should track participation in extra-curricular activities, including integration with student portals.	Yes	Participation data visible on student dashboard and reports.
61	The system should manage sports, music, and drama activities, including scheduling, participation, and integration with event management systems.	Yes	Co-curricular module with activity scheduling and event integration.
62	The system should track achievements in sports, music, and drama, including integration with student records.	Yes	Achievements recorded and linked with student profile and certificates.

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63	The system should manage university events, including planning, scheduling, and integration with event management systems.	Yes	Event management module includes calendar view and participant tracking.
64	The system should track event participation, generate event reports, and integrate with student engagement platforms.	Yes	Attendance and feedback captured; reports synced with student dashboard.
ERP			
65	The system should manage university assets, including inventory, maintenance, and integration with asset management systems.	Yes	Asset tracking system with lifecycle management and barcode tagging.
66	The system should track asset usage, generate asset reports, and support compliance with regulatory requirements.	Yes	Usage logs, audit trails, and regulatory reporting tools included.
67	The system should manage human resources, including staff records, performance evaluations, and integration with HR systems.	Yes	HRMS with staff KPIs, digital files, and appraisal workflows.
68	The system should support recruitment, onboarding processes, and integration with applicant tracking systems.	Yes	Recruitment pipeline with ATS integration and digital onboarding.
69	The system should manage stores and inventory, including stock levels, reordering, and integration with procurement systems.	Yes	Inventory module with real-time stock visibility and reorder alerts.
70	The system should track inventory usage, generate inventory reports, and support compliance with regulatory requirements.	Yes	Track consumption, expiry, stock valuation, and compliance-ready reports.
71	The system should manage student and staff accommodation, including room assignments, maintenance, and integration with housing management systems.	Yes	Hostel and staff quarters module with maintenance and capacity tracking.

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72	The system should track accommodation usage, generate accommodation reports, and support compliance with housing regulations.	Yes	Reports include occupancy rates, allocation history, and rule checks.
Transport			
73	The system should manage the university fleet, including vehicle maintenance, scheduling, and integration with fleet management systems.	Yes	Fleet maintenance and driver scheduling integrated with GPS systems.
74	The system should track fleet usage, generate fleet reports, and support compliance with transport regulations.	Yes	Trip history, fuel logs, and inspection reports generated periodically.
75	The system should manage transport routes, including route planning, optimization, and integration with GPS tracking systems.	Yes	GIS-based route optimization and real-time vehicle tracking.
76	The system should track route usage, generate route reports, and support compliance with transport regulations.	Yes	Daily usage reports with alerts on deviation or overuse.
77	The system should ensure transport safety, including driver management, vehicle inspections, and integration with safety management systems.	Yes	Driver logs, service schedules, and safety checklists maintained.
78	The system should track transport incidents, generate safety reports, and support compliance with safety regulations.	Yes	Incident reporting tool integrated with corrective action workflow.

Teachers Web and Mobile Applications

S No.	Technical Requirement	Compliance (Y/N)	Bidder Response
Teacher Mobile Application			
1	The application should allow teachers to create, update, and manage class schedules.	Yes	The app provides intuitive scheduling tools with real-time sync to institutional timetables.

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2	The application should enable teachers to assign and track classroom activities and assignments.	Yes	Teachers can assign tasks, set deadlines, and track submissions from the app.
3	The application should allow teachers to record and track student attendance.	Yes	Attendance can be marked digitally and synced with the central attendance system.
4	The application should generate attendance reports and notify parents of absences.	Yes	Automated attendance reports and absence alerts via SMS/email to parents.
5	The application should enable teachers to create, administer, and grade assessments.	Yes	Built-in tools for creating quizzes, uploading answer sheets, and grading.
6	The application should provide tools for analyzing assessment results and tracking student progress.	Yes	Graphical dashboards and performance analytics are available per student/class.
7	The application should allow teachers to record and manage student grades.	Yes	Grade entry forms with subject-wise breakdown and historical records.
8	The application should generate grade reports and provide insights into student performance.	Yes	Automated report cards with charts and subject-level summaries.
9	The application should provide an electronic diary for teachers to record notes and observations.	Yes	Digital diary with privacy options and filters by class or student.
10	The application should manage disciplinary records and communicate incidents to parents.	Yes	Disciplinary tracking module with escalation and communication templates.
Mobile Apps Non Functional Specifications			
1	The application should be optimized for performance, ensuring smooth and fast operation.	Yes	Optimized using native frameworks and lightweight components.
2	The application should minimize battery consumption and data usage.	Yes	Background processes and data sync are optimized to conserve resources.

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3	The application should be able to handle a large number of users simultaneously without degradation in performance.	Yes	Scalable architecture with load balancing to handle concurrent usage.
4	The application should support future growth and expansion.	Yes	Modular design to allow easy integration of new features.
5	The application should implement robust security measures, including encryption of sensitive data.	Yes	End-to-end encryption, SSL, and secure local storage are implemented.
6	The application should support secure authentication methods (e.g., biometrics, two-factor authentication).	Yes	Login via fingerprint, OTP, or multi-factor authentication supported.
7	The application should be reliable and available 99.9% of the time.	Yes	Hosted on high-availability cloud infrastructure with monitoring.
8	The application should have mechanisms for error handling and recovery.	Yes	Built-in error logs, retry mechanisms, and fallback procedures.
9	The application should have a responsive and user-friendly interface.	Yes	UI/UX is aligned with usability standards and responsive across devices.
10	The application should adhere to platform-specific design guidelines (Material Design for Android, Human Interface Guidelines for iOS).	Yes	Fully compliant with Android and iOS native design principles.
11	The application should be accessible to users with disabilities, adhering to accessibility standards.	Yes	WCAG compliance with screen reader and color contrast support.
12	The application should support multiple languages and localization.	Yes	Multi-language toggle and region-based content supported.
13	The application should be easy to maintain and update.	Yes	CI/CD pipelines and modular code enable seamless updates.
14	The application should have clear documentation for developers and users.	Yes	User manuals, API documentation, and training materials provided.
15	The application should be compatible with both Android and iOS platforms.	Yes	Developed in cross-platform or native Android/iOS frameworks.

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16	The application should support the latest versions of Android and iOS operating systems.	Yes	Regular updates ensure compatibility with new OS versions.
17	The application should integrate seamlessly with backend systems and third-party APIs.	Yes	RESTful API integrations and webhook support included.
18	The application should support real-time data updates and offline access.	Yes	Sync engine ensures real-time updates and local caching for offline mode.
19	The application should undergo rigorous testing to ensure functionality and performance.	Yes	QA processes include manual, automated, and load testing.
20	The application should include automated testing for regression and unit tests.	Yes	Automated test cases cover UI, backend, and integration scenarios.

Parents/Students/Alumni Web and Mobile Applications

S No.	Technical Requirement	Compliance (Y/N)	Bidder Response
1	The application should allow parents and students to manage digital wallets, including adding funds and tracking transactions.	Yes	Wallet module integrated with secure fund transfer and transaction history.
2	The application should support integration with payment gateways for secure transactions.	Yes	Multiple gateway support (Razor pay, PayU, etc.) with SSL and PCI-DSS compliance.
3	The application should allow parents and students to view attendance records.	Yes	Real-time attendance visibility via mobile dashboard.
4	The application should notify parents of student absences and tardiness.	Yes	Auto-triggered SMS/notifications for absences or delays.
5	The application should provide access to assessment results and feedback.	Yes	Assessment module with individual scores, answers, and faculty feedback.
6	The application should enable students to track their progress and identify areas for improvement.	Yes	Graph-based progress tracking with subject-wise breakdown.
7	The application should allow parents and students to view grades and academic performance.	Yes	Secure grade view with semester and year filters.

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8	The application should generate grade reports and provide insights into student performance.	Yes	Auto-generated grade sheets with summary, average, and rank.
9	The application should provide an electronic diary for students to track assignments and events.	Yes	Personal digital planner with assignment alerts and academic calendar.
10	The application should manage disciplinary records and communicate incidents to parents.	Yes	Disciplinary log accessible by parents; alerts sent upon incident update.
Mobile Apps Non Functional Specifications			
1	The application should be optimized for performance, ensuring smooth and fast operation.	Yes	Performance-optimized app with lightweight assets and lazy loading.
2	The application should minimize battery consumption and data usage.	Yes	Efficient background sync with battery and bandwidth usage optimization.
3	The application should be able to handle a large number of users simultaneously without degradation in performance.	Yes	Scalable backend on cloud with auto-load balancing support.
4	The application should support future growth and expansion.	Yes	Modular architecture to accommodate additional features and integrations.
5	The application should implement robust security measures, including encryption of sensitive data.	Yes	End-to-end encryption (AES 256), secure APIs, and token-based access.
6	The application should support secure authentication methods (e.g., biometrics, two-factor authentication).	Yes	Biometric login and 2FA using email/SMS OTPs.
7	The application should be reliable and available 99.9% of the time.	Yes	Deployed with high-availability configurations and monitoring tools.
8	The application should have mechanisms for error handling and recovery.	Yes	Global error handler with crash reporting and auto-recovery processes.
9	The application should have a responsive and user-friendly interface.	Yes	Designed with responsive UI libraries and intuitive navigation.

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10	The application should adhere to platform-specific design guidelines (Material Design for Android, Human Interface Guidelines for iOS).	Yes	Separate UI layers built adhering to Material and Apple design standards.
11	The application should be accessible to users with disabilities, adhering to accessibility standards.	Yes	Accessibility features include screen reader compatibility and alt-texts.
12	The application should support multiple languages and localization.	Yes	Language toggle and RTL support for global accessibility.
13	The application should be easy to maintain and update.	Yes	Git-based version control with CI/CD pipelines for seamless updates.
14	The application should have clear documentation for developers and users.	Yes	Comprehensive user manual, API guides, and help videos available.
15	The application should be compatible with both Android and iOS platforms.	Yes	Developed using React Native/Flutter for cross-platform deployment.
16	The application should support the latest versions of Android and iOS operating systems.	Yes	Regular OS compatibility testing during version upgrades.
17	The application should integrate seamlessly with backend systems and third-party APIs.	Yes	REST and GraphQL APIs supported for flexible integration.
18	The application should support real-time data updates and offline access.	Yes	Data caching and offline forms with auto-sync capability.
19	The application should undergo rigorous testing to ensure functionality and performance.	Yes	Includes functional, load, UAT, and device-level testing.
20	The application should include automated testing for regression and unit tests.	Yes	Automated testing with tools like Appium, Jest, and Selenium integrated.

Kenya Education & Financial Management Information System (KEMIS) Core

KEMIS for Early Childhood Education

S No.	Functional Requirement	Compliance (Y/N)	Bidder Response
Core ECDE Data Management			

1	The bidder shall provide a system to capture and manage data specific to ECDE centers, including registration details, location, and infrastructure.	Yes	A centralized ECDE-MIS platform with location mapping and infrastructure profiling is provided.
2	The bidder shall provide functionality to record and manage data on ECDE learners, including enrollment details, age, gender, and any special needs.	Yes	Learner profiles include demographic data, special needs tagging, and enrollment status.
3	The bidder shall enable the recording and management of ECDE educator information, including qualifications, training, and professional development.	Yes	The system maintains educator records with training history and certification uploads.
4	The bidder shall provide tools to manage data on ECDE learning programs, curriculum implementation, and learning outcomes.	Yes	Curriculum and program modules aligned with ECDE frameworks are available for monitoring.
5	The bidder shall facilitate the tracking of learner attendance and participation in ECDE programs.	Yes	Attendance module with real-time tracking and reporting across ECDE centers.
Learner Assessment and Development			
1	The bidder shall provide functionality to record and track learner development assessments, including developmental milestones and learning progress.	Yes	Developmental checklists and milestones tracking integrated for each learner.
2	The bidder shall enable the generation of reports on learner progress and developmental outcomes, tailored for ECDE.	Yes	Learner progress dashboards with printable and exportable formats are included.
3	The bidder shall support the capture of data related to learner transitions from ECDE to primary education.	Yes	Transition module records readiness assessments and primary school enrollment mapping.
ECDE Center Management			
1	The bidder shall provide tools for managing ECDE center resources,	Yes	Inventory and asset tracking module with resource allocation records.

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	including learning materials, equipment, and facilities.		
2	The bidder shall support the management of ECDE center finances, including capitation and other funding sources.	Yes	Capitation disbursement tracking and finance reports built into the system.
3	The bidder shall facilitate communication between ECDE centers, parents, and relevant education authorities.	Yes	In-app messaging, SMS, and notification center for center-parent-authority communication.
Reporting and Analytics			
1	The bidder shall generate reports on key ECDE indicators, including enrollment rates, learner demographics, and educator qualifications.	Yes	Pre-configured reports and ad hoc report builder for indicator tracking.
2	The bidder shall provide data visualization tools to support analysis of ECDE data and inform decision-making.	Yes	Interactive dashboards with filters for real-time analysis.
3	The bidder shall enable the generation of reports required by the Ministry of Education and other stakeholders for monitoring and evaluation of ECDE programs.	Yes	Compliant report templates aligned with MoE reporting formats provided.
System Integration and Interoperability			
1	The bidder shall ensure the ECDE-MIS can integrate with other Systems	Yes	Supports API-based integration with EMIS, HRMIS, and financial systems.
2	The bidder shall provide for data sharing and interoperability with other relevant education systems and databases.	Yes	Data exchange protocols including JSON/XML supported with external systems.
Technology and Infrastructure			
1	The bidder shall analyze necessary hardware and software requirements, including cloud services, and	Yes	Cloud-based deployment (AWS/Azure), optimized for performance and cost.

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	recommend a stable hosting environment for the ECDE-MIS.		
2	The bidder shall design the system to be accessible on various devices, including mobile phones, to support data capture in diverse environments.	Yes	Mobile-responsive design with Android compatibility and offline sync support.
Security and Access Control			
1	The bidder shall incorporate appropriate security arrangements (e.g., data backup and security, access levels, viruses, etc.) to protect ECDE data.	Yes	End-to-end encryption, role-based access, antivirus scanning, and cloud backups implemented.
2	The bidder shall provide a method of regulating access to information resources based on the roles of individual users within the system.	Yes	Role-Based Access Control (RBAC) with configurable permissions by user type.
Implementation and Training			
1	The bidder shall conduct training for ECDE stakeholders, including educators, administrators, and education officials, on the use of the ECDE-MIS.	Yes	On-site and virtual training workshops with multilingual support and training manuals.
Documentation			
1	The bidder shall provide a user manual for the ECDE-MIS.	Yes	Comprehensive user manual in digital and print formats provided.
2	The bidder shall provide a system administration and maintenance manual.	Yes	System administration guide with troubleshooting and maintenance procedures shared.

KEMIS for Basic Education

S No.	Functional Requirement	Compliance (Y/N)	Bidder Response
System Objectives and Core Functionality			
1	The bidder shall provide a system that automates all services and administrative	Yes	Compliant. The proposed EMIS system automates all

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	functions and through its adoption become the single source of truth.		administrative functions and ensures a single source of truth.
2	The bidder must ensure the system provides quality data that is reliable, relevant, and easily accessible.	Yes	Compliant. The system ensures high-quality, accurate, and accessible data.
3	The bidder shall ensure the system promotes cost-effectiveness, efficiency, and seamless integration of all Education Management Data.	Yes	Compliant. The system architecture is designed to promote efficiency, cost-effectiveness, and seamless integration.
4	The bidder must ensure the system enhances governance and accountability.	Yes	Compliant. System modules are built to enhance transparency and accountability in education governance.
5	The bidder must ensure the system facilitates evidence-based decision-making and monitoring and evaluation.	Yes	Compliant. The platform includes dashboards and analytics tools to support data-driven decision-making and M&E.
6	The bidder shall ensure the system enables the Ministry of Education to efficiently and transparently allocate resources to learners.	Yes	Compliant. The EMIS enables planning and transparent allocation of educational resources.
7	The bidder shall provide disaggregated student-level data on educational expenditures.	Yes	Compliant. The system captures and reports disaggregated expenditure data at the student level.
8	The bidder shall provide data for monitoring and evaluation.	Yes	Compliant. Monitoring and evaluation dashboards and customizable reports are included.
Curriculum and Content Management			
1	The bidder shall provide a system that enhances curriculum delivery by integrating ICT and digital tools to foster creativity and relevance.	Yes	Compliant. Integrated ICT tools support dynamic, interactive curriculum delivery.

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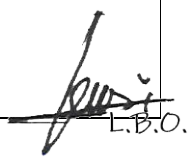
2	The bidder shall provide a system that facilitates the digitization, sharing, and utilization of educational content. This system shall leverage the Education Cloud to ensure effective distribution and access, especially in remote areas with infrastructure and teacher limitations	Yes	Compliant. The EMIS includes cloud-based content management, ensuring access in underserved areas.
User Access and System Integration			
1	The bidder shall support education officers in using ICT in government transactions, including the use of e-mail and access to shared services.	Yes	Compliant. System access and ICT adoption are supported with necessary integrations and user management.
2	The bidder shall ensure the system integrates with the Social Health Authority database used to administer Universal Health Coverage for Learners in all Public Secondary Schools.	Yes	Compliant. The system includes APIs for integration with the SHA database.
3	The bidder shall ensure the system integrates with Form One Selection (secondary schools placement) calling letters.	Yes	Compliant. Integration with Form One Selection modules is included in the design.
4	The bidder shall ensure the system integrates with the Kenya National Exams Council Assessment module	Yes	Compliant. Integration with KNEC is supported through secure APIs.
5	The bidder shall ensure the system integrates with the Ministry of Health for deworming through DHIS.	Yes	Compliant. The EMIS can connect with DHIS for deworming program data exchange.
6	The bidder shall ensure the system integrates with NACONEK for daily attendance clocking and monitoring of the school feeding program.	Yes	Compliant. Daily attendance integration with NACONEK is part of the proposed solution.
Data Management and Harmonization			
1	The bidder shall provide a system that harmonizes and updates school/educational institutions databases.	Yes	Compliant. The system includes tools to regularly update and harmonize institutional databases.

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2	The bidder shall adopt a universal unique identifier for learners and educational institutions.	Yes	Compliant. Unique identifiers for learners and institutions are auto-generated and maintained.
3	The bidder shall develop an over-arching Policy and legal Framework to guide the development, implementation, and sustainability of the solution.	Yes	Compliant. A policy and legal compliance framework will be submitted along with implementation.
4	The bidder shall automate data management for all levels of education and data producers.	Yes	Compliant. The system supports multi-level data automation across the education ecosystem.
5	The bidder shall provide a system that ensures access and utilization of Education data.	Yes	Compliant. Centralized data access through secure portals is enabled.
6	The bidder shall institutionalize and build capacity for Education data management in the Ministry of Education.	Yes	Compliant. Training and capacity building plans are included in implementation.
7	The bidder shall enhance digital tools for officers at all levels to utilize automated services to serve the people of Kenya.	Yes	Compliant. All user levels are supported through role-based dashboards and automation.
8	The bidder shall ensure the system allows for Capitation Disbursement.	Yes	KCB shall provide a system that tracks and supports capitation disbursement workflows.
Core Modules			
Institutions Module			
1	The bidder shall provide an Institutions Module that captures registration and physical aspects of an institution.	Yes	Compliant. Captures institutional details including location and type.
2	The bidder shall provide an Institutions Registration sub-module for registering institutions with the Ministry and assigning them a unique institution code(IUC)	Yes	Compliant. System generates and manages IUC during registration.
3	The bidder shall provide a School Infrastructure sub-module that captures equipment and fixed assets.	Yes	Compliant. Tracks fixed assets with categorization.

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4	The bidder shall provide a School Utility sub-module that captures the utility name and brief description on the utility type.(Electricity source, source of water, internet provision, sanitation facilities e.t.c)	Yes	Compliant. Captures all utility types for infrastructure mapping.
5	The bidder shall provide a Co-Curricula sub-module that captures co-curricular activities, year, and highest level achieved.	Yes	Compliant. Enables recording of co-curricular engagements and achievements.
6	The bidder shall provide a Teaching and learning material sub-module that captures specific quantity of learning materials (course books, supplementary books)	Yes	Compliant. Manages teaching/learning aids with inventory control.
7	The bidder shall provide an Emergency reporting sub-module that enables the school administration to capture any disaster that affects the institution.	Yes	Compliant. Enables recording of disasters/incidents with response logs.
Learners Module			
1	The bidder shall provide a Learners Module that captures details necessary from learners' registration, their performance and progression, and their transition from one level to another.	Yes	Compliant. Full learner lifecycle tracking provided.
2	The bidder shall provide a Unique Personal Identifier sub-module that enables the learner to input birth certificate, ID number or Alien number, whereupon the system will auto-generate a UPI(Unique Personal identifier).	Yes	Compliant. UPI generated based on national ID documents.
3	The bidder shall provide a Learner Registration sub-module that captures contact details of the learner.	Yes	Compliant. Captures demographic and contact data.
4	The bidder shall provide a Student mobility sub-module that captures details of the learner, mobility type, discharging institution, and the new institution.	Yes	Compliant. Transfers tracked with both sending/receiving institution.
5	The bidder shall provide a Performance Progression sub-module that captures	Yes	Compliant. Records exam and grade-level performance.



	performance details of each learner after completion of a specific level.		
6	The bidder shall provide a Learner Talent sub-module that captures details on learners' talents.	Yes	Compliant. Captures extracurricular and talent data.
7	The bidder's system shall provide for a Social Health Authority Number allocation for health support sub-module.	Yes	Compliant. Integrated with health coverage records.
8	The bidder's system shall provide for a SHA Treatment Monitoring module.	Yes	Compliant. Tracks learner medical interventions.
9	The bidder's system shall provide a sub-module to capture Deceased Learners.	Yes	Compliant. Archived and flagged in learner database.
10	The bidder shall provide a Teacher's attendance sub-module	Yes	Compliant. Integrated with daily attendance system.
Staff Module			
1	The bidder shall provide a Staff Module that captures details necessary from members of staff (teaching and non-teaching), beginning from their appointment and mobility within the education sector.	Yes	Compliant. Tracks employment history and current status.
2	The bidder shall provide a Teachers (in both Public and Private Schools) and Non-teaching staff registration Module.	Yes	Compliant. Includes fields for qualifications and designations.
3	The bidder shall provide a Teacher Mobility sub-module displaying a teacher's transfer history.	Yes	Compliant. Movement between institutions logged.
4	The bidder shall provide a Teachers' Teaching areas sub-module showing the subjects/units a teacher handles.	Yes	Compliant. Subjects and class assignments recorded.
5	The bidder shall provide a Teachers' responsibilities sub-module showing the responsibilities assigned to a teacher within an institution	Yes	Compliant. Records extra duties and roles.
6	The bidder shall provide a Teacher's attendance sub-module	Yes	Compliant. Tracks daily biometric/manual check-ins.
Finance Module			

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1	The bidder shall provide a Finance Module that helps track all income and expenditure in all institutions.	Yes	Compliant. Full financial tracking and reporting system.
2	The bidder shall provide a School Fees sub-module. This interface captures the fee amount of an institution with all the approved fee items	Yes	Compliant. Fee items, collections, defaulters recorded.
3	The bidder shall provide a Capitation sub-module. This module allows the capitation to be disbursed to public Primary and Secondary schools in a given term within a calendar year.	Yes	KCB shall provide a system that enables automated term-wise disbursement.
4	The bidder shall provide an Income Returns sub-module capturing all amounts received by the Institution within a given year.	Yes	Compliant. Tracks grants, donations, and other income.
5	The bidder shall provide a Development Fund sub-module capturing projects funded in an institution within a given financial year and tracking their progress and utilization.	Yes	Compliant. Tracks capital projects and fund utilization.
6	The bidder shall provide an Expenditure Returns sub-module capturing all expenditure incurred by the school.	Yes	Compliant. Reports school-level expenditure entries.
7	The bidder shall provide a Scholarship Management sub-module covering all aspects from application to award and aggregating all scholarships into a single platform. The following are some of the scholarships targeted a. Elimu Scholarship (MOE) b. Wings to Fly c. KCB d. Coop Bank e. Governor's f. CDF g. Others	Yes	Compliant. Aggregates scholarships with tracking.
8	The bidder shall develop a School audit module to ensure schools are audited once a year on resource use by the Ministry	Yes	Compliant. Enables annual audits and reporting.

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Reports Module			
1	The bidder shall provide a Reports Module that allows the user to generate routine and adhoc reports and export data for further analysis.	Yes	Compliant. Generates custom and scheduled reports.
Form One Admission Management Module			
1	The bidder shall provide a Form One/Grade 10 Admission Management Module that tracks placement of learners into all secondary schools (both public and private).	Yes	Compliant. Includes tracking, validation, and logging.
2	The bidder shall provide a Form One/Grade 10 Selection sub-module. This interface will display the selection results from form one placement (entails search using Index Number).	Yes	Compliant. Index number-based search supported.
3	The bidder shall provide a Change of school request sub-module. This sub-routine allows parents country-wide to place requests for change of school to respective school of choice, upon which Principal will capture the details	Yes	Compliant. Online request workflow with approvals.
4	The bidder shall provide a Calling Letters sub-module allowing parents to download calling letters online.	Yes	Compliant. Downloadable for parents/students.
5	The bidder shall provide an Admission Reporting sub-module tracking the number of Form one/Grade 10 students who have reported	Yes	Compliant. Reports student admission stats.
School Feeding Module			
1	The bidder shall provide a School Feeding Module. The school feeding module is aimed at helping the Ministry track and monitor food distribution and management of meals programme in public primary schools in selected regions.	Yes	Compliant. Module supports real-time tracking of food distribution and meal planning.

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2	The bidder shall provide a HQ Approval and procurement sub-module. This will handle the initial process of simulation of food item quantities based on budget amounts; approval template, capture of bid awards and handling of deliveries from suppliers.	Yes	Compliant. Manages end-to-end procurement workflow with delivery tracking.
3	The bidder shall provide a Sub-County Distribution Management sub-module. This sub-module will allow for the capture of waybill and its details; receipt of food items at sub-county; distribution plan / allocation of food quantities for given term; preparation of food distribution routes and delivery notes	Yes	Compliant. Enables tracking of sub-county allocations and transport logistics.
4	The bidder shall provide a School Meals Management sub-module. School receive food items; based on daily attendance, release food ratio to kitchen for food preparation for the learners; handling of other food items either based on cash-based or sub-county led.	Yes	Compliant. Ensures accurate food preparation planning per learner data.
5	The bidder shall provide a Cash Disbursement sub-module allowing for disbursement of cash based on enrollment and cash per child.	Yes	Compliant. Automates cash disbursement and reconciliation processes.
6	The bidder shall provide Reporting for the school meals program for administrative and management use.	Yes	Compliant. Offers detailed reports for administrative and audit purposes.
National Dashboard Reporting Module			
1	The bidder shall provide a National Dashboard Reporting Module.	Yes	Compliant. Central dashboard consolidates nationwide KPIs and indicators.
2	The bidder shall provide Quality Assurance and Standards Whole School Assessment as per requirements of QASO to undertake whole school assessment to generate the overall school index on performance of components to a school wellbeing.	Yes	Compliant. Assesses performance and wellbeing metrics of schools.

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3	The bidder shall provide Lesson Plan Observation Tools done by QASOs and CSOs on teacher delivery of curriculum, generating an Index for each teacher teaching a given subject.	Yes	Compliant. Tracks curriculum delivery effectiveness by teacher.
4	The bidder shall provide a WASH Observation Tool allowing for the capture of wash indicators at school level.	Yes	Compliant. Monitors water, sanitation, and hygiene compliance.
5	The bidder shall provide a Remedial Programme Monitoring Tool to facilitate monitoring of remedial lessons for learners worst affected by pandemics/epidemics. This tool is used to track remedial programmes implementation in schools.	Yes	Compliant. Tracks progress and implementation of remedial programs.
6	The bidder shall provide a Dashboard through Power BI.	Yes	Compliant. Offers interactive visuals and insights for data-driven decisions.
School Infrastructure Funding and Monitoring Module			
1	The bidder shall provide a School Infrastructure Funding and Monitoring Module.	Yes	Compliant. Tracks funding disbursement, utilization, and infrastructure development.
2	The bidder shall provide a Disbursement sub-module.	Yes	Compliant. Logs and manages funding releases to schools.
3	The bidder shall provide for Creation of Projects sub-module	Yes	Compliant. Supports definition, approval, and lifecycle tracking of infrastructure projects.
4	The bidder shall provide for Monitoring of project implementation and risk register management sub-module.	Yes	Compliant. Enables real-time project tracking, alerts, and risk management.

KEMIS for TVET

S No.	Functional Requirement	Compliance (Y/N)	Bidder Response
Core System Functionality			
1	The bidder shall provide a system that allows efficient use of all available information.	Yes	Compliant. The system is designed

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			for optimal data utilization.
2	The bidder shall provide data on student enrolment, institution registration, student registration, courses offered, lecturers/instructors' details, projects, and equipment.	Yes	Compliant. All required datasets are captured and managed.
3	The bidder shall produce comprehensive statistical information on TVET to facilitate local and national decision planning.	Yes	Compliant. Dynamic analytics and reporting features included.
4	The bidder shall effectively monitor TVET projects.	Yes	Compliant. Integrated project monitoring tools provided.
5	The bidder shall use GIS capability and geo-referenced information for planning and decision-making at National, County, and Institutional levels.	Yes	Compliant. GIS-based planning dashboards implemented.
6	The bidder shall leverage technological mechanisms for education information visualization, analysis, and dissemination (tables, graphs, maps, profiles, dashboards).	Yes	Compliant. Supports tables, graphs, maps, profiles, dashboards.
7	The bidder shall consolidate TVET data in the country.	Yes	Compliant. Centralized national data warehouse built-in.
8	The bidder shall create a web-enabled and mobile application Monitoring and Evaluation platform in consultation with the Ministry. This will include defining performance monitoring indicators and reporting formats.	Yes	Compliant. Platform includes performance indicators and offline capability.
9	The bidder shall allow users to capture data from anywhere, anytime, even if they are offline until an internet connection is re-established.	Yes	Compliant. Offline-first architecture supported.
10	The bidder shall allow for the transition of students from one year of study to another upon meeting the requirements for transition.	Yes	Compliant. Workflow-enabled student progression management.

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11	The bidder shall provide the ability for non-technical users to generate sophisticated dashboards, reports, charts, to track key indicators and trends for management and other stakeholders.	Yes	Compliant. Drag-and-drop interface for report creation.
12	The bidder shall allow advanced users to query, filter, and sort results data by any combination of variables, such as enrollment by gender, county, course, etc., which can be exported to appropriate formats.	Yes	Compliant. Powerful query builder and export functions provided.
13	The bidder must ensure the system is compatible with multiple browsers.	Yes	Compliant. Cross-browser tested and verified.
14	The bidder shall support real-time notifications to users via email.	Yes	Compliant. Alerts and notifications engine integrated.
15	The bidder shall allow for self-service password reset functionality.	Yes	Compliant. Secure, user-friendly password management.
16	The bidder shall offer an online Help Application that provides insights and powerful reports about issues logged and their resolutions.	Yes	Compliant. Integrated helpdesk and issue resolution tracker.
17	The bidder shall support users to help themselves by setting up a knowledge base for FAQs and a community for user discussion.	Yes	Compliant. FAQs and user forums enabled.
SAGA and Data Integration			
1	The bidder shall provide data for SAGAs as a submodule based on their requirements.	Yes	Compliant. SAGA-specific data collection and visualization included.
2	The bidder shall provide timely and reliable data to facilitate decision-making in SAGAs including TVETA, CDACC, KNQA, and KS TVET.	Yes	Compliant. Real-time integration and report sharing capabilities.
3	The bidder shall develop and enhance a capitation module in the software.	Yes	Compliant. Fully developed capitation workflow integrated.

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4	The bidder shall incorporate data requirements for the SAGAs in the state department including KST, TVETA, CIDAC, KNQA, and KUCCPS) and provide for data integration where necessary.	Yes	Compliant. Tailored data mapping for each agency.
5	The bidder shall develop relevant modules that would be used for data integration with SAGAs and institutions.	Yes	Compliant. Secure API-based integrations supported.
6	The bidder shall develop a module that facilitates the onboarding of revenue generated from services within the state department.	Yes	Compliant. Finance integration for revenue capture provided.
Security and Access Control			
1	The bidder shall incorporate appropriate security arrangements (e.g., data backup and security, access levels, viruses, etc.). This will include identification of TMIS target user groups and determination of what, when, and how they can contribute to the TMIS and what, when, and how they wish to access.	Yes	Compliant. Role-based access, audit trail, and backups in place.
2	The bidder shall furnish the system with tools that will detect security violations while tracking modifications of all transactions.	Yes	Compliant. Real-time monitoring and activity logging enabled.
3	The bidder must furnish the system with sophisticated tools to enforce data security.	Yes	Compliant. Encrypted storage, firewalls, and secure protocols implemented.
4	The bidder shall provide a method of regulating access to information resources based on the roles of individual users within the system.	Yes	Compliant. Customizable user roles and permissions supported.
Reporting and Data Management			
1	The bidder shall incorporate appropriately designed reports, data visualization, and dissemination to all stakeholders, including Ministry planners, SAGAs, Principals, Trainers, Parents, Trainees, and potential trainees.	Yes	Compliant. Reports customizable for stakeholders at all levels.

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2	The bidder shall provide for the generation of management standards reports from the system.	Yes	Compliant. Built-in templates and custom report generation.
3	The bidder shall facilitate the capturing of live data and generate standard reports from the system, including but not limited to:	Yes	
A	Students' enrollment in the entire Nation by gender	Yes	Compliant. Included in enrollment dashboard.
B	Student enrollment by county by gender	Yes	Compliant. Geographic filter included.
C	Student enrollment per institution by gender	Yes	Compliant. Institution-wise breakdown available.
D	Student enrollment by county per institution by county	Yes	Compliant. Multi-level aggregation supported.
E	Students' capitations using TVET capitation criteria	Yes	Compliant. TVET funding logic applied.
F	Capitation report by gender, by county, by institution	Yes	KCB shall provide a system with Drill-down analysis enabled.
G	Courses offered per institution	Yes	Compliant. Course-institution mapping implemented.
H	Course enrollment by gender by institution	Yes	Compliant. Course-level analytics available.
I	Course enrollment by gender by county	Yes	Compliant. Cross-sectional reporting enabled.
J	Report on income-generating activities (IGA) by institution	Yes	Compliant. Income-generating activities tracked.

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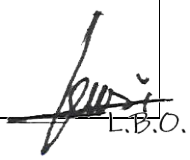
K	Report on income-generating activities (IGA) by county and national	Yes	Compliant. Regional and national summaries supported.
L	Facility for online payment tracking the payment to the institution of TVET	Yes	Compliant. Transaction monitoring module integrated.
M	Report on lecturers/instructors by institutions	Yes	Compliant. HR data captured and reported.
N	Reports on projects per institution	Yes	Compliant. Linked with infrastructure/project module.
O	Report on equipment installed in the institution	Yes	Compliant. Asset management linked to reporting.
P	Efficient and effective use of resources	Yes	Compliant. Utilization metrics available.
Q	Report on students' rate completion by institution, by county, and in the nation.	Yes	Compliant. Completion metrics included.
4	The bidder shall develop any other standard reports that will be identified by the client before the handing over.	Yes	Compliant. System is flexible for future reporting needs.
System Capacity and Modernization			
1	The bidder shall increase the capacity of the system to capture rapidly expanding institutions and student populations.	Yes	Compliant. System is scalable and cloud-ready for expanding datasets.
2	The bidder shall analyze necessary hardware and software requirements, including cloud services, and recommend a stable hosting environment for the system.	Yes	Compliant. Infrastructure assessment and stable cloud deployment planned.

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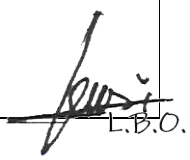
3	The bidder shall analyze and recommend software licensing requirements for the operation.	Yes	Compliant. Licensing model will be aligned with deployment and usage patterns.
4	The bidder shall redesign the software to operate on other modern platforms such as mobile applications for fast response to data capture and analysis.	Yes	Compliant. UI/UX optimized for web and mobile platforms.
5	The bidder shall improve the ability of the software to operate on other modern platforms such as mobile applications.	Yes	Compliant. Modern tech stack and responsive design supported.
Implementation and Training			
1	The bidder shall determine TVET-MIS stakeholders and their requirements (all who have a role in data acquisition, processing, reporting, or use/decision-making).	Yes	Compliant. Stakeholder engagement sessions scheduled.
2	The bidder shall carry out the analysis of funding models (both old and new models) and develop algorithms that will guarantee the capitation to students, considering the sources of funding from different SAGAs and collaborating responsible SAGAs in the disbursement of funds.	Yes	Compliant. Algorithm development included in finance module.
3	The bidder shall conduct training for members of the Ministry, including technical, users, and managers, in the maintenance, support, and application of the upgraded system.	Yes	Compliant. Comprehensive training plan provided.
4	The bidder shall provide security for the system to ensure it is safe when transmitting data.	Yes	Compliant. Data encryption in transit and at rest implemented.
5	The bidder shall provide user access to the system at different levels, depending on the user roles, to those members of staff nominated by the client.	Yes	Compliant. User roles and permissions are fully configurable.
6	The bidder shall deploy the system and enable access to all users as per approval by the client.	Yes	Compliant. Deployment plan includes phased

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			rollout and onboarding.
7	The bidder shall develop access credentials for approved users at each level: TVET HQ, SAGAs, and institution levels.	Yes	Compliant. Secure credential provisioning and management included.
8	The bidder shall provide capacity building through professional training and on-site technical missions to key government stakeholders in the operation and administration of the TVET-MIS Module. This capacity-building approach will focus on the transfer of technology and know-how to create a self-sufficient and sustainable support team within the Ministry.	Yes	Compliant. On-site missions and training workshops included.
9	The bidder shall develop relevant reports based on the activities in each of the SAGAs.	Yes	Compliant. Custom report generation per SAGA integrated.
10	The bidder shall develop relevant reports for the TVET HQ officers for the users in the Ministry.	Yes	Compliant. Dashboard and report builder configured for HQ needs.
11	The bidder shall provide integration of the modules developed and upgraded in the system.	Yes	Compliant. All modules integrated under unified architecture.
12	The bidder shall develop a test run for the system, develop data for testing, carry out system testing including functional testing, security testing, module testing, integration testing, usability testing, performance testing, acceptance testing, and finally generate test reports.	Yes	Compliant. Test plan includes functional, security, and performance testing.
User Experience and System Usability			
1	The bidder shall provide the ability for non-technical users to generate sophisticated dashboards, reports, charts, to track key indicators and trends for management and other stakeholders.	Yes	Compliant. User-friendly report builder provided.



2	The bidder shall offer an online Help Application that provides insights and powerful reports about issues logged and their resolutions.	Yes	Compliant. Helpdesk and knowledge base modules available.
3	The bidder shall support users to help themselves by setting up a knowledge base for FAQs and a community for user discussion.	Yes	Compliant. Community support portal and documentation provided.
4	The bidder shall ensure the system is compatible with multiple browsers.	Yes	Compliant. Verified for Chrome, Firefox, Edge, Safari.
5	The bidder shall support real-time notifications to users via email.	Yes	Compliant. Notification engine integrated.
6	The bidder shall allow for self-service password reset functionality.	Yes	Compliant. Secure password management with self-reset feature.
Documentation			
1	The bidder shall provide a training manual.	Yes	Compliant. To be delivered in print and digital formats.
2	The bidder shall provide a user manual.	Yes	Compliant. Step-by-step system usage guide included.
3	The bidder shall provide a maintenance manual.	Yes	Compliant. Covers preventive and corrective procedures.
4	The bidder shall provide programming codes used during the development process.	Yes	Compliant. Source code and version control access provided.
5	The bidder shall provide a backup copy of the complete and functional TVET-MIS.	Yes	Compliant. Secure, deployable system backup will be shared.



KEMIS for High Education

S No.	Functional Requirement	Compliance (Y/N)	Bidder Response
Placement Data Module			
1	The bidder shall provide a module for the identification of students.	Yes	Compliant. Identification through various official IDs supported.
1.1	The system shall support the following student identification data: a. Birth Certificate b. Unique Person Identification c. Assessment Number d. Digital ID e. ID Number f. KCSE Index Number g. Other systems h. Date of Birth identification number	Yes	Compliant. All listed identifiers will be accepted and mapped.
2	The System shall support application Processing(KUCCPS to play a role in selfsponsored students)	Yes	Compliant. Integration with KUCCPS application workflows provided.
2.1	The system shall enable CUE to provide institutions accredited data.	Yes	Compliant. Data exchange with CUE through API supported.
2.2	The system shall enable capture Institution Identification Type- public/private.	Yes	Compliant. Institution profiling included.
2.3	The system shall capture Accredited Programmes.	Yes	Compliant. Accredited program listing supported.
2.4	The system shall capture Programme Costs (UF).	Yes	Compliant. Program-specific funding cost structure captured.
2.5	The system shall capture Sponsorship Status (Government/Self-Sponsored).	Yes	Compliant. Configurable funding categorization enabled.

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3	The system shall support updates in placement changes in: a. Programme (KUCCPS & University) b. Institution (KUCCPS) c. Level of study d. Mode of study (online, face to face, blended)	Yes	Compliant. Editable placement fields provided with audit trail.
3.1	The system shall record the Student Identifier.	Yes	Compliant. UPI/Admission number stored in linked records.
3.2	The system shall record the Institution Code.	Yes	Compliant. Mapped via integration with institution registry.
3.3	The system shall record the Programme code.	Yes	Compliant. Referenced to accredited program catalogue.
3.4	The system shall record the Mode of study.	Yes	Compliant. Configurable values for online, face-to-face, blended.
3.5	The system shall record Placement Changes.	Yes	Compliant. Change history audit logs maintained.
Admission Data Module			
4	The bidder shall provide a module for reporting of students capture Reporting Status (Institution/Faculty/department/Course/Year of study/Semester/Date of admission/Date of reporting/Campus).	Yes	Compliant. Full admission event tracking supported.
4.1	The system shall capture Bio data.	Yes	Compliant. Demographic and identity fields included.
4.2	The system shall capture Student Reporting Status.	Yes	Compliant. Reporting stage tracking included.

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4.3	The system shall capture the Student Identifier.	Yes	Compliant. Unified identifier linked across modules.
4.4	The system shall capture the Admission Number.	Yes	Compliant. Generated and stored for each admitted student.
Progression Module			
5	The bidder shall provide a module to capture progression data. This shall include status including (Active, Deferred, discontinued, Repeatead, Deceased, Suspended, withdrawn**).**	Yes	Compliant. Lifecycle status tracking built-in.
5.1	The system shall capture the Student Identifier.	Yes	Compliant. Used as primary key.
5.2	The system shall capture the Admission Number.	Yes	Compliant. Cross-referenced with enrolment records.
5.3	The system shall capture the Level of Study (Year 1 Sem1.....).	Yes	Compliant. Academic calendar-based level tracking.
5.4	The system shall capture the Status (Active, Deferred, discontinued, Repeatead, Deceased, Suspended, withdraw.....).	Yes	Compliant. Configurable drop-down statuses provided.
5.5	The system shall capture the Reason(s) for the status.	Yes	Compliant. Reason log maintained.
Completion and Graduation			
6	The bidder shall provide a module to capture completion and graduation data.	Yes	Compliant. Graduation management workflows included.
6.1	The system shall capture the completion date.	Yes	Compliant. Based on academic records.

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6.2	The system shall capture the graduation date.	Yes	Compliant. Event-based recording supported.
6.3	The system shall capture the Certificate Number.	Yes	Compliant. Linked to award issuance.
6.4	The system shall capture the Classification of award.	Yes	Compliant. Classification options configurable.
6.5	The system shall capture the Student Identifier.	Yes	Compliant. Tracked throughout academic lifecycle.
6.6	The system shall capture the Admission Number.	Yes	Compliant. Graduation records linked to admission data.
Alumni Module			
7	The bidder shall provide a module to manage alumni data.	Yes	Compliant. Alumni engagement and tracking supported.
7.1	The system shall capture Alumni Employment.	Yes	Compliant. Employment status form included.
7.2	The system shall capture the Student Identifier.	Yes	Compliant. Maintained from student lifecycle.
7.3	The system shall capture Employment Status.	Yes	Compliant. Dropdown options with employment categories.
7.4	The system shall capture the Sector employed/Engaged.	Yes	Compliant. Sector mapping supported.
7.5	The system shall capture Alumni activity data.	Yes	Compliant. Surveys and periodic updates supported.

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Funding/Finance Module			
8	The bidder shall provide a module to manage funding.	Yes	KCB shall provide system with Multi-source funding management integrated.
8.1	The system shall capture Funding Status.	Yes	KCB shall allow for status tracking for all students.
8.2	The system shall capture Application Status.	Yes	Compliant. Review stages monitored.
8.3	The system shall capture Sources of Funds (UF, HELB, Bursary, CDF, Corporates, Philanthropists, and Foundations).	Yes	Compliant. Fund source database integrated.
8.4	The system shall capture Banding Status.	Yes	Compliant. Student banding logic incorporated.
8.5	The system shall capture Application Type (First/Appeal).	Yes	Compliant. Application cycle tracking.
8.6	The system shall capture Financial Year.	Yes	Compliant. Budget year alignment enabled.
8.7	The system shall capture Amount funded Scholarship.	Yes	Compliant. Split funding entries supported.
8.8	The system shall capture Amount Funded Loan.	Yes	Compliant. Loan tracking and reconciliation included.
Reporting and Analytics			
9	The bidder shall provide Business Intelligence Analytics.	Yes	Compliant. Embedded BI engine with analytics toolkit.

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9.1	The system shall have the ability to compute complex statistics based on data and provide dashboards.	Yes	Compliant. Multivariate statistical processing enabled.
9.2	The system shall provide Analytic Dashboards.	Yes	Compliant. Role-based dynamic dashboards supported.
9.3	The system shall generate reports on: a. Allocation b. Students c. Application d. Placement e. Alumni	Yes	Compliant. Reporting library includes all listed domains.
9.4	The system shall provide Statistical/Ad-hoc Reports.	Yes	Compliant. Report builder and custom query tool integrated.
9.5	The system shall provide Trends.	Yes	Compliant. Time series trend analysis supported.
9.6	The system shall provide Prediction/Forecasting reports.	Yes	Compliant. Predictive analytics with forecasting engine included.
9.7	The system shall provide Graphs.	Yes	Compliant. Charting via Highcharts/PowerBI API.
9.8	The system shall provide Compliance Reports.	Yes	Compliant. Audit and policy-based report formats included.
9.9	The system shall provide Visualization.	Yes	Compliant. Interactive visualizations built-in.
9.1	The system shall provide Multi-dimension Reporting.	Yes	Compliant. Pivot reporting enabled

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			with slicers and filters.
9.11	The system shall provide Regressions.	Yes	Compliant. Linear and multivariate regressions supported.
9.12	The system shall provide Transition rates.	Yes	Compliant. Transition tracking logic integrated.
9.13	The system shall provide Correlations.	Yes	Compliant. Correlation matrices included.
9.14.	The system shall provide Funding/financial reports.	Yes	Compliant. Budgeting and funding analysis integrated.
9.15	The system shall provide Compliance.	Yes	Compliant. Aligned to regulatory policy checks.
9.16	The system shall provide Skills dimension analysis.	Yes	Compliant. Skill tracking mapped to program outcomes.
9.17	The system shall provide Gap Analysis- placement, funding, progression.	Yes	Compliant. Visual gap and risk dashboards.
9.18	The system shall provide Machine Learning.	Yes	Compliant. ML plug-ins available via integrated analytics.
9.19	The system shall provide AI.	Yes	Compliant. Smart recommendations and anomaly detection included.
9.2	The system shall provide Data Mining.	Yes	Compliant. ETL and classification engines available.

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9.21	The system shall provide Prescriptive Analysis.	Yes	Compliant. Decision tree logic and suggestions engine.
9.22	The system shall provide Trend Analysis.	Yes	Compliant. Visual and numerical trend projection supported.
9.23	The system shall provide Behavioral Analytics.	Yes	Compliant. Learning, attendance, and system usage patterns analyzed.
9.24	The system shall provide Data Builder.	Yes	Compliant. Drag-and-drop report/data builder available.
9.25	The system shall provide Feedback Reports.	Yes	Compliant. Feedback loops integrated across modules.
9.26	The system shall provide User Generated Reports-Authorized.	Yes	Compliant. Admin-controlled access to reporting tools.
Human Resources Module			
10	The bidder shall provide a module to manage all human resources working in the HLIs (Teaching/Non-Teaching).	Yes	Compliant. Centralized HRMS integrated.
10.1	The system shall capture National Identification.	Yes	Compliant. ID validation integrated.
10.2	The system shall capture Staff Identification/Payroll Number Institution Code.	Yes	Compliant. Payroll-linked registry included.
10.3	The system shall capture Bio Data: a. Names b. Ethnic Background	Yes	Compliant. Full demographic profile supported.

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10.4	The system shall capture Disability.	Yes	Compliant. Inclusivity compliance built-in.
10.5	The system shall capture Nationality.	Yes	Compliant. Field supported and filtered for reporting.
10.6	The system shall capture Programme Domain.	Yes	Compliant. Assignment to teaching areas mapped.
10.7	The system shall capture Teaching/Administrative and support staff.	Yes	Compliant. Multi-role and contract types allowed.
10.8	The system shall capture Job Group (GoK).	Yes	Compliant. Job groups aligned to GoK structure.
10.9	The system shall capture Term of service: a. Permanent/contract b. Full Time/Part-time	Yes	Compliant. Duration and type fields provided.
10.1	The system shall capture Designation.	Yes	Compliant. Role/position tracking available.
10.11	The system shall capture Highest academic qualification.	Yes	Compliant. Credential verification supported.
10.12	The system shall capture Date of first appointed.	Yes	Compliant. HR lifecycle record maintained.
Infrastructure Module			
11	The bidder shall integrate data from CUE.	Yes	Compliant. CUE integration via standard APIs.
12	The system shall capture data related to Land.	Yes	Compliant. GIS mapping included.

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13	The system shall capture data related to Buildings: a. Library b. Lecture halls c. Laboratories d. Administration blocks	Yes	Compliant. Structural inventory module enabled.
14	The system shall capture data related to social amenities.	Yes	Compliant. Amenities listed with usage frequency.
15	The system shall capture data related to access roads.	Yes	Compliant. Infrastructure accessibility captured.
16	The system shall capture data related to Bandwidth Capacity.	Yes	Compliant. Connectivity status dashboard integrated.
17	The system shall capture data related to Firefighting equipment.	Yes	Compliant. Emergency equipment inventory included.
18	The system shall capture data related to CCTV.	Yes	Compliant. Surveillance assets listed and tracked.
19	The system shall capture data related to Drainage System.	Yes	Compliant. Infrastructure module supports this input.
20	The system shall capture data related to Health Unit.	Yes	Compliant. On-campus health facilities tracked.
21	The system shall capture data related to Places of Worship.	Yes	Compliant. Campus-wide mapping included.
Research Module			
13	The bidder shall provide a module to manage Research and Innovation.	Yes	Compliant. Research registry module included.

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13.1	The system shall capture data to Profile researchers (students/staff) and research areas (NRF, NACOSTI, KENIA).	Yes	Compliant. National Research bodies integrated.
13.2	The system shall capture Researchers.	Yes	Compliant. Staff and student researchers profiled.
13.3	The system shall capture publications (journals, books, audio visual.....).	Yes	Compliant. Categorized by type and author.
13.4	The system shall capture Innovations (Copyrights. Patents, policy briefs).	Yes	Compliant. Linked to researcher and institution.
13.5	The system shall capture the title of the publication.	Yes	Compliant. Title and metadata fields supported.
13.6	The system shall capture the description of the publication.	Yes	Compliant. Abstract and summary input allowed.
13.7	The system shall capture links to publication ISSN/ISBN.	Yes	Compliant. External reference linking included.
13.8	The system shall capture publisher information.	Yes	Compliant. Publisher registry integrated.
13.9	The system shall capture research grants (institutional/personal).	Yes	Compliant. Grant tracking and funding status included.

KEMIS for Science Research & Innovation

S No.	Functional Requirement	Compliance (Y/N)	Bidder Response
Online Service Management			
1	The bidder shall ensure the system supports online submission of applications for research licenses.	Yes	Compliant. Online research license application form

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			integrated with workflow and tracking.
Data and Reporting Management			
2	The bidder shall implement a Research Information Management System (RIMS) to manage research-related data.	Yes	Compliant. Centralized RIMS with researcher and institution profiles.
3	The bidder must enable online submission of quarterly performance reports by Ministries, Departments, and Agencies (MDAs) to NACOSTI.	Yes	Compliant. MDA login interface with structured templates for quarterly report submission.
4	The bidder shall provide a system for MDAs to submit Science, Technology, and Innovation (STI) mainstreaming data online.	Yes	Compliant. STI indicator-based online reporting integrated into MDAs module.
5	The bidder must include a reporting tool for registered research institutions and universities in Kenya.	Yes	Compliant. Institution dashboard includes automated reporting tools and export options.
Stakeholder and Communication Management			
6	The bidder shall provide a platform to facilitate communication and sharing of information, knowledge, best practices, and tools.	Yes	Compliant. Knowledge repository and discussion boards integrated.
7	The bidder must ensure the system can disseminate public notices related to research licensing and registration of research institutions.	Yes	Compliant. Notification board and push alerts

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			(email/SMS) for registered stakeholders.
User and Access Management			
8	The bidder shall implement a secure user authentication and authorization system to manage access for different stakeholders (e.g., researchers, institutions, MDAs)	Yes	Compliant. Role-based access and identity verification using MFA supported.
9	The bidder must provide role-based access control to ensure users can only access features and data relevant to their roles [Inferred - standard requirement for information systems].	Yes	Compliant. User roles predefined per stakeholder type (researcher, MDA, reviewer, admin).
Document and Resource Management			
10	The bidder shall provide a repository for storing and managing guidelines, policies, and reports related to science, technology, and innovation (e.g., National Guidelines for Researchers, STI Policy).	Yes	Compliant. Document management system with version control integrated.
11	The bidder must allow for the uploading and downloading of documents such as application forms and guidelines	Yes	Compliant. Upload module supports bulk and single document transactions with audit logs.
Engagement Management			
12	The bidder must facilitate the dissemination of information about fellowships and grants.	Yes	Compliant. Announcements and application module integrated. Grants calendar available.

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Institutional and Regulatory Management			
13	The bidder shall support the management of registration and licensing of researchers.	Yes	Compliant. E-registration and license issuance integrated with researcher profiles.
14	The bidder must support the management of accreditation and quality assurance processes for research institutions.	Yes	Compliant. Institutional review module with scoring and documentation trail supported.
15	The bidder shall facilitate the management of information related to Institutional Scientific and Ethical Review Committees (ISERCs).	Yes	Compliant. ISERC database and committee workflow included.
Integration Capabilities			
16	The bidder shall ensure the system can potentially integrate with other relevant government systems	Yes	Compliant. Open API architecture and secure integration protocols available.

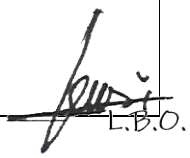
Education Information Exchange & Data Bus System

Student Registry

S No.	Technical Specification	Compliance (Y/N)	Bidder Response
Non-Functional Requirements			
1	The Student Registry system shall support configurable entity matching, a service to assist in identifying duplicate student records.	Yes	Compliant. Configurable matching service implemented to detect and resolve duplicates.

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2	The rules for determining whether two records match each other shall be configurable (e.g., ability to use both statistical and/or rules-based methods).	Yes	Compliant. Supports both rules-based and ML/statistical methods for matching.
3	The blocking strategy for loading potential matches before the matching rules are applied shall be configurable.	Yes	Compliant. Blocking rules customizable via UI configuration panel.
7	To the extent possible, system configuration information shall be managed using consistent and easy-to-access methods, such as a database, properties files, or XML files.	Yes	Compliant. Unified configuration managed via XML/DB-based admin console.
8	It shall allow “wizard-based” or “guided” setup of matching rules.	Yes	Compliant. Step-by-step wizard available for admins to configure matching logic.
13	The Student Registry system shall support the ability to track and monitor inbound/outbound transactions.	Yes	Compliant. Full transaction logs with timestamps and source/destination records.
14	The system must have the capacity to record receipt and transmission of transactions.	Yes	Compliant. Transaction registry maintains audit trail of all data movements.
15	The Student Registry system shall support synchronization of student IDs with other KEMIS modules.	Yes	Compliant. Unique student IDs synced through secure APIs.
16	The Student Registry system shall support a UI to review and manually adjudicate uncertain (“potential”) matches, and override incorrect matches.	Yes	Compliant. Admins can manually adjudicate flagged records via review dashboard.
17	The Student Registry system shall support configurable attributes.	Yes	Compliant. Attribute sets dynamically configurable at system or institution level.
18	The attributes that form a student record and are used for matching shall be configurable.	Yes	Compliant. Admin-defined matching rules using primary and auxiliary attributes.
22	The Student Registry system shall support error management.	Yes	Compliant. Error logs, alerts, and automated notifications included.
23	Ensure that error handling comprehensively captures and logs all related exceptions, and	Yes	Compliant. Linked exception handling with contextual traceability built-in.



	to the extent possible, shows relationships between exceptions.		
24	The Student Registry system shall manage a full audit log of changes to data as well as configurations and users.	Yes	Compliant. Immutable audit trails maintained per compliance requirements.
25	The Student Registry system shall have functions including user management and access controls for privacy and security.	Yes	Compliant. RBAC with user groups and permission policies enabled.
26	The Student Registry system shall be able to persist the parent/child relationship.	Yes	Compliant. Linked profiles maintained across guardians and students.
28	The Student Registry system shall support the import and export of student data in various formats (e.g., CSV, Excel).	Yes	Compliant. Supports bulk upload/download in CSV, XLSX, and XML formats.
29	The Student Registry system shall provide search and filter functionalities to easily locate student records based on specific criteria.	Yes	Compliant. Multi-field search and advanced filtering features available.
30	The Student Registry system shall integrate seamlessly with other KEMIS modules to ensure data consistency and interoperability.	Yes	Compliant. Inter-module communication via internal secure APIs.
31	The Student Registry system shall support the registration and management of students across multiple educational institutions.	Yes	Compliant. Multi-institutional student registry implemented with UPI linkage.
34	The Student Registry system shall implement user roles and permissions to control access to different functionalities based on user roles (e.g., administrators, teachers, students).	Yes	Compliant. Function-level role permissions configurable by institution or MOE.
35	The Student Registry system shall support integration with external systems for data exchange and interoperability	Yes	Compliant. RESTful APIs available for 3rd party systems integration.
37	The Student Registry system shall support automated data validation and quality checks to ensure the accuracy and completeness of student records.	Yes	Compliant. Input validation rules and periodic quality audits built-in.

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38	The Student Registry system shall facilitate the tracking and management of student attendance and disciplinary records.	Yes	Compliant. Attendance modules linked with incident reporting features.
39	The Student Registry system shall provide a dashboard for a visual overview of key student metrics and trends.	Yes	Compliant. Visual dashboards (charts, KPIs) available at institution and MOE levels.
40	The Student Registry system shall support integration with parent/student apps to provide real-time access to student information and updates.	Yes	Compliant. Mobile app integration with real-time push alerts.
Non Functional Requirements			
43	The Student Registry system shall ensure scalability to handle increasing numbers of students and data volumes.	Yes	Compliant. Designed on scalable cloud infrastructure with auto-scaling support.
44	The Student Registry system shall provide high availability and minimal downtime to ensure continuous operation.	Yes	Compliant. 99.9% uptime with failover and redundancy mechanisms.
45	The Student Registry system shall implement robust security measures, including data encryption and access control, to protect sensitive student information.	Yes	Compliant. AES encryption, HTTPS, MFA, and RBAC implemented.
46	The Student Registry system shall ensure compliance with relevant educational and data protection regulations.	Yes	Compliant. Aligned with Data Protection Act and ISO 27001 practices.
47	The Student Registry system shall provide comprehensive documentation and user training to facilitate smooth adoption and operation.	Yes	Compliant. Admin/user manuals and periodic training sessions included.
48	The Student Registry system shall support regular backups and quick recovery to prevent data loss and ensure business continuity.	Yes	Compliant. Scheduled backups with disaster recovery strategy in place.
49	The Student Registry system shall offer performance optimization to ensure quick processing and retrieval of student information.	Yes	Compliant. Optimized DB queries, caching, and load balancing integrated.

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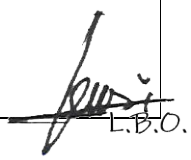
50	The Student Registry system shall provide a user-friendly interface to enhance usability for all stakeholders.	Yes	Compliant. Responsive, intuitive UI with language/localization support.
51	The Student Registry system shall support modular design to facilitate easy updates and enhancements.	Yes	Compliant. Modular micro services-based architecture for easy upgrades.

Schools Registry

S No.	Technical Specification	Compliance(Y/N)	Bidder Response
Functional Specifications			
1	The School Registry system shall support the ability to create, define, and evolve the attributes & associated data dictionary for a registry.	Yes	The proposed solution allows dynamic creation and evolution of registry attributes and data dictionary.
2	The School Registry system shall support the ability to create, define, and maintain multi-organizational hierarchies of schools and related geo-objects.	Yes	The system enables creation and maintenance of complex hierarchies and geo-referenced entities.
3	The School Registry system shall support the collection of data for the following minimum school attributes dataset: School name School type (e.g., primary, secondary, vocational) School ownership/managing authority School physical address School contact information Record date Operational status Administrative level/areas Geographic coordinates School unique identifier Type of services offered (e.g., special education, extracurricular activities) Human resources, numbers by cadre (e.g., teachers, administrative staff) Opening and closing times Common and mapped identifiers per	Yes	The solution captures all required school attributes as defined, including location, staff, services, infrastructure, and operational details.

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	location Details on infrastructure (e.g., power, water, internet access)		
4	The School Registry system shall support the ability to set up and manage users, permissions for reading data, writing data (posting, validation, and publishing), viewing data, and system administration.	Yes	Role-based access control with custom permissions is implemented to ensure secure data handling.
5	The School Registry system shall support the ability to create roles and assign permissions to the roles. Example roles would be the Master Administrator, Data Curator, Education Officer.	Yes	The system supports flexible role definition and permission assignment (e.g., Admin, Data Curator).
6	The School Registry system shall have flexible standards-based APIs, preferably RESTful API.	Yes	RESTful APIs are provided for seamless integration with third-party systems.
7	The School Registry system shall have the ability to pull and/or push data to other systems (.csv) based on defined criteria.	Yes	Supports bi-directional data integration via APIs and file-based formats like .csv.
8	The School Registry system shall support the ability to do bulk imports.	Yes	Bulk import tools are available for uploading large volumes of school data.
9	The School Registry system shall support the ability to search for schools by attribute.	Yes	Search functionality supports filtering schools by any available attribute.
10	The School Registry system shall support the ability to see the school located on a map.	Yes	Integrated GIS mapping feature enables visualization of school locations.
11	The School Registry system shall allow public access to view data that is relevant to the public (e.g., services provided by a school).	Yes	Public dashboard with controlled access is available for transparency.
12	The School Registry system shall support school data curation to manage site status changes (closures, openings, service changes).	Yes	Data curation workflows support recording updates to school status (open/close/service changes).



13	The School Registry system shall generate standard and customizable reports in line with the core school attributes.	Yes	Reporting engine supports generation of predefined and ad hoc reports.
Non-Functional Specifications			
15	The School Registry system shall ensure scalability to handle increasing numbers of schools and data volumes.	Yes	Scalable architecture supports large user base and increasing data volume.
16	The School Registry system shall provide high availability and minimal downtime to ensure continuous operation.	Yes	The system is hosted on redundant infrastructure with 99.9% uptime guarantee.
17	The School Registry system shall implement robust security measures, including data encryption and access control, to protect sensitive school information.	Yes	Includes encryption, secure access controls, and regular vulnerability assessments.
18	The School Registry system shall ensure compliance with relevant educational and data protection regulations.	Yes	Complies with national education and data protection regulations (e.g., GDPR-like policies).
19	The School Registry system shall provide comprehensive documentation and user training to facilitate smooth adoption and operation.	Yes	User manuals, admin guides, and training materials will be provided.
20	The School Registry system shall support regular backups and quick recovery to prevent data loss and ensure business continuity.	Yes	Automated daily backups with disaster recovery protocols in place.
21	The School Registry system shall offer performance optimization to ensure quick processing and retrieval of school information.	Yes	Optimized for fast response and low latency in querying and data retrieval.
22	The School Registry system shall provide a user-friendly interface to enhance usability for all stakeholders.	Yes	Intuitive UI/UX ensures ease of use for all user categories.
23	The School Registry system shall support modular design to facilitate easy updates and enhancements.	Yes	Modular architecture enables easy enhancements and independent module upgrades.

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Teachers Registry

S No	Technical Specification	Compliance(Y/N)	Bidder Response
Functional Specifications			
1	The Teacher Registry system shall support the ability to retain received updates from source data systems.	Yes	The system retains updates from all integrated source systems and maintains data consistency.
2	The Teacher Registry system shall support the ability to respond to queries on teacher data that has been stored.	Yes	Real-time query services are available via dashboard or API for all stored teacher data.
3	The Teacher Registry system shall support the ability to query (API) source data systems for updates to teacher data.	Yes	The system can query external APIs for the latest teacher data based on predefined sync rules.
4	The Teacher Registry system should be able to send updates to upstream data repositories (such as an InterLinked Registry).	Yes	Upstream data sharing supported through RESTful API for synchronization with registries.
5	The Teacher Registry system shall have flexible standards-based APIs, preferably RESTful API.	Yes	RESTful APIs are implemented for secure and standard-compliant data exchange.
6	The Teacher Registry system should support the ability to maintain old versions of teacher data when it has been updated (Audit log).	Yes	Audit log maintained for all changes to teacher data, ensuring version history and traceability.
7	The Teacher Registry system should support the collection of data for the following minimum dataset: Teacher name Teacher identification number Qualifications and certifications Employment status Contact information School affiliation	Yes	All specified attributes are supported including professional records and affiliations.

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	Subjects taught Years of experience Professional development records		
8	The Teacher Registry system should be able to allow for configuration of key attributes that support the context of the implementation.	Yes	Attribute configurations are flexible and can be customized as per implementation needs.
9	The Teacher Registry system shall support the ability to set up and manage users, permissions for reading data, writing data (posting, validation, and publishing), viewing data, and system administration.	Yes	Role-based access control is implemented for reading, writing, validation, and admin operations.
10	The Teacher Registry system shall generate standard reports in line with the core teacher attributes.	Yes	Built-in report templates cover all key teacher information.
11	The Teacher Registry system should generate customizable reports in line with the core teacher attributes.	Yes	Custom reporting tool allows users to define their own filters and formats.
12	The Teacher Registry system should support the ability to do bulk imports.	Yes	Bulk upload tools are provided for importing teacher records in Excel/CSV formats.
Non-Functional Specifications			
13	The Teacher Registry system shall ensure scalability to handle increasing numbers of teachers and data volumes.	Yes	Cloud-native architecture ensures horizontal scalability to support large data volumes.
14	The Teacher Registry system shall provide high availability and minimal downtime to ensure continuous operation.	Yes	99.9% uptime with automatic failover and load balancing for availability.
15	The Teacher Registry system shall implement robust security measures, including data encryption and access control, to protect sensitive teacher information.	Yes	Data encryption (at-rest and in-transit), secure login, and role-based access are implemented.

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16	The Teacher Registry system shall ensure compliance with relevant educational and data protection regulations.	Yes	Fully compliant with national and international data privacy and protection standards.
17	The Teacher Registry system shall provide comprehensive documentation and user training to facilitate smooth adoption and operation.	Yes	Comprehensive user, admin, and technical documentation along with training sessions.
18	The Teacher Registry system shall support regular backups and quick recovery to prevent data loss and ensure business continuity.	Yes	Daily automated backups with quick recovery mechanisms and disaster recovery plan in place.
19	The Teacher Registry system shall offer performance optimization to ensure quick processing and retrieval of teacher information.	Yes	Optimized for high-speed data access and report generation with minimal latency.
20	The Teacher Registry system shall provide a user-friendly interface to enhance usability for all stakeholders.	Yes	Responsive UI/UX designed for ease of use across user types including mobile compatibility.
21	The Teacher Registry system shall support modular design to facilitate easy updates and enhancements.	Yes	Modular architecture allows independent development and deployment of components.

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Shared Education Record

S No.	Technical Specification	Compliance(Y/N)	Bidder Response
Functional Specifications			
1	The Shared Education Records system shall store student-level educational data that forms a student's electronic education record.	Yes	The system securely captures and stores detailed student education records, forming a unified electronic profile.
2	Stores unstructured educational data such as PDFs and narrative text.	Yes	Unstructured data formats such as PDFs, text, and scanned documents are fully supported in the document repository.
3	The Student Registry system shall provide real-time updates and notifications to students, parents, and administrators regarding enrollment status and academic progress.	Yes	Real-time alert and notification engine integrated for proactive communication via email/SMS/app.
4	The Student Registry system shall include document management capabilities to store and manage all relevant student documents (e.g., transcripts, certificates).	Yes	A dedicated DMS module ensures secure storage, indexing, and retrieval of all student-related documents.
5	The Student Registry system shall provide reporting and analytics capabilities to generate reports on student demographics, academic performance, and enrollment trends.	Yes	Built-in analytics engine offers dashboards and ad-hoc reporting on demographics and performance metrics.
6	The Shared Education Records system shall expose services that have the ability to receive and save student educational data in a form that contains both structured and unstructured elements.	Yes	APIs support ingestion of both structured (form data) and unstructured (narrative/document) educational content.
7	The Shared Education Records system shall expose services that respond to queries for a student's education record.	Yes	API endpoints are available for querying student records in real-time by authorized users.
8	Can return a specific known document or a list of documents for a student (as it was submitted).	Yes	Indexed and tagged documents are retrievable via search, metadata, or document IDs.

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9	Can return a full set of educational information stored about a student.	Yes	Comprehensive profile view aggregates all stored information in structured layout.
10	Return student summary - everything the Shared Education Records system knows about a student with links to fetch the individual data items.	Yes	A student dashboard summarizes the record with direct access to detailed data items.
11	The Shared Education Records system shall maintain the context in which the data was submitted.	Yes	Metadata, submission source, and time/context of submission are tracked per record.
12	The Shared Education Records system shall keep detailed audit logs of all interactions with educational data.	Yes	All create, read, update, and access transactions are logged with timestamps and user info.
13	Keep audit logs of any educational and demographic data that is stored or changed.	Yes	Complete change history maintained with version tracking for transparency and accountability.
14	Records and versions updates; records can never be deleted, only marked as such; any previous update should not rewrite old data; no information should ever be removed from the system.	Yes	Immutable data architecture: records are only marked inactive; original versions are retained.
15	The Shared Education Records system shall support the ability to export data for secondary use.	Yes	Export tools support CSV, Excel, JSON formats with role-based export rights.
16	The Shared Education Records system shall provide interfaces/extension points at various stages of the data lifecycle to allow for semantic validation or simple decision support.	Yes	Validation and decision logic hooks are provided at data entry, storage, and access layers.
17	The Shared Education Records system shall allow for storage and retrieval of basic privacy/policy constraints (access control-restrict part of record and restrict entire record).	Yes	Granular access control supports record-level and field-level data visibility restrictions.
Non Functional Specifications			

18	The Shared Education Records system shall ensure scalability to handle increasing numbers of students and data volumes.	Yes	Built on microservices architecture to enable horizontal scalability and data sharding.
19	The Shared Education Records system shall provide high availability and minimal downtime to ensure continuous operation.	Yes	HA clusters and failover infrastructure ensure 99.9% uptime.
20	The Shared Education Records system shall implement robust security measures, including data encryption and access control, to protect sensitive student information.	Yes	AES 256-bit encryption, SSL, 2FA, and RBAC ensure complete security compliance.
21	The Shared Education Records system shall ensure compliance with relevant educational and data protection regulations.	Yes	Compliant with GDPR, national education policies, and ISO 27001 standards.
22	The Shared Education Records system shall provide comprehensive documentation and user training to facilitate smooth adoption and operation.	Yes	User guides, admin manuals, and on-site/virtual training are part of deployment.
23	The Shared Education Records system shall support regular backups and quick recovery to prevent data loss and ensure business continuity.	Yes	Daily incremental and weekly full backups with cloud DR setup ensure zero data loss.
24	The Shared Education Records system shall offer performance optimization to ensure quick processing and retrieval of student information.	Yes	System is optimized using caching, indexing, and asynchronous processing techniques.
25	The Shared Education Records system shall provide a user-friendly interface to enhance usability for all stakeholders.	Yes	Intuitive UI designed with accessibility and multilingual support for diverse users.
26	The Shared Education Records system shall support modular design to facilitate easy updates and enhancements.	Yes	Modules are loosely coupled and can be independently updated or scaled.

API Gateway and Developer Portal

S No	Technical Specification	Compliance(Y/N)	Bidder Response
1	The API Gateway shall support routing of API requests to appropriate backend services	Yes	API Gateway includes dynamic routing capabilities based on

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	based on URL paths, HTTP methods, and headers.		path, method, and custom headers.
2	The API Gateway shall provide load balancing to distribute incoming requests across multiple backend instances.	Yes	Integrated load balancer ensures efficient distribution of traffic across multiple backends.
3	The API Gateway shall support authentication and authorization mechanisms, including OAuth2, JWT, and API keys.	Yes	Secure authentication using OAuth2, JWT, and API keys is fully implemented.
4	The API Gateway shall support rate limiting and throttling to control the number of requests per second.	Yes	Configurable rate-limiting policies are enforced to control traffic spikes.
5	The API Gateway shall provide logging and monitoring capabilities to track API usage and performance.	Yes	Real-time monitoring and comprehensive logging are provided through integrated dashboards.
6	The API Gateway shall support SSL/TLS termination to secure API traffic.	Yes	TLS/SSL termination is supported for secure HTTPS communication.
7	The API Gateway shall support caching of API responses to improve performance.	Yes	Configurable response caching available to reduce latency and server load.
8	The API Gateway shall provide a management console for configuring and managing API routes, policies, and settings.	Yes	Web-based admin console allows centralized configuration of routing rules and policies.
9	The API Gateway shall support integration with external identity providers for single sign-on (SSO).	Yes	Supports integration with major IdPs such as SAML, LDAP, Azure AD, and others.
10	The API Gateway shall support Web Socket connections for real-time communication.	Yes	Web Socket support ensures full-duplex communication for real-time apps.
11	The API Gateway shall provide detailed error handling and customizable error responses.	Yes	Custom error templates and logging for enhanced debugging and client experience.

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12	The API Gateway shall support API versioning to manage different versions of APIs.	Yes	Supports URI and header-based versioning for backward compatibility.
13	The API Gateway shall support integration with CI/CD pipelines for automated deployment and updates.	Yes	CI/CD hooks allow seamless integration with DevOps workflows (e.g., Jenkins, GitHub Actions).
14	The API Gateway shall provide support for both RESTful and GraphQL APIs.	Yes	Capable of proxying and managing both REST and GraphQL endpoints.
15	The API Gateway shall support multi-tenancy to handle multiple clients with isolated configurations and data.	Yes	Multi-tenant architecture allows segregation of clients and policies.
Developer Portal			
1	The Developer Portal shall provide comprehensive API documentation, including endpoints, request/response formats, and example code.	Yes	Swagger/OpenAPI and ReDoc-based documentation auto-generated and user-friendly.
2	The Developer Portal shall support interactive API testing, allowing developers to make API calls directly from the portal.	Yes	Embedded API explorer enables direct testing of API endpoints.
3	The Developer Portal shall provide SDKs and code samples in multiple programming languages.	Yes	SDKs and code samples available in Java, Python, Node.js, PHP, and more.
4	The Developer Portal shall support user registration and authentication to access API keys and usage analytics.	Yes	Secure portal login system with user self-registration and access to personalized keys.
5	The Developer Portal shall provide a dashboard for developers to manage their API keys, view usage statistics, and monitor API performance.	Yes	Each developer has access to personal API dashboard for key management and analytics.
6	The Developer Portal shall support forums and community features for developer collaboration and support.	Yes	Built-in discussion forums and support channels integrated for collaboration.
7	The Developer Portal shall provide detailed error messages and troubleshooting guides to assist developers in resolving issues.	Yes	Comprehensive error codes, causes, and resolution steps

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			are documented and accessible.
8	The Developer Portal shall support integration with external tools and services, such as GitHub and CI/CD pipelines.	Yes	GitHub/GitLab integration for API specs, SDKs, and CI workflows.
9	The Developer Portal shall provide customizable branding and theming options to align with the organization's identity.	Yes	Theming engine allows branding with custom logos, colors, and layout.
10	The Developer Portal shall support multi-language documentation to cater to a diverse developer audience.	Yes	Localization support is provided for multi-language documentation and UI.
11	The Developer Portal shall provide automated documentation generation to keep API documentation up to date with code changes.	Yes	Auto-syncs with API codebase and CI pipeline to regenerate latest docs.
12	The Developer Portal shall support feedback mechanisms for developers to report issues and suggest improvements.	Yes	Feedback forms and ticketing integrated into each documentation page.
13	The Developer Portal shall provide access to API usage analytics and reporting tools.	Yes	Usage metrics (calls, errors, latency) visualized through analytical dashboards.
14	The Developer Portal shall support role-based access control to manage permissions for different user roles.	Yes	RBAC defines different access levels for developers, testers, admins, etc.
15	The Developer Portal shall provide a sandbox environment for developers to test their integrations without affecting production data.	Yes	Sandbox APIs available with mock services and test credentials for safe development.

Education Data Warehouse, Dashboards and Analytics

S No	Technical Requirements	Compliance(Y/N)	Bidder's Response
Data Warehouse			
1	The system should support ANSI SQL:2011 standard queries.	Yes	The system is compliant with ANSI SQL: 2011 standards ensuring compatibility and portability across SQL-based applications.

2	The system should provide a data loading throughput of at least 1 TB per hour.	Yes	Optimized bulk load architecture enables loading throughput exceeding 1 TB/hr. using parallel processing and high-speed pipelines.
3	The system should support ETL/ELT processes with built-in connectors for major data sources (e.g., Oracle, SQL Server, Hadoop).	Yes	Built-in connectors available for Oracle, SQL Server, Hadoop, and other major platforms, supporting both ETL and ELT processes.
4	The system should be horizontally scalable to handle petabyte-scale datasets.	Yes	The architecture is horizontally scalable to support petabyte-level storage and compute workloads.
5	The system should include data quality tools for profiling, cleansing, and validation, as well as governance features like metadata management and lineage tracking.	Yes	Integrated data quality and governance tools offer data profiling, cleansing, validation, metadata management, and lineage tracking.
6	The system should support workload management to separate ETL processes from user query workloads, ensuring optimal performance.	Yes	Workload management engine ensures resource segregation between ETL jobs and user queries to avoid performance degradation.
7	The system should support concurrent access for at least 1000 users without performance degradation.	Yes	Engineered for high concurrency, the platform can support over 1000 users with consistent performance.
Reporting System			
1	The system should offer customizable report templates with support for complex formatting and conditional logic.	Yes	Advanced report designer allows full customization with conditional logic, nested tables, and rich formatting.
2	The system should support real-time data processing with a latency of less than 5 seconds.	Yes	Built for low-latency environments; real-time pipelines support sub-5-second latency.
3	The system should integrate with various data sources, including relational databases, NoSQL databases, and cloud storage services.	Yes	Seamless integration with RDBMS, NoSQL (MongoDB, Cassandra), and cloud (AWS S3, Azure Blob, GCP).

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4	The system should provide a drag-and-drop interface for report generation, allowing users to create reports without coding.	Yes	Intuitive drag-and-drop interface enables non-technical users to build complex reports easily.
5	The system should support automated report scheduling with options for daily, weekly, and monthly intervals.	Yes	Supports time-based scheduling, alert-based triggering, and distribution via email, FTP, or shared drive.
6	The system should support exporting reports in multiple formats, including PDF, Excel, CSV, and HTML.	Yes	Multi-format export options available including PDF, XLSX, CSV, HTML, and JSON.
Dashboard System			
1	The system should provide interactive data visualizations, including charts, graphs, and maps, with support for user-defined drill-down paths.	Yes	Interactive dashboards allow real-time exploration with drill-downs, filters, and geospatial visualizations.
2	The system should support drill-down capabilities, allowing users to explore data at different levels of granularity.	Yes	Configurable drill-down paths enable detailed exploration across hierarchical data structures.
3	The system should support real-time data updates with a refresh rate of at least once per minute.	Yes	Dashboard widgets auto-refresh in configurable intervals, supporting updates every 60 seconds or less.
4	The system should offer customizable dashboard layouts with drag-and-drop widgets and support for multiple screen sizes.	Yes	Responsive layout editor supports drag-and-drop widget placement and adaptive sizing.
5	The system should be accessible on mobile devices, including smartphones and tablets, with responsive design.	Yes	Fully responsive UI supports iOS and Android devices, including offline access for select features.
6	The system should integrate with leading BI tools such as Tableau, Power BI, QlikView etc.	Yes	Native connectors and REST APIs ensure seamless integration with Tableau, Power BI, Qlik, and others.
Analytics System			
1	The system should offer advanced analytics capabilities, including machine learning algorithms (e.g., regression, classification,	Yes	Integrated ML workspace supports regression, clustering,

L.B.O.

	clustering) and support for popular frameworks like TensorFlow and PyTorch.		classification, and custom models in TensorFlow, PyTorch.
2	The system should support predictive modeling with built-in algorithms and the ability to import custom models.	Yes	Built-in library of predictive algorithms and import function for ONNX, PMML, or Python-based models.
3	The system should support data mining and pattern recognition techniques, including association rule mining and anomaly detection.	Yes	Equipped with built-in modules for association rule mining, anomaly detection, and segmentation.
4	The system should integrate with BI tools for seamless data analysis and visualization.	Yes	Plug-and-play connectivity with major BI tools for visual analytics.
5	The system should provide high-performance data processing with in-memory computing and parallel processing capabilities.	Yes	Optimized processing using in-memory engine with support for multithreading and distributed processing.
6	The system should support text analytics and statistical analysis, including natural language processing (NLP) and hypothesis testing.	Yes	Text analytics includes NLP (tokenization, sentiment, topic modeling), statistical tests, and inferential analysis.
7	The system should support scenario and what-if analysis with interactive modeling and simulation tools.	Yes	Users can simulate multiple business scenarios using intuitive what-if modeling features.
8	The system should support time series analysis and forecasting with built-in algorithms and visualization tools.	Yes	Forecasting tools include ARIMA, exponential smoothing, Prophet, and visualization of trends, seasonality.

Identity & Biometrics System

S No	Technical Requirement	Compliance (Y/N)	Bidder Response
Identity & Biometrics			
1	The system shall support multimodal biometric identification, including fingerprint, iris, and facial recognition. The	Yes	The system supports facial biometrics for initial

	initial configuration will be based on facial biometrics.		configuration and is extensible to fingerprint and iris modalities.
2	The system shall provide fast and accurate biometric matching using NIST biometric algorithms.	Yes	Integrated with NIST-compliant biometric algorithms to ensure high-speed, precise identification.
3	The system shall support live enrolment and scanning of biometric data from students, teachers, and staff.	Yes	Live biometric enrolment supported across user categories with secure data transmission.
4	The system shall securely store and manage biometric data, ensuring compliance with data protection regulations.	Yes	Biometric data is securely stored using AES-256 encryption and aligned with global data protection standards (e.g., GDPR).
5	The system shall support biometric deduplication to prevent duplicate enrolments.	Yes	Deduplication engine compares biometric records to avoid redundancies across enrolments.
6	The system shall provide tools for manual inspection and adjudication of biometric records.	Yes	Admin interface available for manual review, override, and adjudication of biometric entries.
7	The system shall integrate with KEMIS for seamless data synchronization and real-time updates.	Yes	Real-time API-based integration ensures biometric records are synchronized with KEMIS modules.
8	The system shall support RESTful API integration for communication with other systems and third-party applications.	Yes	RESTful APIs exposed for secure integration with third-party platforms and government services.
9	The system shall provide remote identity verification with liveness detection to ensure the authenticity of biometric data.	Yes	Liveness detection (active/passive) ensures data authenticity in remote verification scenarios.
10	The system shall generate audit logs for reviewing enrolled records and ensuring data integrity.	Yes	All biometric enrolments and updates are logged and

L.B.O.

			auditable by system administrators.
11	The system shall accurately and efficiently manage student identification and attendance.	Yes	Integrated attendance module links biometric IDs with time-stamped logs and attendance records.
12	The system shall ensure strong encryption for data in transit and at rest.	Yes	Uses TLS 1.3 for data in transit and AES-256 for stored data.
13	The system shall ensure active and passive liveness detection methods.	Yes	Supports dual-mode liveness verification (challenge-response and passive camera-based detection).
14	The system shall be accessible to all students, including those with disabilities.	Yes	Designed per WCAG 2.1 accessibility standards to ensure inclusive usage.
15	The system shall handle a large number of students and high transaction volumes while ensuring efficient performance under peak loads.	Yes	Optimized for concurrency and high-throughput to scale up during peak academic cycles.
16	The system shall ensure comprehensive logging and auditing capabilities to track access and modifications to biometric data.	Yes	Complete audit trails maintained for every access, enrolment, and update activity.
SSO			
17	The system should support Single Sign-On (SSO) to allow users to authenticate once and gain access to multiple applications.	Yes	Central SSO gateway enables seamless access to all integrated educational apps post-authentication.
18	The system should support common SSO protocols such as SAML, OpenID Connect, and OAuth 2.0.	Yes	Supports leading SSO standards like SAML 2.0, OAuth 2.0, and OIDC for flexible integration.
19	The system should integrate with existing identity providers and directory services (e.g., LDAP, Active Directory).	Yes	Integrates with enterprise directories and identity providers for federated identity management.
20	The system should provide a centralized authentication service for all NEMIS applications.	Yes	Centralized authentication module connects all NEMIS

L.B.O.

			components to one secure access point.
MFA			
21	The system should support Multi-Factor Authentication (MFA) to enhance security by requiring multiple forms of verification.	Yes	MFA integration supports layered security with options like OTP, biometrics, and tokens.
22	The system should support various MFA methods, including SMS, email, mobile app push notifications, and hardware tokens.	Yes	Multi-channel MFA available via SMS, email OTPs, mobile push apps, and physical keys.
23	The system should allow administrators to configure and enforce MFA policies based on user roles and risk levels.	Yes	MFA policies configurable by role, location, or user behavior with risk-based access controls.
24	The system should provide backup authentication methods in case the primary method is unavailable.	Yes	Backup login options (e.g., secondary email, security questions) ensure continuity.
Non-Functional Specifications			
25	The system should be optimized for high-speed biometric matching, capable of handling large-scale databases with minimal hardware requirements.	Yes	Lightweight, high-performance matching engine optimized for both cloud and on-prem environments.
26	The system should be scalable to accommodate increasing workloads and the growing number of enrollees.	Yes	Microservices-based architecture enables horizontal scalability with containerized deployment.
27	The system should implement robust security measures, including encryption of biometric data and secure authentication methods.	Yes	End-to-end encryption, secure API tokens, and signed request headers protect data.
28	The system should support secure SSO and MFA protocols to protect user identities and access.	Yes	Full integration with secure SSO and MFA protocols for identity and access management.
29	The system should ensure high availability and reliability, with a target uptime of 99.9%.	Yes	High-availability infrastructure with auto-failover and load balancing ensures 99.9% uptime.

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30	The system should have a user-friendly interface for easy enrolment, verification, and management of biometric data.	Yes	Intuitive UI/UX designed for non-technical users with mobile and desktop compatibility.
31	The system should be accessible to users with disabilities, adhering to accessibility standards.	Yes	Accessibility features include screen readers, high contrast modes, and voice navigation.
32	The system should be easy to maintain and update, with clear documentation for administrators and users.	Yes	Modular design with complete admin/user documentation and guided maintenance scripts.
33	The system should be compatible with existing KEMIS infrastructure and support integration with other systems.	Yes	Compatible with KEMIS architecture and adheres to integration standards via REST APIs.
34	The system should support seamless integration with third-party applications and services using RESTful APIs.	Yes	RESTful API suite supports integration with third-party systems and educational tools.
35	The system should undergo rigorous testing to ensure functionality, performance, and security.	Yes	Unit, integration, performance, and security testing frameworks applied pre-deployment.
36	The system should include automated testing for regression and unit tests.	Yes	Automated CI/CD testing pipelines include unit, regression, and end-to-end testing.

Academic Certificate Signing & Verification System

S No	Technical Requirement	Compliance (Y/N)	Bidder Response
Functional Specifications			
1	The system should support the issuance of academic certificates with invincible signatures and multi-dimensional barcodes to prevent forgery.	Yes	The system issues tamper-proof digital certificates embedded with invisible signatures and secure 2D barcodes to ensure authenticity.
2	The system should allow administrators to issue certificates online, reducing the need for physical presence and manual processes.	Yes	Admins can issue, review, and manage certificates through a secure online portal with role-based access.

3	The system should support the generation of duplicate copies of past certificates, ensuring they are identical to the original but secured with anti forgery barcodes.	Yes	Authorized users can re-issue duplicates with identical data and fresh anti-forgery barcode security.
4	The system should provide real-time verification of certificates, allowing receivers to instantly check the authenticity of the document.	Yes	Instant verification available via QR scan or serial number lookup through an online portal.
5	The system should generate detailed and graphical verification reports showing failed verification in cased where forgery may have been detected.	Yes	Visual analytics and detailed audit trails highlight invalid attempts or document tampering.
6	The system should prevent unauthorized printing, saving, and copying of certificates when viewed through a web browser.	Yes	Certificates are view-only in secure web frames with browser restrictions to disable copy, save, and print.
7	The system should allow administrators to control the number of times and the duration for which the certificate can be printed and saved.	Yes	Print/download restrictions can be configured per user or document via admin settings.
8	The system should track and log all activities related to viewing, copying, printing, and transferring certificates.	Yes	Full audit logs maintained with timestamps and IP tracking for every interaction.
9	The system should provide audit logs for reviewing all actions performed on the certificates.	Yes	Comprehensive, exportable audit logs for all user and system-level actions on certificate records.
10	The system should integrate with existing academic management systems for seamless data synchronization and real-time updates.	Yes	Integrates with SIS, ERP, or academic systems via secure APIs or connectors.
11	The system should support RESTful API integration for communication with other systems and third-party applications.	Yes	Fully REST-compliant APIs support certificate issuance, verification, and data sync with external apps.
Non-Functional Specifications			
1	The system should be optimized for high-speed certificate issuance and verification, capable of handling large-scale databases with minimal hardware requirements.	Yes	Engineered for high-throughput environments with minimal server overhead.

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2	The system should be scalable to accommodate increasing workloads and the growing number of certificates issued and verified.	Yes	Cloud-native architecture supports horizontal scaling as per usage needs.
3	The system should implement robust security measures, including encryption of certificate data and secure authentication methods.	Yes	Uses AES-256 encryption, HTTPS, and secure token-based authentication.
4	The system should ensure high availability and reliability, with a target uptime of 99.9%.	Yes	Deployed with redundant failover and load balancing to meet SLA uptime targets.
5	The system should have a user-friendly interface for easy issuance, verification, and management of academic certificates.	Yes	Simple, intuitive UI for admins and verifiers with multilingual and responsive design.
6	The system should be accessible to users with disabilities, adhering to accessibility standards.	Yes	WCAG 2.1 compliance ensures accessibility for differently-abled users.
7	The system should be easy to maintain and update, with clear documentation for administrators and users.	Yes	Comes with admin and user manuals, training guides, and helpdesk support.
8	The system should be compatible with existing academic management infrastructure and support integration with other systems.	Yes	Compatible with leading academic CRMs, SIS, and ERP systems.
9	The system should support seamless integration with third-party applications and services using RESTful APIs.	Yes	Modular architecture ensures plug-and-play integration via secure APIs.
10	The system should undergo rigorous testing to ensure functionality, performance, and security.	Yes	Comprehensive UAT, load testing, and security audits conducted pre-deployment.
11	The system should include automated testing for regression and unit tests.	Yes	Automated test suites integrated into CI/CD pipelines to ensure consistent quality and reliability.

Digital Certificate

S No	Technical Requirement	Compliance (Y/N)	Bidder Response

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1	The system should issue digital certificates to students upon completion of courses or programs.	Y	Digital certificates issued and will be accessed through Digilocker
2	The system should support secure digital signatures to authenticate the certificates.	Y	Serialized, user based, and encrypted certificates will be configured.
3	The system should allow for customization of certificate templates to include institution branding and student details.	Y	Customised design according to institution/ institution levels and branding will be done
4	The system should allow for customization of certificate templates to include institution branding and student details.	Y	Customised design according to institution/ institution levels and branding will be done
5	The system should provide a secure method for students to access and download their certificates.	Y	The individual certificates will be accessed and downloadable formats availed in the system
6	The system should integrate with the institution's student information system for seamless data synchronization.	Y	Digilocker will be fully integrated with an institution level access and updated with individual learner details.
7	The system should support verification of certificates by third parties, such as employers or other educational institutions.	Y	The institutions will be given access as issuers and third parties, upon request will be granted retrieval rights
8	The system should ensure compliance with data protection regulations for storing and managing student information.	Y	The system is ODPC compliant
9	The system should provide audit logs for tracking certificate issuance and access.	Y	Audit logs and reports are provided in the system
10	The system should support RESTful API integration for communication with other systems and third-party applications.	Y	The system supports RESTful API integration
11	The system should offer tools for manual inspection and adjudication of certificate records.	Y	The system offers discrete reporting features allowing manual inspection of certificate records
12	The system should provide remote access for students to verify their certificates with liveness detection.	Y	A learner portal with 2FA will be provided for remote access
13	The system should have mechanisms to obtain and manage student consent for digital certificate issuance and use, in adherence to privacy laws and regulations.	Y	With the authorized issuance and retrieval of records, the learner portal will enable

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			consent/ approval before the data is retrieved
14	The system should ensure strong encryption for data in transit and at rest.	Y	The data transmitted and stored will be encrypted

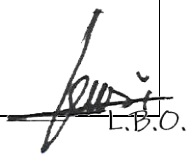
Financial Management System

S No.	Technical Specification	Compliance(Y/N)	Bidder Response
1	The Financial Management Module of the KEMIS system shall support and be integrated across the institution KEMIS and Core MoE KEMIS systems.	Yes	KCB shall ensure seamless integration ensured via secure APIs and standardized data structures across KEMIS layers.
2	The Financial Management Module of the KEMIS system shall enable multichannel payment processing.	Yes	KCB shall support payments via bank transfer, mobile money, cards, and e-wallets.
3	The Financial Management Module of the KEMIS system shall handle multicurrency transactions, supporting various currencies for global operations.	Yes	KCB shall deliver a built-in multi-currency engine for global compatibility and real-time currency conversion.
4	The Financial Management Module of the KEMIS system shall include a Warehouse Management System (WMS) for inventory tracking, monitoring stock levels, locations, and movements.	Yes	WMS module manages inventory levels, warehouse locations, and movement logs.
5	The Financial Management Module of the KEMIS system shall provide order management capabilities within the WMS to process and fulfil orders efficiently.	Yes	End-to-end order processing with automated pick-pack-ship workflows.
6	The Financial Management Module of the KEMIS system shall offer automated bank reconciliation to match bank statements with internal records.	Yes	KCB shall provide a system that matches bank feeds with internal records using rule-based reconciliation engine.

7	The Financial Management Module of the KEMIS system shall include exception handling for bank reconciliation to identify and resolve discrepancies.	Yes	KCB shall provide a system that flags unmatched items with tools for manual investigation and resolution.
8	The Financial Management Module of the KEMIS system shall support invoice management for payables and receivables, including creation, sending, and tracking of invoices.	Yes	Automates invoice lifecycle from generation to settlement tracking.
9	The Financial Management Module of the KEMIS system shall manage payment processing for payables and receivables, handling incoming and outgoing payments.	Yes	Secure and configurable workflows for incoming/outgoing payments.
10	The Financial Management Module of the KEMIS system shall generate aging reports to track overdue receivables and payables.	Yes	Provides real-time aging reports for receivables and payables by entity or invoice.
11	The Financial Management Module of the KEMIS system shall maintain a general ledger to record all financial transactions comprehensively.	Yes	Unified ledger with drill-down capability to transaction-level data.
12	The Financial Management Module of the KEMIS system shall manage the chart of accounts, defining and maintaining account structures.	Yes	Customizable CoA with hierarchy support and compliance alignment.
13	The Financial Management Module of the KEMIS system shall generate financial statements, including balance sheets, income statements, and cash flow statements.	Yes	Auto-generation of balance sheets, P&L, and cash flow reports.
14	The Financial Management Module of the KEMIS system shall support budget creation and management for various departments and projects.	Yes	Budgeting module with department-wise allocation and monitoring.
15	The Financial Management Module of the KEMIS system shall provide	Yes	Interactive dashboards for actual vs. budgeted performance review.

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	variance analysis to compare actual performance against budgeted figures.		
16	The Financial Management Module of the KEMIS system shall facilitate fund allocation for capitation based on predefined criteria.	Yes	KCB shall provide an allocation engine uses predefined criteria to distribute capitation funds.
17	The Financial Management Module of the KEMIS system shall track the usage and impact of allocated funds for capitation.	Yes	Real-time tracking, reporting, and audit trail of capitation fund utilization.
18	The Financial Management Module of the KEMIS system shall manage vendor records and performance for procurement activities.	Yes	Centralized vendor registry with performance analytics.
19	The Financial Management Module of the KEMIS system shall create and manage purchase orders for procurement.	Yes	Fully automated PO generation and tracking module.
20	The Financial Management Module of the KEMIS system shall implement approval workflows for procurement activities.	Yes	Multi-tier approval rules configurable by department and amount.
21	The Financial Management Module of the KEMIS system shall record and categorize expenses for expenditure tracking.	Yes	Categorization by GL codes, projects, or departments with tagging support.
22	The Financial Management Module of the KEMIS system shall generate expenditure reports for analysis.	Yes	On-demand or scheduled reporting with visual analytics.
23	The Financial Management Module of the KEMIS system shall maintain detailed employee records for payroll management.	Yes	Secure HRMS interface synced with payroll engine.
24	The Financial Management Module of the KEMIS system shall calculate and disburse salaries for payroll management.	Yes	Monthly salary processing with tax, benefits, and statutory deductions.



25	The Financial Management Module of the KEMIS system shall ensure tax compliance for payroll management.	Yes	Inbuilt tax tables and statutory deductions auto-calculated.
26	The Financial Management Module of the KEMIS system shall manage internal funds transfers between different accounts within the organization.	Yes	Supports inter-account and inter-department transfers with audit trail.
27	The Financial Management Module of the KEMIS system shall handle external funds transfers to external entities.	Yes	Supports integration with banks for secure disbursement.
28	The Financial Management Module of the KEMIS system shall process scholarship and bursary applications.	Yes	End-to-end processing with eligibility checks and approvals.
29	The Financial Management Module of the KEMIS system shall allocate and track scholarship and bursary funds.	Yes	Fund management linked to disbursement logs and performance metrics.
30	The Financial Management Module of the KEMIS system shall generate standard financial reports.	Yes	Library of statutory and operational reports available.
31	The Financial Management Module of the KEMIS system shall allow users to create custom financial reports based on specific criteria.	Yes	Drag-and-drop report builder with SQL query support.
32	The Financial Management Module of the KEMIS system shall provide a dashboard for a visual overview of key financial metrics.	Yes	Dashboard with KPIs, trend graphs, and drill-down insights.
33	The Financial Management Module of the KEMIS system shall ensure scalability to handle increasing amounts of data and users.	Yes	Scalable cloud-native architecture supports thousands of concurrent users.
34	The Financial Management Module of the KEMIS system shall protect sensitive financial data through encryption.	Yes	AES-256 encryption for data at rest and TLS for data in transit.

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35	The Financial Management Module of the KEMIS system shall implement role-based access control to restrict unauthorized access.	Yes	Fine-grained RBAC configurable per user role and module.
36	The Financial Management Module of the KEMIS system shall maintain audit trails of all transactions and changes for accountability.	Yes	Immutable logs for all transactions, changes, and access events.
37	The Financial Management Module of the KEMIS system shall ensure regular backups and quick recovery in case of data loss.	Yes	Automated daily backups with RTO < 2 hours and RPO < 1 hour.
38	The Financial Management Module of the KEMIS system shall aim for high availability and minimal downtime.	Yes	99.9% uptime SLA with multi-region redundancy and load balancing.
39	The Financial Management Module of the KEMIS system shall design an intuitive and user-friendly interface.	Yes	Responsive UI/UX with role-specific dashboards and quick actions.
40	The Financial Management Module of the KEMIS system shall develop APIs for seamless integration with other systems within KEFIMS.	Yes	RESTful APIs conforming to OpenAPI spec for seamless integration.
41	The Financial Management Module of the KEMIS system shall facilitate smooth migration of data from existing systems.	Yes	ETL toolkit and migration utility for legacy system data import.
42	The Financial Management Module of the KEMIS system shall comply with relevant financial regulations and standards.	Yes	KCB shall ensure the system Adheres to IPSAS, IFRS, and local compliance mandates.
43	The Financial Management Module of the KEMIS system shall provide comprehensive documentation for system maintenance.	Yes	Complete admin/user guides, API docs, and SOPs included.
44	The Financial Management Module of the KEMIS system shall be designed in a modular fashion to facilitate easy updates and enhancements.	Yes	Micro services-based design allows independent module upgrades.

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Scholarships and Bursary System

S No	Technical Specification	Compliance (Y/N)	Bidder Response
1	The Student Information Management module shall maintain detailed student profiles as pulled from the student registry and the Core systems.	Yes	Profiles are auto-synced and enriched from integrated registry and core KEMIS modules.
2	The Student Information Management module shall support the import and export of student data in various formats (e.g., CSV, Excel) in a simplified manner with automated validation of the students against the student's registry.	Yes	Built-in data handling tools ensure bulk data operations with real-time validation.
3	The Student Information Management module shall provide search and filter functionalities to easily locate student records based on specific criteria.	Yes	Advanced filters and search by name, ID, school, status, etc.
4	The Scholarship/Bursary Application module shall allow students to submit applications online through a user-friendly interface.	Yes	Web portal supports guided application submission with multilingual support.
5	The Scholarship/Bursary Application module shall support the upload of required documents (e.g., transcripts, recommendation letters).	Yes	Supports upload of documents in multiple formats with validation.
6	The Scholarship/Bursary Application module shall provide real-time status updates to applicants regarding their application progress.	Yes	Applicants are notified at every stage of application lifecycle.
7	The Eligibility Assessment module shall evaluate applications based on predefined eligibility criteria (e.g., academic performance, financial need).	Yes	Automated rules engine evaluates academic and financial criteria.
8	The Eligibility Assessment module shall support automated scoring and ranking of applications.	Yes	AI-based scoring algorithm with custom weightage per scheme.
9	The Eligibility Assessment module shall allow manual review and adjustment of	Yes	Designated reviewers can override and annotate scoring as needed.

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	eligibility assessments by authorized personnel.		
10	The Award Allocation module shall allocate scholarship and bursary funds to eligible students based on assessment results.	Yes	Rules-based award engine automates allocation per scheme.
11	The Award Allocation module shall support multiple award types (e.g., full scholarships, partial bursaries).	Yes	Supports full/partial awards, special grants, and recurring bursaries.
12	The Award Allocation module shall generate award letters and notifications for successful applicants.	Yes	Auto-generates PDF letters with digital signature and email dispatch.
13	The Communication module shall send automated email notifications to students regarding their application status and award details.	Yes	Real-time notifications sent for every status change.
14	The Communication module shall support SMS notifications for important updates.	Yes	SMS gateway integration enabled for important alerts.
15	The Communication module shall provide a messaging system for direct communication between students and administrators.	Yes	In-platform chat and ticketing module available.
16	The Reporting and Analytics module shall generate reports on application statistics, including the number of applications received, approved, and rejected.	Yes	Dashboards and downloadable reports on approval trends.
17	The Reporting and Analytics module shall provide insights into award distribution and impact analysis.	Yes	Region-wise, gender-wise and school-wise impact analytics.
18	The Reporting and Analytics module shall support custom report creation based on specific criteria.	Yes	Drag-and-drop report builder with filter and export options.
19	The Document Management module shall store and manage all relevant documents, including application forms, eligibility proofs, and award letters.	Yes	Encrypted, indexed repository with search and versioning.

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20	The Document Management module shall support document version control and tracking.	Yes	Keeps history of changes to all uploaded files.
21	The Document Management module shall provide secure access to documents based on user roles and permissions.	Yes	RBAC ensures access per user's assigned permission set.
22	The User Roles and Permissions module shall define and manage user roles (e.g., administrators, reviewers, students) with specific access rights.	Yes	Role setup wizard and granular access controls.
23	The User Roles and Permissions module shall support role-based access control to restrict unauthorized access to sensitive information.	Yes	Multi-level access matrix configurable by module.
24	The User Roles and Permissions module shall provide audit logs of user activities for accountability.	Yes	All user actions are time-stamped and logged.
25	The Payment Processing module shall disburse scholarship and bursary funds to students' or schools' accounts securely and efficiently.	Yes	The system deployed by KCB shall be fully integrated with financial institutions via secure APIs.
26	The Payment Processing module shall support multiple payment methods (e.g., bank transfers, mobile money).	Yes	KCB shall ensure Mobile money, bank transfer, and vouchers are supported.
27	The Payment Processing module shall provide payment status tracking and reporting.	Yes	KCB shall deploy a Dashboard that shows disbursal status, payment failures, and reconciliation.
28	The Audit and Compliance module shall maintain logs of all transactions and changes for audit purposes.	Yes	Immutable audit logs with drill-down filters.
29	The Audit and Compliance module shall ensure compliance with relevant regulations and standards.	Yes	GDPR, Data Protection Act (Kenya), and MoE guidelines compliant.
30	The Audit and Compliance module shall provide tools for internal and external audits.	Yes	Audit dashboards and export-ready compliance reports.

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31	The Scholarships and Bursary Management system shall integrate seamlessly with the KEMIS system to ensure data consistency and interoperability.	Yes	Bi-directional data sync with KEMIS via secured APIs.
32	The Scholarships and Bursary Management system shall integrate with external payment systems to facilitate secure and efficient fund disbursement.	Yes	Payment APIs for integration with banking and treasury systems.
33	The Scholarships and Bursary Management system shall integrate with parent/student apps to provide real-time updates and access to application status and award information.	Yes	Notification, status, and document view integrated with mobile/web apps.
34	The system shall ensure scalability to handle increasing numbers of users and data volumes.	Yes	Scalable micro services architecture supporting thousands of users.
35	The system shall provide high availability and minimal downtime to ensure continuous operation.	Yes	Deployed on HA cloud infrastructure with disaster recovery.
36	The system shall implement robust security measures, including data encryption and access control, to protect sensitive information.	Yes	AES encryption, 2FA, and SSO with RBAC.
37	The system shall ensure compliance with relevant financial and data protection regulations.	Yes	Meets local and global financial regulatory requirements.
38	The system shall provide comprehensive documentation and user training to facilitate smooth adoption and operation.	Yes	User guides, admin manuals, and LMS for onboarding.
39	The system shall support regular backups and quick recovery to prevent data loss and ensure business continuity.	Yes	Automated incremental backups and tested restore procedures.

Fee Structure Management System

S No	Technical Specifications	Complied (Y/N)	Bidder Response

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1	The system should facilitate the submission of fee structures for basic, TVET, and higher education institutions, allowing authorized personnel to upload and manage fee details.	Yes	Institutions can upload, update, and manage fee structures through secure role-based access.
2	The system should support workflows for the evaluation and approval of fee structures, including automated routing to relevant stakeholders for review and approval.	Yes	In-built workflow engine enables multi-level approval, routing, and status tracking.
3	The system should provide capabilities to compare fee structures across different institutions and education levels, enabling users to analyze and benchmark fees.	Yes	Comparative analytics dashboard with institution and category-wise filtering available.
4	The system should enable the standardization of fee structures across institutions, ensuring consistency and compliance with regulatory guidelines.	Yes	Custom templates and rule-based validation help enforce standardization.
5	The system should offer analytics and reporting tools to generate insights on fee structures, trends, and anomalies, supporting data-driven decision-making.	Yes	Data visualizations and downloadable reports support decision-making.
6	The system should integrate with institution ERPs to ensure that the school fees received are based on approved fee structures, facilitating seamless financial management.	Yes	API-based integration ensures approved fee sync with institutional financial systems.
7	The system should allow parents to access and query approved fee structures via a parent app/web portal, providing transparency and ease of access to fee information.	Yes	Fee structure view is enabled via web and mobile apps for parents.
8	The system should ensure compliance with data security and privacy regulations, protecting sensitive information and maintaining confidentiality.	Yes	Complies with national data privacy laws and uses role-based encryption.
9	The system should support multi-user roles and permissions, allowing different levels of access and control for administrators, evaluators, and parents.	Yes	Admin, Evaluator, Parent, and Auditor roles configurable via RBAC.

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10	The system should provide a user-friendly interface for all stakeholders, ensuring ease of use and efficient navigation.	Yes	Responsive UI/UX with guided navigation and multi-device support.
11	The system should offer real-time notifications and alerts for fee structure updates, approvals, and other relevant actions, keeping users informed.	Yes	Email/SMS/app notifications for approvals, submissions, and updates.
12	The system should support multi-language capabilities to cater to diverse user groups and ensure accessibility.	Yes	Multi-language interface supports English, Kiswahili, and local dialects (configurable).
13	The system should include audit trails for all transactions and changes, providing a record of actions for accountability and transparency.	Yes	Full audit logs maintained for transparency and compliance.
14	The system should ensure high availability and scalability to accommodate growing user demands and institutional needs.	Yes	Deployed on scalable infrastructure ensuring 99.9% uptime.
15	The system should provide comprehensive user training and support to ensure effective utilization and address any issues or queries.	Yes	Offers training modules, helpdesk support, and user manuals.

Infrastructure for Hosting the KEMIS Systems

Internet Connectivity - Paying for the Service

S No	Technical Requirements	Compliance(Y/N)	Bidder's Response
Internet Connectivity			
1	The service should provide a minimum download speed of 5 Mbps for Primary and 10 Mbps for High School.	Yes	The download speeds provided will be flexible to fit the needs of a particular time
2	The service should provide a minimum upload speed of 5 Mbps for Primary and 10 Mbps for High School.	Yes	The upload speeds provided will be flexible to fit the needs of a particular time
3	The service should offer unlimited data usage with no data caps.	Yes	The dedicated bandwidth to be configured per institution will be unlimited and no fair use policy(FUP) will be applied.

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4	The service should include 24/7 customer support with a dedicated helpline.	Yes	The use of existing NOC manned 24x7x365 with a team lead will enable effective monitoring and support. Dedicated support contacts will be provided to support the KEMIS project.
5	The service should provide a Service Level Agreement (SLA) with at least 99.9% uptime guarantee.	Yes	With strategically located field teams, proactive monitoring, preventive and corrective maintenance coupled with redundant routes and geographical redundancy of the core network will be implemented for guaranteed uptime.
6	The service should support IPv4 and IPv6 protocols.	Yes	The technology to be implemented will use CA type approved equipment that supports IPv4 and IPv6 protocols.
7	The service should offer static IP addresses upon request.	Yes	Dedicated speeds will be guaranteed by assigning a static IP to each institution.
8	The service should provide a web-based management portal for monitoring and managing the internet connection.	Yes	Services and network elements shall be monitored using web-based monitoring tools that are non-vendor specific that is accessible through a URL.
9	The service should support multiple devices and concurrent connections without performance degradation.	Yes	With provision of adequate capacity and resilient backbone infrastructure that will enable multiple concurrent sessions by the users without buffers.
10	The service should offer scalable bandwidth options to accommodate future growth.	Yes	With a resilient DWDM backbone infrastructure, growth in capacity will be effectively accommodated.
11	The service should provide detailed usage reports and analytics.	Yes	The NMS and monitoring tools provided are configured to generate and share reports on need basis and scheduled reports.

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12	The service should offer flexible billing options, including monthly and annual plans.	Yes	An efficient Customer Relationship Management system shall have flexible billing options to be agreed upon by both parties.

Compute and Storage Infrastructure

S No.	Technical Requirements	Compliance (Y/N)	Bidder's Response
Compute Requirements			
1	The servers must have a multi-core processor architecture with sufficient cores and clock speed to handle concurrent processing demands of all deployed applications and systems.	Yes	We will provide servers with multi-core processor architecture with sufficient cores and clock speed.
2	The servers must have sufficient RAM to support all applications and systems.	Yes	The server(s) supports up to **workloads by**, ensuring sufficient memory capacity for demanding applications and systems.
3	The server must be equipped with ECC (Error-Correcting Code) RAM with sufficient capacity to ensure stable and reliable operation of all applications and systems.	Yes	All server memory is ECC-based, offering advanced fault detection and correction for enhanced system stability and reliability.
4	The servers must support virtualization and be compatible with both Linux and Windows operating systems, including their latest versions.	Yes	The server(s) supports hardware-assisted virtualization and is fully compatible with both Linux and Windows operating systems, including their latest versions.
5	The network interface card (NIC) must support a minimum of 10 Gbps throughput with support for link aggregation and failover.	Yes	The server(s) have been configured with 10 Gbps NICs that support link aggregation (LACP) and failover for high-throughput and resilient networking.
6	The server must have hardware-based security features such as TPM (Trusted Platform Module) and secure boot.	Yes	The server(s) supports hardware-based security features, including TPM 2.0 and Secure Boot, for enhanced system integrity and protection.
7	The server must include redundant power supplies to ensure	Yes	The server(s) supports redundant hot-swappable power supplies, ensuring

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	continuous operation in case of power failure.		continuous operation during a power supply failure.
8	The server must support scalable architecture to allow for future expansion and upgrades.	Yes	The server(s) features a scalable architecture, supporting multi-processor configurations, memory expansion, and storage upgrades for future growth.
Storage Requirements			
8	The storage must provide a minimum capacity as required to run all deployed systems, with support for high IOPS (Input/output Operations Per Second) to handle intensive read/write operations.	Yes	The Smart Tier storage provides scalable capacity with high IOPS performance, ensuring efficient handling of intensive read/write operations for all deployed systems.
9	The storage solution must utilize NVMe (Non-Volatile Memory Express) SSDs for primary storage to ensure high performance and low latency.	Yes	The Smart Tier storage supports NVMe SSDs for primary tiers, delivering high performance and ultra-low latency in shared NAS cloud environments.
10	The storage system must implement RAID 5, 6, or higher for data redundancy and fault tolerance, with hot-swappable drives.	***Yes***	The Smart Tier storage supports RAID 5, 6, and higher levels, with hot-swappable drives for enhanced data redundancy and fault tolerance.
11	The system must offer intelligent automation capabilities, including machine learning and AI-driven analytics.	Yes	The Smart Tier storage integrates intelligent automation with AI-driven analytics and machine learning, enabling optimized data placement, performance tuning, and predictive maintenance.
12	The system must include robust security features such as end-to-end encryption, secure boot, and advanced threat detection.	Yes	The Smart Tier storage includes robust security features such as end-to-end encryption, secure boot, and advanced threat detection to protect data and system integrity.
13	The storage solution must include tools for performance monitoring	Yes	The Smart Tier storage includes built-in tools for real-time performance monitoring, enabling efficient

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			management and optimization of storage resources.
14	The storage solution must include snapshot capabilities for point-in-time recovery.	Yes	The Smart Tier storage supports snapshot capabilities, allowing point-in-time recovery for data protection and quick restoration.
15	The vendor must be known and recognized as a leader in hardware.	Yes	The vendor is a globally recognized leader in hardware, known for its innovation and reliability in enterprise IT and storage solutions.
16	The storage system must support data replication to ensure high availability and disaster recovery.	Yes	The Smart Tier storage supports data replication, ensuring high availability and robust disaster recovery capabilities.
Backup Requirements			
17	The backup solution must include robust backup capabilities to ensure data integrity and availability.	Yes	The backup solution shall provide robust backup capabilities, ensuring data integrity and high availability across cloud environments.
18	All systems will be backed up with a retention period of 90 days on the main backup system and achieved to long-term storage	Yes	The solution supports customizable backup retention policies, allowing 90-day retention on the main backup system with archiving to long-term storage.
19	The backup solution must implement anti-ransomware measures, including immutable backups and anomaly detection.	Yes	The backup solution includes anti-ransomware features such as immutable backups and anomaly detection to safeguard against unauthorized data alterations.
20	The backup solution must include replication capabilities to ensure data availability and disaster recovery.	Yes	The backup solution supports backup replication, ensuring data availability and robust disaster recovery across regions or availability zones.
21	The backup solution must support automated daily incremental backups and weekly full backups, with the ability to schedule and manage backup jobs.	Yes	The backup solution supports automated daily incremental and weekly full backups, with flexible scheduling and centralized backup job management.

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22	The backup solution must support data deduplication to optimize storage usage.	Yes	The backup solution supports data deduplication, reducing storage usage by eliminating redundant data during backups.
23	The backup solution must include automated verification of backup integrity to ensure data recoverability.	Yes	The backup solution includes automated backup integrity verification, ensuring that backups are recoverable and reliable.
24	The backup solution must support granular recovery options to restore individual files or applications.	Yes	The backup solution supports granular recovery, allowing only server level (inclusive of the applications and files)
25	The backup solution must comply with GDPR, HIPAA, and ISO 27001 standards.	Yes	The backup solution complies with GDPR, HIPAA, and ISO 27001 standards, ensuring data privacy, security, and regulatory compliance.
26	The backup solution must support data replication to ensure high availability and disaster recovery.	***Yes***	The backup solution supports data replication, providing high availability and effective disaster recovery across cloud environments.
27	The backup software must be compatible with the existing IT infrastructure, supporting both physical and virtual environments.	Yes	***The Backup Solution supports*** both physical and virtual environments.
28	The disaster recovery plan must include offsite backup capabilities, with secure data transfer and storage to a geographically separate location.	Yes	The ***Backup Solution supports offsite backup*** with secure data transfer and storage in geographically separate locations, aligning with disaster recovery best practices.

End User Devices: Field Officers and Schools

S No.	Technical Requirements	Compliance (Y/N)	Bidder's Response
1	The laptop should have a minimum of Intel Core i5 or equivalent latest generation processor.	Yes	Laptops will have a minimum of Intel Core i5 or equivalent latest generation processor.

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2	The laptop should have at least 8 GB of RAM.	Yes	Laptops will have atleast 8 GB ram
3	The laptop should have a minimum of 512GB SSD storage.	Yes	The laptop will have a minimum of 512GB SSD storage.
4	The laptop should have a screen size of at least 13 inches with Full HD resolution.	Yes	The laptop will have a screen size of atleast 13 inches with Full HD resolution.
5	The laptop should include built-in Wi-Fi 6 and Bluetooth 5.0.	Yes	The laptop will include built-in Wi-Fi 6 and Bluetooth 5.0.
6	The laptop should have a battery life of at least 8 hours.	Yes	Laptop battery life typically ranges from 3 to 10 hours on a single charge, though some laptops can last for significantly longer. Factors like battery age, usage patterns, and power management settings influence how long a laptop can operate on battery power
7	The laptop should include USB-C, USB-A, HDMI, and headphone ports.	Yes	The laptop will include USB-C, USB-A, HDMI, and headphone ports.
8	The laptop should come with a pre-installed operating system (Windows 10 or later).	Yes	laptop will come with a pre-installed operating system
9	The laptop should include a built-in webcam and microphone.	Yes	The laptop will include a built-in webcam and microphone.
10	The laptop should have a backlit keyboard.	Yes	The laptop will have have a backlit keyboard.
11	The laptop should include security features such as TPM (Trusted Platform Module) and biometric authentication (fingerprint or facial recognition).	Yes	The Laptop will include security features such as TPM (Trusted Platform Module) and biometric authentication (fingerprint or facial recognition).
12	The laptop should support remote management and monitoring capabilities.	Yes	The laptop will support remote management and monitoring capabilities.

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13	The laptop should be compliant with energy efficiency standards (e.g., ENERGY STAR).	Yes	The laptop will be compliant with energy efficiency standards (e.g., ENERGY STAR).
14	The laptop should include a warranty of at least 1 year.	Yes	The laptop will include a warranty of at least 1 year.
15	The laptop should have options for extended warranty and support.	Yes	The laptop will have options for extended warranty and support.

Helpdesk and Contact Center System

S No.	Technical Requirements	Compliance (Y/N)	Bidder's Response
Helpdesk System			
1	The system should support ticket creation via email, web portal, and phone.	Yes	Users can raise tickets through email, web forms, or call logs entered by agents. Tickets are automatically created and assigned an ID.
2	The system should provide automated ticket routing based on predefined rules.	Yes	Tickets are routed to specific agents or departments based on subject, category, and defined routing rules configured in admin settings.
3	The system should include a knowledge base for self-service support.	Yes	A searchable knowledge base will be available for users
4	The system should offer real-time chat support.	Yes	Chat support will be available via the web portal with real-time WebSocket-based communication.
5	The system should provide SLA management with escalation rules.	Yes	SLAs with response/resolution times will be configurable, and escalations will trigger alerts to supervisors on breach.
6	The system should support multi-channel communication (email, chat, and phone).	Yes	Email, chat, and phone interactions will be available
7	The system should offer customizable ticket templates and workflows.	Yes	Admins can define custom ticket templates and workflow states

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			depending on department and ticket type.
8	The system should provide reporting and analytics on ticket resolution times, agent performance, and customer satisfaction.	Yes	Dashboards will show analytics on ticket volumes, resolution rates, and satisfaction metrics for better decision making.
9	The system should integrate with other ITSM tools and CRM systems.	Yes	Integration via REST APIs will allow syncing with third-party ITSM and CRM tools.
10	The system should support remote access for agents.	Yes	Agents can access the HelpDesk system remotely through secure VPN login from any browser on System.
11	The system should include role-based access control.	Yes	Permissions and access will be role-based (admin, agent, supervisor, user) to restrict data/actions appropriately.
12	The system should offer mobile app support for agents and customers.	Yes	Mobile apps will allow agents and customers to view, create, and respond to tickets on the go.
13	The system should provide automated notifications and alerts for ticket updates.	Yes	Automated email/SMS/app push alerts will be sent for ticket updates, escalations, and resolutions.
14	The system should support integration with social media platforms for customer support.	Yes	Facebook and Twitter APIs will allow auto-creation of tickets from social messages or comments.
15	The system should include a feedback mechanism for customers to rate their support experience.	Yes	Customers will receive a feedback link post-resolution to rate and comment on support quality.
Contact Center System			
1	The system should support inbound and outbound call management.	Yes	The system will support handling of both incoming and outgoing calls with agent dashboards and caller logs.
2	The system should provide interactive voice response (IVR) capabilities.	Yes	IVR trees can be configured for different departments or call reasons, guiding callers before routing.

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3	The system should offer call recording and monitoring features.	Yes	Calls will be recorded and stored securely with playback access for quality review and training.
4	The system should support automatic call distribution (ACD) to route calls to the appropriate agents.	Yes	ACD will route calls to the most appropriate available agent based on load or skills.
5	The system should provide real-time and historical reporting on call metrics (e.g., call volume, average handle time, first call resolution).	Yes	Reports will show metrics like call volume, drop rate, wait time, AHT, and FCR for historical and real-time analysis.
6	The system should integrate with CRM systems to provide agents with customer information during calls.	Yes	During calls, agent screens will show caller's CRM details for better personalized interaction.
7	The system should offer omnichannel support, including voice, email, chat, and social media.	Yes	The contact center will unify customer communication across calls, emails, chats, and social channels.
8	The system should provide workforce management tools for scheduling and forecasting.	Yes	Managers can forecast call load and schedule agent shifts accordingly for optimized coverage.
9	The system should support call scripting and guided workflows for agents.	Yes	Agents will follow guided scripts based on call type, reducing errors and ensuring standardization.
10	The system should include quality management tools for evaluating agent performance.	Yes	Supervisors can evaluate calls using scorecards, leave feedback, and track performance trends.
11	The system should offer call back and queue management features.	Yes	Callers can request a callback instead of waiting in queue, improving user satisfaction.
12	The system should provide integration with third-party applications and APIs.	Yes	APIs and webhook endpoints will be available to integrate with third-party CRMs and analytics tools.
13	The system should support remote and mobile agents.	Yes	Agents can login and handle calls from remote locations ..
14	The system should include security features such as encryption and role-based access control.	Yes	System will implement data encryption, and will include a flexible role-based

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			access control mechanism with secure login and permission-based access.
15	The system should offer a user-friendly interface for agents and supervisors.	Yes	Agents and supervisors will use a modern, responsive UI with intuitive navigation and quick access tools.

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Security and Compliance Layer

Data Security (Backup/Archiving/Cyber Resiliency)

S No.	Technical Requirements	Compliance (Y/N)	Bidder's Response
1	The system must include advanced threat detection and response capabilities to identify and mitigate cyber threats in real-time.	Yes	The platform integrates with threat detection tools and endpoint protection platforms to provide 24/7 monitoring, behavior-based threat detection, and automated incident response workflows.
2	The system must support multi-factor authentication (MFA) to enhance access security.	Yes	MFA is supported using one-time passcodes (OTP), hardware tokens, and SAML-based identity providers to secure user access to critical management interfaces.
3	The system must include regular security patch management to ensure all components are up-to-date with the latest security fixes.	Yes	Patch management processes are supported through secure software delivery into the isolated environment, allowing for scheduled updates with minimal operational impact.
4	The system must support encryption for data at rest and in transit to protect sensitive information.	Yes	Data is encrypted at rest using AES-256 and in transit via TLS 1.2+ protocols, with integrated key management and support for hardware security modules (HSM).
5	The system must include comprehensive logging and monitoring capabilities to track and analyze security events.	Yes	All system activity is logged, with support for syslog forwarding, integrity checking, and event correlation through centralized security monitoring systems.
6	The system must support network segmentation to isolate critical systems and reduce the attack surface.	Yes	Logical and physical segmentation is implemented to create an isolated environment that is inaccessible from standard production networks, effectively limiting attack vectors.

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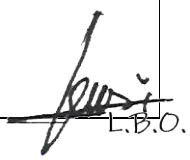
7	The system must include automated vulnerability scanning to identify and remediate security weaknesses.	Yes	Integrated scanning tools perform automated vulnerability assessments, classify risks, and trigger remediation workflows based on predefined security policies.
8	The system must support regular security audits and compliance checks to ensure adherence to security policies and standards.	Yes	The solution supports scheduled internal and external audits with customizable compliance reporting for industry frameworks such as NIST, ISO 27001, and CIS Controls.
9	The system must include incident response capabilities to quickly address and recover from security breaches.	Yes	Built-in incident response capabilities include forensic analysis, vault data validation, and workflow-based recovery procedures for rapid response and business continuity.
10	The system must support secure remote access solutions to protect against unauthorized access.	Yes	Secure remote access is enabled via VPN or gateway solutions with integrated MFA, session logging, and device posture assessment.
11	The system must support secure data wiping and destruction processes to ensure data is irrecoverable when no longer needed.	Yes	Secure data sanitization processes meet NIST 800-88 guidelines for logical and cryptographic data erasure, ensuring permanent deletion of sensitive data.
12	The system must include a secure, isolated recovery environment to store immutable copies of critical data with locked retention policies.	Yes	Immutable, tamper-proof backup copies are maintained in a logically air-gapped environment with enforced retention policies that cannot be altered or deleted by ransomware or insiders.
13	The system must support automated data synchronization between production systems and the isolated recovery environment.	Yes	Secure replication workflows use snapshot-based data synchronization with integrity checks to ensure accurate and up-to-date copies are stored in the recovery environment.
14	The system must include mechanisms for data protection, such as read/write fast copy (clone) of files and directories in the isolated recovery environment.	Yes	Fast cloning and read/write snapshots are available to facilitate testing, validation, and recovery processes without modifying source data.

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15	The system must include cyber risk assessments conducted at least annually to identify and mitigate potential vulnerabilities.	Yes	Annual cyber risk assessments include threat modeling, system hardening reviews, and remediation planning based on industry best practices and organizational risk appetite.
16	The system must support secure access controls to manage and restrict access to sensitive data.	Yes	Role-based access controls and audit-tracked permission models are enforced to ensure data access is limited to authorized users only, based on least-privilege principles.
17	The system must include backup and recovery solutions to ensure data integrity and availability in case of cyber incidents.	Yes	The solution offers encrypted, verified backups with granular recovery options and support for full or partial system restoration in case of compromise or failure.
18	The system must provide secure digital platforms for student communication and collaboration.	Yes	Collaboration tools are integrated with secure authentication, content filtering, audit trails, and encryption to ensure privacy and compliance in educational environments.

Firewalls

S No	Technical Requirement	Compliance (Y/N)	Bidder Response
1	The firewall system should provide robust protection against unauthorized access and sophisticated cyber threats, including zero-day attacks.	Yes	The firewall system offers robust protection against unauthorized access and sophisticated cyber threats, including zero-day attacks, using advanced threat prevention technologies such as Threat Cloud, which provides real-time threat intelligence and updates.
2	The system should support real-time monitoring and alerting of suspicious activities with AI-powered threat intelligence.	Yes	Real-time monitoring and alerting of suspicious activities are supported through a Smart Event Manager, which leverages AI-powered threat intelligence to detect and respond to threats promptly.



3	The firewall should be capable of deep packet inspection (DPI) to identify and block malicious traffic effectively.	Yes	The firewall system performs deep packet inspection (DPI) using Stateful / Stateless Inspection technology, which examines the contents of packets to identify and block malicious traffic effectively.
4	The system should support VPN integration to secure remote access for students and staff.	Yes	VPN integration is supported through Remote Access VPN solutions, which provide secure, encrypted communication channels for remote access by students and staff.
5	The firewall should offer advanced threat detection and prevention capabilities, including intrusion detection and prevention systems (IDPS) and sandboxing.	Yes	Advanced threat detection and prevention capabilities are provided through Intrusion Prevention System (IPS) and sandboxing technology, which analyze and mitigate threats in real-time.
6	The system should ensure compliance with data protection regulations and institutional security policies.	Yes	The firewall system ensures compliance with data protection regulations and institutional security policies through comprehensive logging, reporting, and policy enforcement features.
7	The firewall should provide detailed logging and reporting features for auditing and analysis.	Yes	Detailed logging and reporting features are available through Smart Logging and Reporting, offering insights into network activities and security events for auditing and analysis
8	The system should support scalability to handle increasing network traffic and user load, with high throughput performance.	Yes	Scalability is supported to handle increasing network traffic and user load, ensuring high throughput performance with minimal latency through scalable hardware and software solutions
9	The firewall should offer customizable security policies to meet specific institutional requirements.	Yes	Customizable security policies are offered through the firewall system's Security Management, allowing granular control over network traffic

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			to meet specific institutional requirements
10	The system should integrate seamlessly with existing network infrastructure and security systems, including cloud environments.	Yes	Seamless integration with existing network infrastructure and security systems is supported, including compatibility with cloud environments through the firewall's solutions.
11	The firewall should provide secure web filtering to block access to harmful or inappropriate content.	Yes	Secure web filtering is provided through the firewall's URL Filtering, which blocks access to harmful or inappropriate content, enhancing network security and compliance.
12	The system should support automated updates to ensure protection against the latest threats.	Yes	Automated updates are supported through the firewall system, ensuring protection against the latest threats by keeping the firewall system up-to-date with the latest security patches.
13	The firewall should offer high availability and redundancy to ensure continuous protection.	Yes	High availability and redundancy are offered through the firewall system ClusterXL technology, which utilizes failover mechanisms and redundant hardware to ensure continuous protection.
14	The system should provide user-friendly management interfaces for easy configuration and monitoring.	Yes	User-friendly management interfaces are provided through the system's Smart Dashboard, featuring intuitive dashboards and role-based access control for easy configuration and monitoring.
15	The firewall should support multi-factor authentication for enhanced security.	Yes	Multi-factor authentication is supported through the system's Identity Awareness, ensuring that only authorized users can access the network.

Web Application Firewalls

S No	Technical Requirement	Compliance (Y/N)	Bidder Response

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1	The WAF system should provide comprehensive protection against the OWASP Top Ten vulnerabilities, ensuring robust security for web applications and APIs.	Yes	Advanced WAF provides comprehensive protection against the OWASP Top Ten vulnerabilities, ensuring robust security for web applications and APIs through advanced threat detection and mitigation techniques.
2	The system should continuously monitor and analyze HTTP/HTTPS traffic using advanced threat intelligence to detect and block malicious activities.	Yes	The system continuously monitors and analyzes HTTP/HTTPS traffic using advanced threat intelligence, leveraging machine learning and behavioral analytics to detect and block malicious activities in real-time.
3	The WAF should support deep packet inspection (DPI) to identify and mitigate threats at the application layer with high accuracy.	Yes	The system supports deep packet inspection (DPI) to identify and mitigate threats at the application layer with high accuracy, ensuring comprehensive protection against sophisticated attacks.
4	The system should offer customizable security rules and guided configurations to address specific institutional requirements.	Yes	The system offers customizable security rules and guided configurations, allowing institutions to tailor security policies to their specific needs through an intuitive management interface.
5	The WAF should provide real-time alerting and detailed reporting of security incidents through a dynamic dashboard.	Yes	The system provides real-time alerting and detailed reporting of security incidents through a dynamic dashboard, offering visibility into security events and enabling prompt response.
6	The system should support integration with existing security infrastructure, including SIEM systems and cloud environments.	Yes	The system integrates seamlessly with existing security infrastructure, including SIEM systems and cloud environments, ensuring a unified security posture.
7	The WAF should offer automated updates and threat campaign	Yes	The system offers automated updates and threat campaign

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	subscriptions to ensure protection against the latest threats.		subscriptions, ensuring continuous protection against the latest threats by keeping the WAF system up-to-date.
8	The system should provide detailed logging and auditing capabilities for compliance and forensic analysis.	Yes	The system provides detailed logging and auditing capabilities, enabling compliance with regulatory requirements and facilitating forensic analysis of security incidents.
9	The WAF should support SSL/TLS termination and inspection to secure encrypted traffic.	Yes	The system supports SSL/TLS termination and inspection, securing encrypted traffic and ensuring comprehensive protection for web applications.
10	The system should offer user-friendly management interfaces for easy configuration and monitoring, including learning engines for customized policy building.	Yes	The system offers user-friendly management interfaces for easy configuration and monitoring, featuring learning engines for customized policy building and adaptive security policies.
11	The WAF should provide protection against DDoS attacks targeting web applications, including behavioral DoS mitigation.	Yes	The system provides protection against DDoS attacks targeting web applications, including behavioral DoS mitigation, leveraging machine learning to detect and mitigate attacks.
12	The system should support virtual patching to protect against known vulnerabilities without modifying the application code.	Yes	The system supports virtual patching, allowing protection against known vulnerabilities without the need to modify application code, ensuring continuous security.
13	The WAF should ensure high availability and redundancy to maintain continuous protection.	Yes	The system ensures high availability and redundancy through failover mechanisms and redundant hardware, maintaining continuous protection for web applications.

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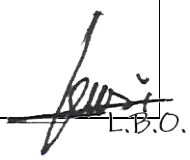
14	The system should provide secure API protection to safeguard interactions with third-party applications.	Yes	The system provides secure API protection, safeguarding interactions with third-party applications through advanced security policies and threat detection.
15	The WAF should support multi-factor authentication for enhanced security of administrative access.	Yes	The system supports multi-factor authentication, enhancing the security of administrative access and ensuring that only authorized users can manage the WAF system.

ADDOS

S No	Technical Requirement	Compliance (Y/N)	Bidder Response
1	The proposed solution should possess robust capabilities for detecting and mitigating layer 3-4 volumetric attacks, including unknown and zero-day threats.	Yes	The proposed solution provides robust capabilities for detecting and mitigating layer 3-4 volumetric attacks, including unknown and zero-day threats, using advanced threat intelligence and real-time traffic analysis.
2	Provide detailed specifications on the expected Time to Mitigate (TTM) for Layer 3-4 attacks.	Yes	The proposed solution offers a rapid Time to Mitigate (TTM) for Layer 3-4 attacks, typically within seconds to minutes, leveraging automated detection and response mechanisms.
3	Clearly articulate advanced differentiating capabilities within the solution for Layer 3-4 attack scenarios.	Yes	Advanced differentiating capabilities include behavioral analytics, machine learning algorithms, and signature-based detection to identify and mitigate sophisticated Layer 3-4 attacks.
4	The solution must encompass thorough detection and mitigation capabilities for application layer DoS and DDoS attacks, including layer 5 (TLS) application-centric detection and mitigation.	Yes	The proposed solution provides comprehensive detection and mitigation for application layer DoS and DDoS attacks, including Layer 5 (TLS) attacks, using deep packet inspection and behavioral analysis.

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5	Describe how the solution addresses unknown, zero-day application layer attacks.	Yes	The proposed solution addresses unknown, zero-day application layer attacks through machine learning and anomaly detection, which identify and block suspicious activities without relying on predefined signatures.
6	The solution must encompass thorough detection and mitigation capabilities for DNS DDoS attacks, including specific mitigation methods.	Yes	The proposed solution provides thorough detection and mitigation for DNS DDoS attacks using DNS firewalling, rate limiting, and DNSSEC to ensure the integrity and availability of DNS services.
7	Explain the methodology employed for detecting and mitigating low and slow DoS and DDoS attacks.	Yes	The proposed solution's methodology includes behavioral analysis and rate-based detection to identify low and slow DoS and DDoS attacks, combined with automated mitigation techniques to block malicious traffic.
8	Specify the expected TTM for application layer attacks.	Yes	The proposed solution's expected Time to Mitigate (TTM) for application layer attacks is typically within minutes, utilizing real-time traffic analysis and automated response mechanisms.
9	Highlight advanced differentiating capabilities tailored for application layer security.	Yes	Advanced differentiating capabilities include machine learning-based anomaly detection, behavioral analytics, and integration with threat intelligence feeds to enhance application layer security.
10	Provide detailed insights into the anticipated rate of mitigation effectiveness, considering false positives and false negatives.	Yes	The solution achieves a high rate of mitigation effectiveness, with advanced algorithms minimizing false positives and false negatives, ensuring accurate threat detection and response.



11	Elaborate on advanced differentiating threat intelligence capabilities offered by the proposed solution.	Yes	The solution leverages global threat intelligence feeds, machine learning, and behavioral analytics to provide advanced threat intelligence capabilities, enhancing the detection and mitigation of sophisticated attacks.
12	Present a comprehensive overview of how the solution achieves full automation in its operational processes.	Yes	Full automation is achieved through integration with the system, enabling automated detection, mitigation, and reporting of DDoS attacks, reducing manual intervention.
13	Clarify whether the solution offers a unified, integrated view of the service or if it is segmented per product, service, or site.	Yes	The solution offers a unified, integrated view of the service through the system, providing comprehensive visibility and control across all deployed components.
14	Provide sample UI screen-captures or representations of dashboard views.	Yes	Sample UI screen-captures and dashboard views can be provided upon request, showcasing the intuitive interface and real-time monitoring capabilities of management solutions.
15	Specify the data retention period for the solution.	Yes	The data retention period for the solution can be customized based on institutional requirements, with options for short-term and long-term storage.
16	Detail the solution's analytical capabilities with examples, encompassing trend analysis, pattern identification, and data correlations.	Yes	The solution's analytical capabilities include trend analysis, pattern identification, and data correlations, utilizing machine learning and advanced analytics to provide actionable insights.
17	Include information on handling historical attack data.	Yes	Historical attack data is stored and analyzed to identify trends and patterns, enhancing the solution's

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			ability to predict and mitigate future attacks.
18	Describe the solution's ability to customize trend and analytical views.	Yes	The solution allows customization of trend and analytical views through the system, enabling users to tailor dashboards and reports to their specific needs.
19	Address the native data export capabilities of the solution.	Yes	Native data export capabilities include support for various formats such as CSV, JSON, and XML, facilitating integration with external systems and further analysis.
20	Outline the solution's integration capabilities with third-party Security Operations Center (SOC) platforms.	Yes	The solution integrates seamlessly with third-party SOC platforms, including SIEM systems, through APIs and standard protocols, enhancing overall security operations.
21	Specify integration capabilities with IT Service Management (ITSM) Service Request platforms, citing examples such as Service Now.	Yes	Integration capabilities with ITSM platforms like ServiceNow are supported, enabling automated ticket creation and incident management through APIs.
22	Confirm if the solution employs industry standard protocols and/or Application Programming Interfaces (APIs) for communication between software components.	Yes	The solution employs industry-standard protocols and APIs for communication between software components, ensuring interoperability and ease of integration
23	Provide a detailed explanation of the protocols and APIs used and include references to any documentation available.	Yes	Detailed explanations of the protocols and APIs used, such as RESTful APIs and JSON, along with documentation, can be provided upon request.
24	Topology for the entire end-to-end solution, including any required/recommended third-party components.	Yes	The topology for the end-to-end solution includes the system's SDN application that uses the attack mitigation resources and Cloud WAF, along with recommended

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			third-party components for enhanced security.
25	Outline the High Availability and Disaster Recovery approach within the proposed architecture.	Yes	High Availability and Disaster Recovery are ensured through redundant hardware, failover mechanisms, and geographic distribution of resources, maintaining continuous protection.
26	Explain how the proposed solution ensures online and operational continuity during a DDoS attack of any scale in the following service modes: always-on and on-demand.	Yes	The solution ensures online and operational continuity during DDoS attacks through always-on and on-demand service modes, leveraging automated detection and mitigation to maintain service availability.
27	Provide insights into the elasticity and scalability features of the solution.	Yes	Elasticity and scalability are achieved through dynamic resource allocation and load balancing, allowing the solution to accommodate varying workloads and evolving demands.
28	Clarify how the solution accommodates varying workloads and is scalable to meet evolving demands.	Yes	The solution accommodates varying workloads and is scalable through the use of virtualized resources and cloud-based infrastructure, ensuring flexibility and adaptability.
29	Detail the metrics utilized to measure the performance of the proposed solution.	Yes	Performance metrics include maximum bandwidth, transactions per second, active users, and log storage capacity, providing comprehensive insights into the solution's effectiveness.
30	Provide an in-depth description of how the solution performs against the established metrics, encompassing, but not limited to: maximum bandwidth or byte transfer or requests (e.g., DNS queries per second), maximum transactions per second, maximum number of active	Yes	The solution performs effectively against established metrics, with capabilities such as handling high bandwidth, processing large volumes of transactions per second, supporting numerous active users,

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	users of the management application, and storage strategy for logs.		and implementing efficient log storage strategies.

End Point Security

S No	Technical Requirement	Compliance (Y/N)	Bidder Response
1	All endpoint devices should be equipped with an anti-malware security solution.	Yes	The Endpoint devices will have an antimalware solution installed
2	The endpoint security solution should offer real-time protection against all types of threats, including malware, ransomware, and sophisticated attacks.	Yes	The endpoint security solution delivers real-time protection against all types of threats, including malware, ransomware, and sophisticated attacks. This includes AI-powered detection and response backed by world-class adversary intelligence
3	The endpoint security agent installed should not require a reboot during installation, version upgrade, or during uninstallation.	Yes	The endpoint security agent installs, upgrades, and uninstalls without needing a system reboot, ensuring minimal disruption during installation, upgrade or uninstallation
4	The endpoint security agent installed should not impact the performance of the endpoint.	Yes	The endpoint security agent will not impact the performance of the endpoint agent by ensuring it does not degrade endpoint performance
5	The endpoint security agent installed should provide an agent that can co-exist with any other agent.	Yes	The endpoint security agent is designed to coexist with other security agents, avoiding conflicts and ensuring comprehensive protection
6	The endpoint security agent installed should support EDR related to visibility, threat hunting, live response, and host containment across all Operating Systems (Windows, Linux, and Mac).	Yes	The endpoint agent support EDR and can run on all windows, Linux, Mac operating systems. The EDR capabilities include but not limited to, threat hunting, live response, and host containment.

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7	The endpoint security agent installed should provide the ability to remotely connect to online devices and run commands on said device directly from the management console.	Yes	The agent allow remote connection to online device and run commands directly from the management console. This feature enables administrators to manage and respond to incidents efficiently.
8	The endpoint security agent installed should provide Next-Gen AV based on Machine Learning and Behavior across all Operating Systems (Windows, Linux, and Mac).	Yes	The agent provide next generation AV based on machine learning to understand the changing threat landscape on Windows, MAC and Linux operating systems. The Next-Gen AV leverages machine learning and behavioral analysis to detect and block threats early in the kill chain.
9	All endpoint devices should be accessible based on a zero-trust approach whenever accessing the health cloud.	Yes	Users on all end points are continually validated at every instance to comply zero trust Architecture. The solution ensures that endpoint devices are accessible based on a zero-trust approach, enhancing security when accessing sensitive data.
10	The endpoint security agent should provide continuous, comprehensive endpoint visibility and automatically detect and prioritize malicious activity.	Yes	The solution offers continuous endpoint visibility and uses AI to detect and prioritize malicious activities.
11	The endpoint security agent should support cloud-native architecture to ensure lightweight deployment and instant protection across all devices.	Yes	The solution supports cloud-native architecture for lightweight deployment and instant protection. This ensures that the security solution is scalable and efficient across all devices.
12	The endpoint security agent should include AI-driven detection and threat intelligence to identify unique indicators of attack and minimize false positives.	Yes	He solution includes AI-driven detection and threat intelligence to minimize false positives. This capability helps in identifying unique indicators of attack and reducing false alarms

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13	The endpoint security agent should offer centralized host firewall management to simplify the control and management of firewall policies.	Yes	The solution offers centralized host firewall management. This simplifies the control and management of firewall policies, enhancing overall security posture.
14	The endpoint security agent should provide advanced mobile device protection to safeguard against threats on Android and iOS devices.	Yes	The solution provides advanced mobile device protection for Android and iOS. This ensures that mobile devices are protected against various threats, maintaining security across all endpoints.
15	The endpoint security agent should enable workflow automation for security orchestration, automation, and response (SOAR) to streamline cybersecurity operations.	Yes	The solution enables workflow automation for SOAR. This streamlines cybersecurity operations by automating security tasks and responses.
16	The endpoint security agent should ensure unified data protection to prevent the theft of sensitive information across all endpoints.	Yes	The solution ensures unified data protection to prevent theft of sensitive information. This capability safeguards data across all endpoints, preventing unauthorized access and data breaches.

Monitoring (SOC)

S No	Technical Requirement	Compliance (Y/N)	Bidder Response
1	The ITOC should provide comprehensive monitoring capabilities that allow IT staff to monitor the health and performance of the IT infrastructure, including servers, storage, networking equipment, and applications.	Yes	The ITOC utilizes advanced monitoring tools such as SNMP, WMI, and API integrations to provide real-time dashboards and alerts, enabling IT staff to oversee the health and performance of servers, storage, networking equipment, and applications.
2	The ITOC should provide reporting capabilities that allow IT staff to generate reports on the health and performance of the IT infrastructure, specifying the types of reports and their frequency.	Yes	The ITOC includes robust reporting features that allow IT staff to generate detailed reports on infrastructure health and performance. Reports can be customized and scheduled to meet

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			specific needs, using tools like Power BI and Tableau.
3	The ITOC should provide automation capabilities that allow IT staff to automate routine tasks and processes, such as backups, patching, and software updates.	Yes	The ITOC supports automation of routine tasks like backups, patching, and software updates through integrated automation tools such as Ansible, Puppet, and Chef, reducing manual effort and ensuring consistency.
4	The ITOC should be capable of integrating with other systems and applications, including monitoring tools, reporting tools, and automation tools.	Yes	The ITOC integrates seamlessly with various systems and applications, including monitoring, reporting, and automation tools, providing a unified management experience through RESTful APIs and webhooks.
5	The ITOC should be backed by a comprehensive support program that includes the level of support required and the expected response times.	Yes	The ITOC is supported by a comprehensive program that includes 24/7 support, defined service levels, and rapid response times to ensure continuous operation, leveraging ITIL best practices.
6	The ITOC should have a ticketing system with configurable user complaint templates, priorities, escalation levels, multi-tier resolution, biomedical and facility equipment tagging, and reminder notifications through various messaging portals.	Yes	The ITOC features a versatile ticketing system with customizable templates, priority settings, escalation levels, multi-tier resolution, and reminder notifications via multiple messaging platforms such as Slack, Teams, and email.
7	The ITOC should be supported with a contact center featuring multi-media support capabilities (voice, email, web chat, social media), integration with ITOPs system for ticketing and remote support tools, 24/7 shift operation, call recording and quality management, automated call routing via IVR, integration with a knowledge	Yes	The ITOC includes a contact center with multi-media support (voice, email, web chat, social media), integrated with ITOPs for ticketing and remote support, operating 24/7 with call recording, quality management, IVR, knowledge base integration, call back capabilities,

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	base system, call back capabilities, and integration with the EDU telephony network.		and EDU telephony network integration.
8	The SOC should provide monitoring, detecting, analyzing, and responding to security and network incidents, operating on a 24/7 basis with well-trained network and security analysts following standard operating procedures.	Yes	The SOC offers 24/7 monitoring, detection, analysis, and response to security and network incidents, staffed by skilled analysts following standard procedures.
9	The vendor should station SOC I Engineers for capacity building, responsible for detecting, identifying, and troubleshooting security events, operating on a 24/7 basis.	Yes	SOC I Engineers are stationed to build capacity, detect, identify, and troubleshoot security events around the clock, using tools like IDS/IPS systems and threat intelligence platforms.
10	The vendor should provide SOC II engineers to mitigate attacks detected by SOC I, stationed at EDU and operating on a 24/7 basis.	Yes	SOC II Engineers are deployed to mitigate attacks identified by SOC I, operating 24/7 at EDU, utilizing advanced incident response tools and methodologies
11	The vendor should provide SOC III engineers working with the EDU cyber security team, responsible for developing and implementing security policies and procedures.	Yes	SOC III Engineers collaborate with the EDU cybersecurity team to develop and implement security policies and procedures, leveraging frameworks like NIST and ISO 27001
12	The vendor should develop processes for planning and coordination of people, processes, and technologies, including real-time monitoring of systems, devices, and applications, advanced network monitoring, fault remediation, notification, and escalation.	Yes	Processes are developed for planning and coordinating people, processes, and technologies, including real-time system monitoring, advanced network monitoring, fault remediation, notification, and escalation using tools
13	The vendor should equip the SOC with advanced technologies, including metadata-driven rules for incident correlation, SIEM systems, IDS, IPS, Network Management	Yes	The SOC is equipped with advanced technologies such as metadata-driven rules for incident correlation, SIEM systems, IDS, IPS, Network Management Systems, Network

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	Systems, Network Operations Monitoring, and IT Operations Systems for ticketing and incident management.		Operations Monitoring, and IT Operations Systems for ticketing and incident management

Load Balancers

S No	Technical Requirement	Compliance (Y/N)	Bidder Response
1	The load balancer should provide high availability and fault tolerance to ensure continuous access to student services, leveraging advanced health monitoring and failover mechanisms.	Yes	The load balancer ensures high availability and fault tolerance through advanced health monitoring and automatic failover mechanisms, using BIG-IP LTM to continuously check server health and reroute traffic as needed
2	The system should support both Layer 4 (TCP/UDP) and Layer 7 (HTTP/HTTPS) load balancing with intelligent traffic management.	Yes	The load balancer supports both Layer 4 and Layer 7 load balancing, providing intelligent traffic management with BIG-IP LTM and NGINX, optimizing traffic based on network and application-level information
3	The load balancer should offer SSL/TLS offloading to improve server performance and security, including support for modern encryption standards.	Yes	The load balancer offers SSL/TLS offloading with support for modern encryption standards like TLS 1.3, enhancing server performance and security through the Local Traffic Manager.
4	The system should support session persistence to maintain user sessions across multiple requests, with customizable persistence methods.	Yes	The load balancer supports session persistence using methods such as source IP affinity and cookie-based persistence, ensuring consistent user sessions across multiple requests.
5	The load balancer should provide advanced health monitoring to detect and route traffic away from unhealthy servers, including application-layer health checks.	Yes	The load balancer provides advanced health monitoring, including application-layer health checks, to detect and reroute traffic from unhealthy servers using the Local Traffic Manager.

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6	The system should support automatic scaling to handle varying traffic loads efficiently, with dynamic resource allocation.	Yes	The load balancer supports automatic scaling to handle varying traffic loads efficiently, utilizing dynamic resource allocation.
7	The load balancer should offer global server load balancing (GSLB) to distribute traffic across multiple geographic locations, ensuring optimal performance and disaster recovery.	Yes	The load balancer offers global server load balancing (GSLB) with BIG-IP DNS, distributing traffic across multiple geographic locations for optimal performance and disaster recovery.
8	The system should provide detailed logging and reporting for traffic analysis and troubleshooting, with real-time visibility into application performance.	Yes	The load balancer provides detailed logging and reporting for traffic analysis and troubleshooting, offering real-time visibility into application performance through Centralized Management.
9	The load balancer should support integration with existing network infrastructure and security systems, including cloud environments and container orchestration platforms.	Yes	The load balancer integrates seamlessly with existing network infrastructure and security systems, including cloud environments and container orchestration platforms like Kubernetes.
10	The system should offer a user-friendly management interface for easy configuration and monitoring, with role-based access control.	Yes	The load balancer provides a user-friendly management interface for easy configuration and monitoring, featuring role-based access control through Centralized Management
11	The load balancer should support API-based management for automation and integration with other systems, including declarative configuration and orchestration.	Yes	The load balancer supports API-based management for automation and integration with other systems, enabling declarative configuration and orchestration through the Controller
12	The system should provide DDoS protection to safeguard against large-scale attacks, including behavioral and volumetric attack mitigation.	Yes	The load balancer provides DDoS protection to safeguard against large-scale attacks, utilizing behavioral and volumetric attack mitigation techniques through Advanced Firewall Manager (AFM)

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13	The load balancer should offer application-layer security features, such as web application firewall (WAF) integration and bot protection.	Yes	The load balancer offers application-layer security features, including web application firewall (WAF) integration and bot protection, through Application Security Manager (ASM)
14	The system should support IPv6 to ensure compatibility with modern network standards and future-proofing.	Yes	The load balancer supports IPv6 to ensure compatibility with modern network standards and future-proofing through the Local Traffic Manager
15	The load balancer should provide traffic shaping and rate limiting to manage bandwidth usage effectively, with granular policy control.	Yes	The load balancer provides traffic shaping and rate limiting to manage bandwidth usage effectively, with granular policy control through the Local Traffic Manager
16	The system should leverage machine learning and analytics to optimize traffic distribution and enhance security.	Yes	The load balancer leverages machine learning and analytics to optimize traffic distribution and enhance security through solutions like Centralized Management and Distributed Cloud Services
17	The load balancer should support multi-cloud and hybrid cloud deployments, ensuring consistent performance and security across environments.	Yes	The load balancer supports multi-cloud and hybrid cloud deployments, ensuring consistent performance and security across environments through the Centralized Management and Distributed Cloud Services

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SECTION:3

TECH-2: Bidder's Organization and Experience

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FORM TECH-2: BIDDERS ORGANIZATION AND EXPERTISE FOR THIS PROJECT

Form TECH-2: A Brief description of the Bidder's organization in the form of a company profile and an outline of the recent experience of the Bidder that is most relevant to the assignment. In the case of a joint venture/consortium, information on similar assignments shall be provided for each partner. The bidder should also include the Unique selling points on why the bidder is the ideal candidate for **Request for Proposal for Provision of Integrated KENYA EDUCATION MANAGEMENT INFORMATION SYSTEM for the Republic of Kenya.**

The structure of your Technical Proposal:

a) Bidder's Organization Attached Company Profile from Page 238 to

Provide here a brief description of the background and organization of your company, and in case of a joint venture/consortium-of each member for this assignment.

b) Bidder's Experience Attached Reference List for all the below

1. List previous large-scale assignments successfully completed in the last **Ten (5)** years in relation to:

a) Experience in setting up and running an ERP system outlining supported Functionalities
b) Experience in Integration of Multiple internal and Third party systems (Min 10 distinct systems in a single Project)
c) Handling of Collections a number of State Agencies clearly outlining volumes.
d) Demonstrate experience in handling collections for minimum 5 state Agencies mentioning the proportions supported over the competition (Min 5 State agencies)
e) Provision of payment services to multiple target customers
f) Implementing Data Analytics tool
g) Handling Digital wallets (Min 6 Years)
h) Processing disbursements to multiple target beneficiaries mentioned and values handled
i) Handling Reconciliation and Exceptions management

2. List only those assignments for which the bidder was legally contracted by the Procuring Entity as a company or was one of the joint-venture partners. Assignments completed by the bidder's individual experts working privately or through other consulting firms cannot be claimed as the relevant experience of the bidder, or that of the bidder's partners or sub-Bidders, but can be claimed by the Experts themselves in their Curriculum Vitae (CV) on:

a) Provision of payment services to multiple target customers
b) Financial services provided to the Ministry of Education particularly handling capitation outlining value in the last 5 years

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KONZA TECHNOPOLIS DEVELOPMENT AUTHORITY



About Us

Vision A leading global Technopolis and Hub of Innovation ☐

Mission To develop a thriving sustainable Smart City and a vibrant innovation ecosystem contributing to Kenya's knowledge Economy Core Values Nurture Innovation Collaboration Excellence Strategic...

- Konza Technopolis is a flagship project of the Government of Kenya, developing as a Science Park and Area of Innovation within largest smart city project in east and central Africa.
- Located 60 kilometers southeast of Nairobi, Konza Technopolis features a 5,000-acre master-planned city set to foster science, innovation, technology, and commercialization to drive economic growth.
- Popularly known as the "Silicon Savannah," Konza Technopolis aims to establish Kenya as a leading technology hub by creating a sustainable, digitally driven city with state-of-the-art infrastructure.
- A vision 2030 project, Konza Technopolis is managed by the Konza Technopolis Development Authority under the Ministry of Information, Communications, and the Digital Economy; we aim to contribute at least 2% of the national GDP

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Core Values

Nurture



- We celebrate and invest to grow a diverse set of talents and skills to achieve our vision, We see possibilities ahead of us and are committed to develop the Smart city to its true potential,

Innovation



- We choose to transform and continuously improve in everything we do, we are curious, creative, and constantly look for better ways to deliver our products and services to our customers

Collaboration



- We optimize results by working smarter together. We multiply our contribution through strategic partnerships and deliver value to all parties

Excellence



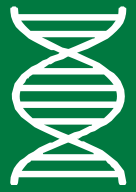
- We are passionate on delivering a better Konza to live, work and play through flexible and creative solutions inspired by outstanding services in time.
- We conduct our business with integrity in a transparent, accountable and ethical manner

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Strategic Growth Clusters



ICT/ITES



LIFE SCIENCES



ENGINEERING

Driven By:



RESEARCH & DEVELOPMENT



EDUCATION



COMMERCIAL DEVELOPMENT

KONZA
Technopolis

KONZA NATIONAL DATA CENTER



Konza Data Center

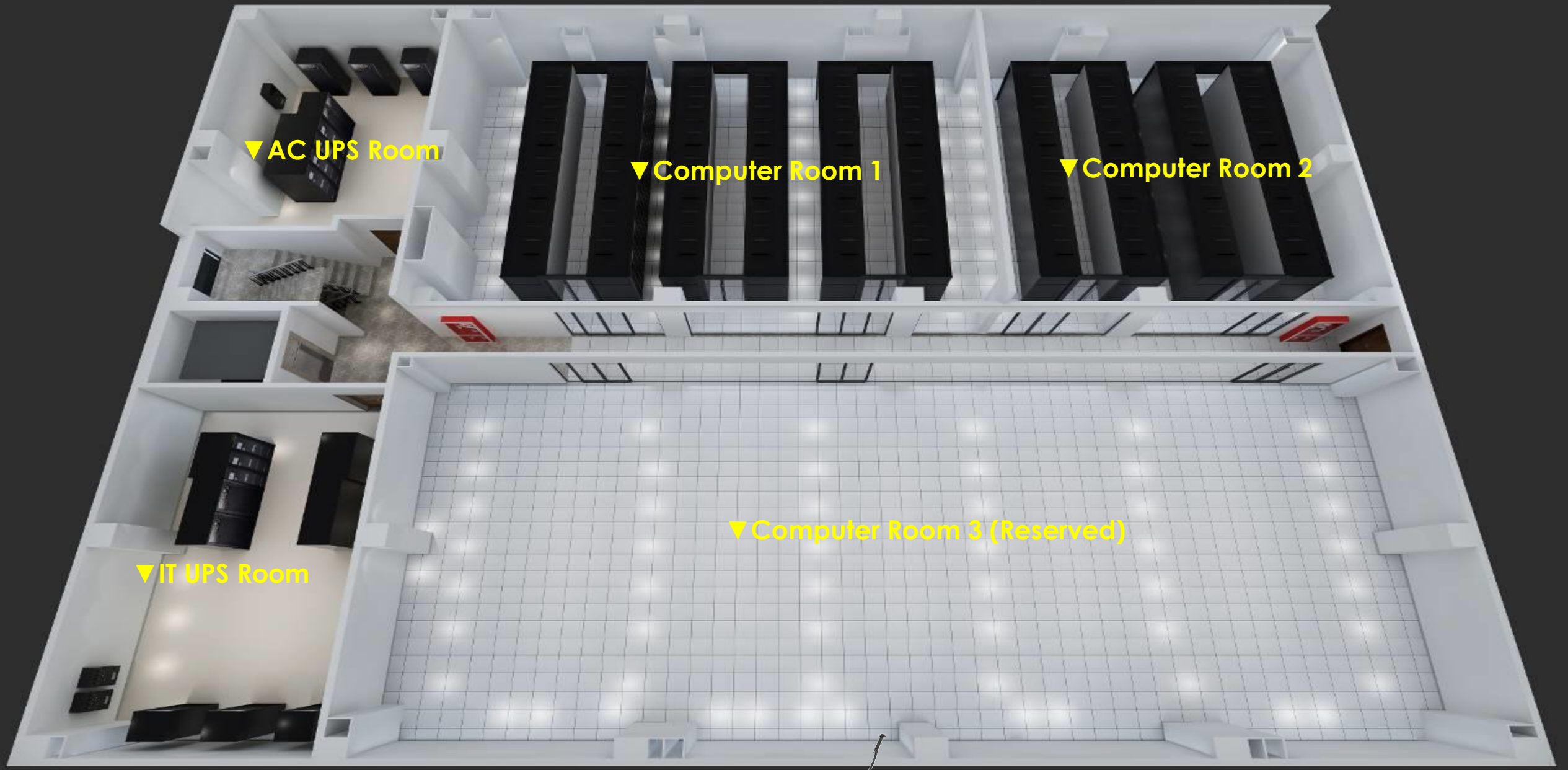
- The **Konza Data Center** is a **State-of-the-art Tier III Uptime Certified,Leeds Platinum** Data Center serving both government and private enterprises with high end cloud services.
- The data center supports wide array of services such as Software as a Service (SaaS), Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Collocation.



246

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Flexible, Modern Modular Deployment



International Standards, Awards & Licenses

Uptime Tier III of Constructed Facility

Konza National Data Center is one of the few Data center in Africa to attain both ***Uptime Tier III design certification and Uptime Tier III construction certification.***



LEED Certification

Attained Leed Platinum Certification for the Phase 2 Data Center







NFP-T3 (Network Facilities Provider Tier 3)

Network Facilities Provider Tier 3 license allows a licensee to deploy communication infrastructure within a specific region using any form of technology except Satellite Communications because of its borderless nature. Spectrum is also allocated regionally.



ODPC Compliance Licenses

ODPC Data Controller



ODPC Data Processor

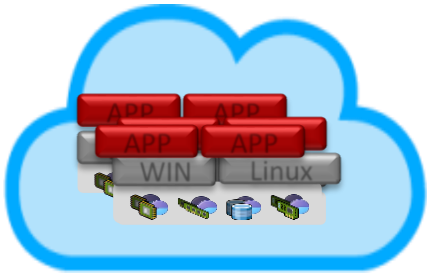


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Konza Cloud



Konza Cloud Offering



Cloud Computing

1



Business Protection

Data backup service

2



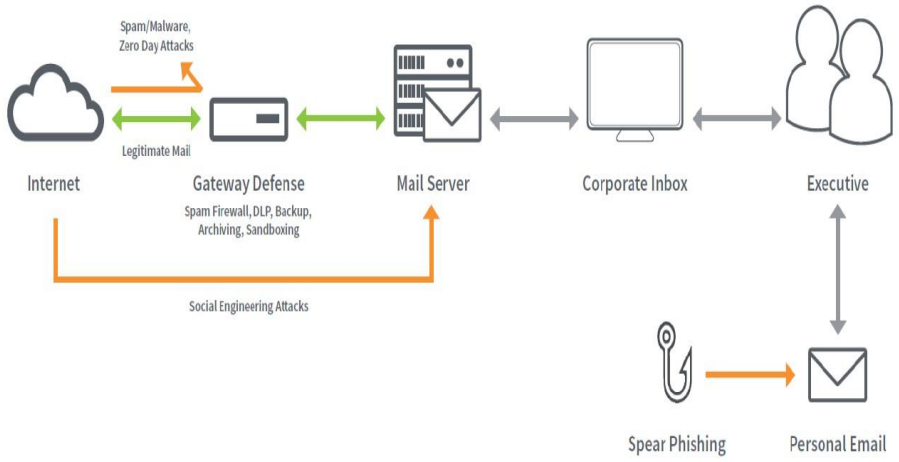
4 **Web Hosting Service**



Ideahub

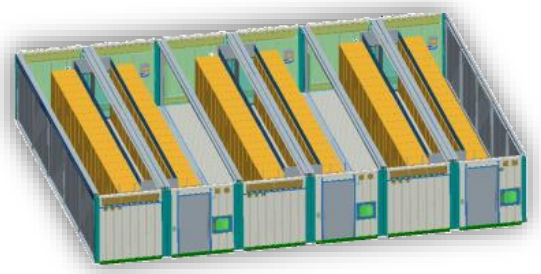
- Video conference
- Projection
- Whiteboard

6



Secure Email Hosting

3



Data Center Colocation

- Rack Space Renting

5

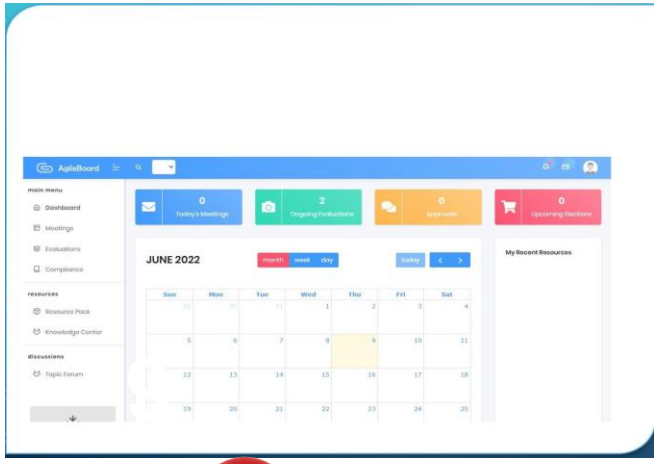


Security Solutions

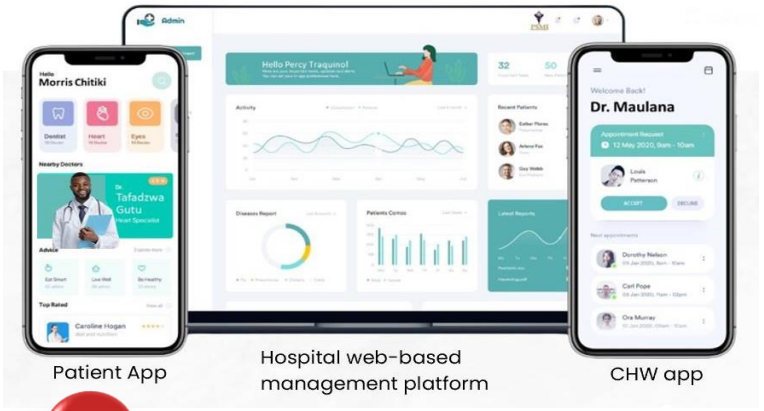
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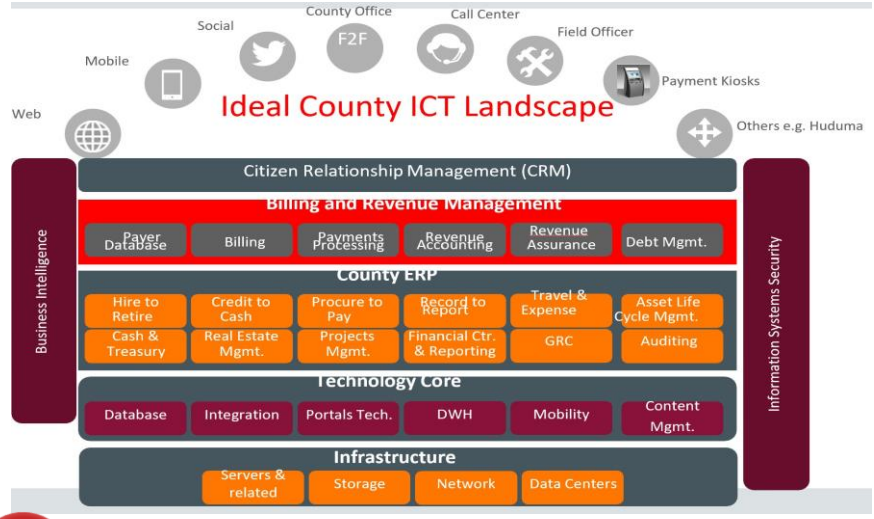
In Savanna's App Store



1 eBoard



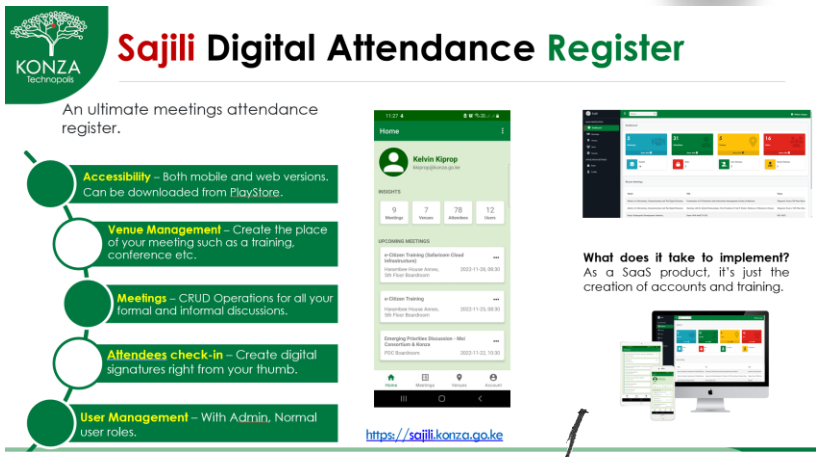
2 Health Management System



3 Revenue Management & Collection System



4 Contact Center Solution



5 Sajili Attendance Register



6 EDMS & Workflow

In Savanna's App Store

KONZA Technopolis

7 ERP Solutions

Core HR	Payroll	Time & Attendance	Recruitment	Talent Management	Workforce Management
Organization Management	Benefits Management	Schedule Management	Request for Hire	Performance Management	Health & Safety Management
Personnel Administration	Global Payroll & Tax	Paid Time-Off Management	Sourcing	Performance & Goal Management	Workmen Compensation
Movements & Exit Management	Country–Specific Compliance	Time Entry Management	Candidate Management	Training Administration	Grievance Handling
Security	Payroll Rollback Process	Absence & Overtime Management	Selection & Offer Management		
Employee Record Management			On boarding		

Sample Reports

Attendance Reports | Statutory Forms | PF Forms | Salary Reports | Employee Details

Analytics & Reports | Employee Self-Service | Manager Self-Service | Mobile Access | Role Based Access | On-Premises/ SaaS

Delivery Dashboard Portal

- A project management and tracking tool.
- The delivery dashboard is a visual representation of key performance indicators (KPIs) and relevant data related projects.
- It provides a real-time overview of various metrics and performance indicators, helping stakeholders to monitor and manage the progress and efficiency of deliveries.



Link: https://delivery.konza.go.ke/

8

9 OUK Platform



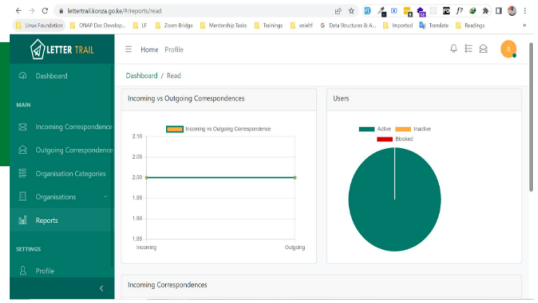
LetterTrail Workflow System

This workflow system is tool used to automate common manual processes such as handling incoming and outgoing correspondences.

Features
- Routing and Workflow
- Reporting
- Tracking
- Multi-level approval

Advantages
- Cloud
- Records Management
- Enhanced collaboration
- Hassle Free Document Storage

Problems Solved
- Email storage
- Document tracking
- Lack of visibility
- Difficulty in collaboration

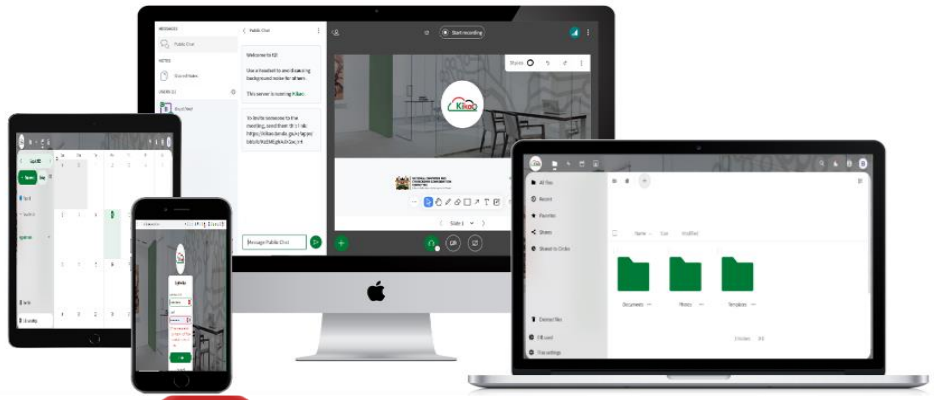


https://lettertrail.konza.go.ke

9

Kikao Video Conference

Kiako is a local video conferencing solution to support governments and other institutions to collaborate seamlessly while upholding the data protection act on data localization.



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Benefits of Cloud

Some of the **benefits** of Cloud:

- **Cost Efficiency** – No need for expensive hardware with low subscription or maintenance costs.
- **Scalability** – Easy to adjust resources as needed i.e., handling sudden growth without infrastructure delays e.g., auto-scaling during peak traffic (e.g., Black Friday sales).
- **Accessibility** – Track and manage day-to-day expenses with incorporated Petty Cash Cards.
- **Disaster Recovery** – Automatic backups with faster recovery times in case of failures. Lower cost compared to traditional disaster recovery solutions
- **Security** – Advanced security measures and compliance standards. Regular updates and patches by cloud providers.





Moore's Law

"The **number of transistors** on a microchip **doubles** about **every two years** though the cost of computers is halved."

— Gordon Moore, 1965

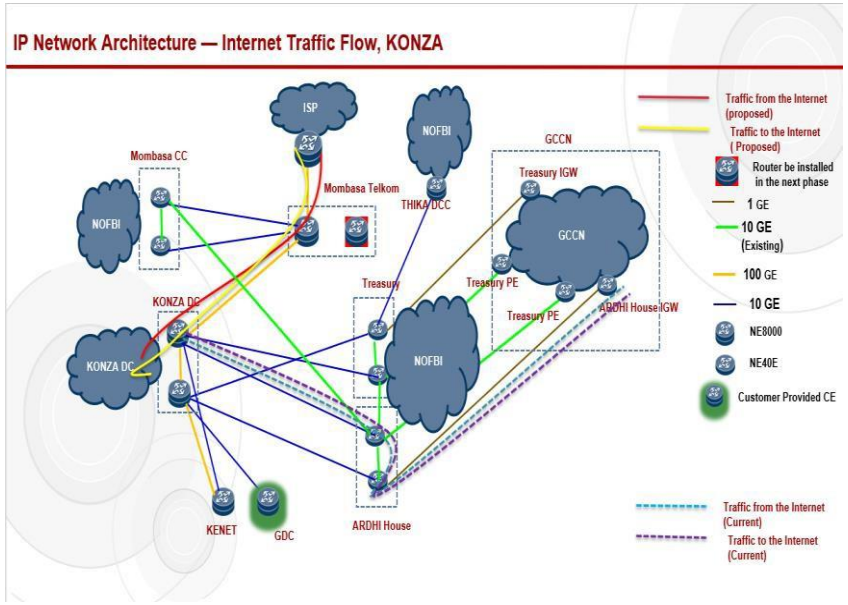
Why Cloud?

- **Cloud Computing** is **storing**, **managing**, and **processing** data over the internet instead of **local servers**.
- **Pay** only for what **you use** by moving from **Capital Expenditure (CAPEX)** to **Operational Expenditure (OPEX):**

CAPEX (Traditional IT)	OPEX (Cloud)
Upfront hardware purchases (servers, storage)	Flexible subscription fees
Depreciates over 3–5 years	Quarterly or annual billing
Fixed capacity	Scale up/down based on need

Promise To Our Esteemed Customers

- Security (Physical & Logical)
- Steadfast Support Team
- Multiple Connectivity, Reliability
- Training & Knowledge Transfer





Multiple physical and cloud security features

Dedicated 24/7 operations & support team

2N power redundancy

Multiple diverse fiber through common ISPs

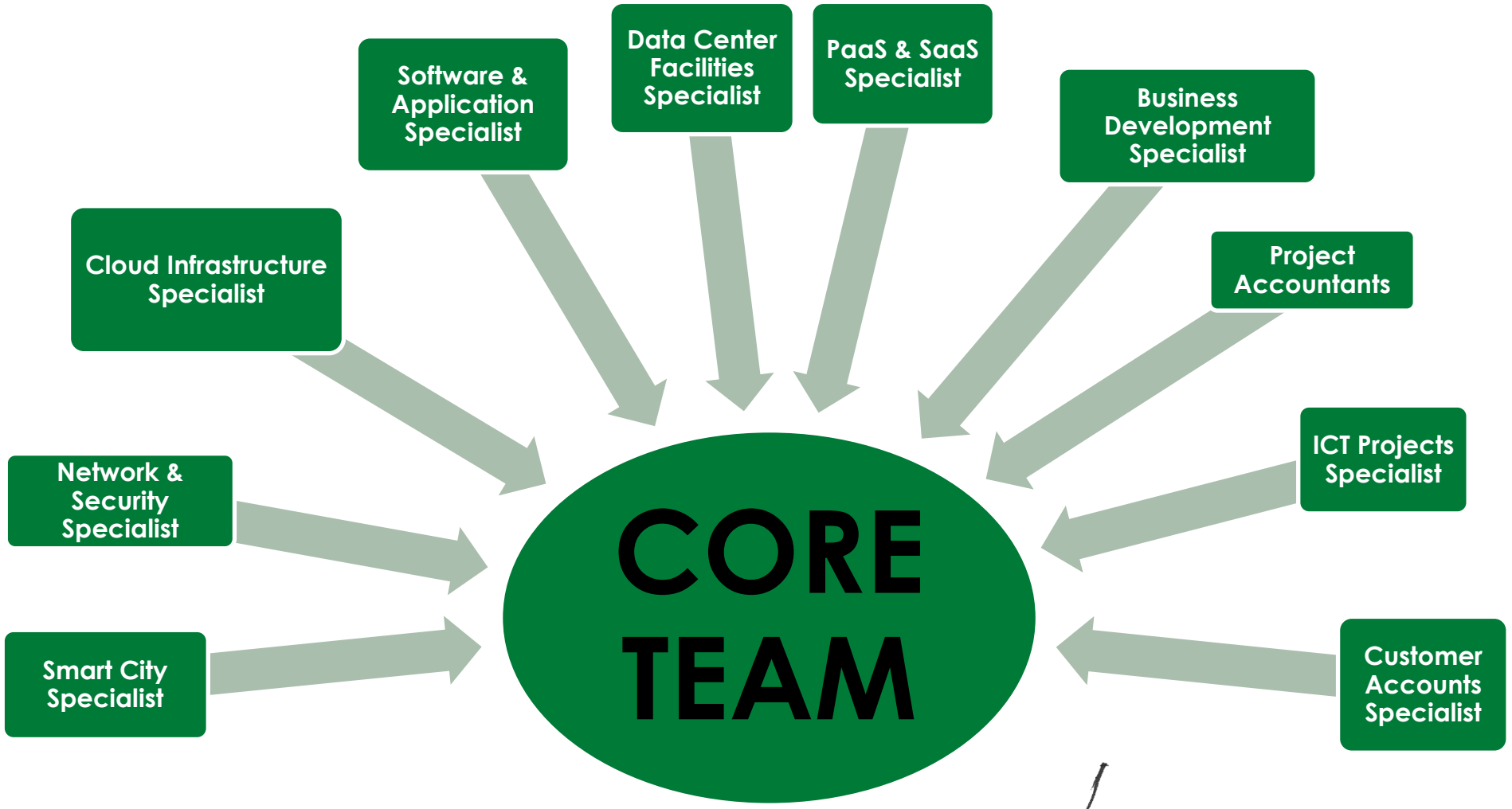
Scalability: e.g pay as you use

DR site

Local Hosting

Fast, stable and adequate cloud environment

Steadfast Support Team



Our team supports customers during the entire onboarding process:

1. Migration planning
2. Allocation of resources
3. Testing
4. Training
5. After sales support

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Framework for IT Strategic Partnerships and EOI's

- The partners to complement the current DC offering with more value additions in PaaS, SaaS, IaaS and colocation.
- To promote and facilitate development of ICT products and services within the Technopolis.
- To promote both locally and internationally the opportunities for investment in ICT and such other industrial activities of the Technopolis.

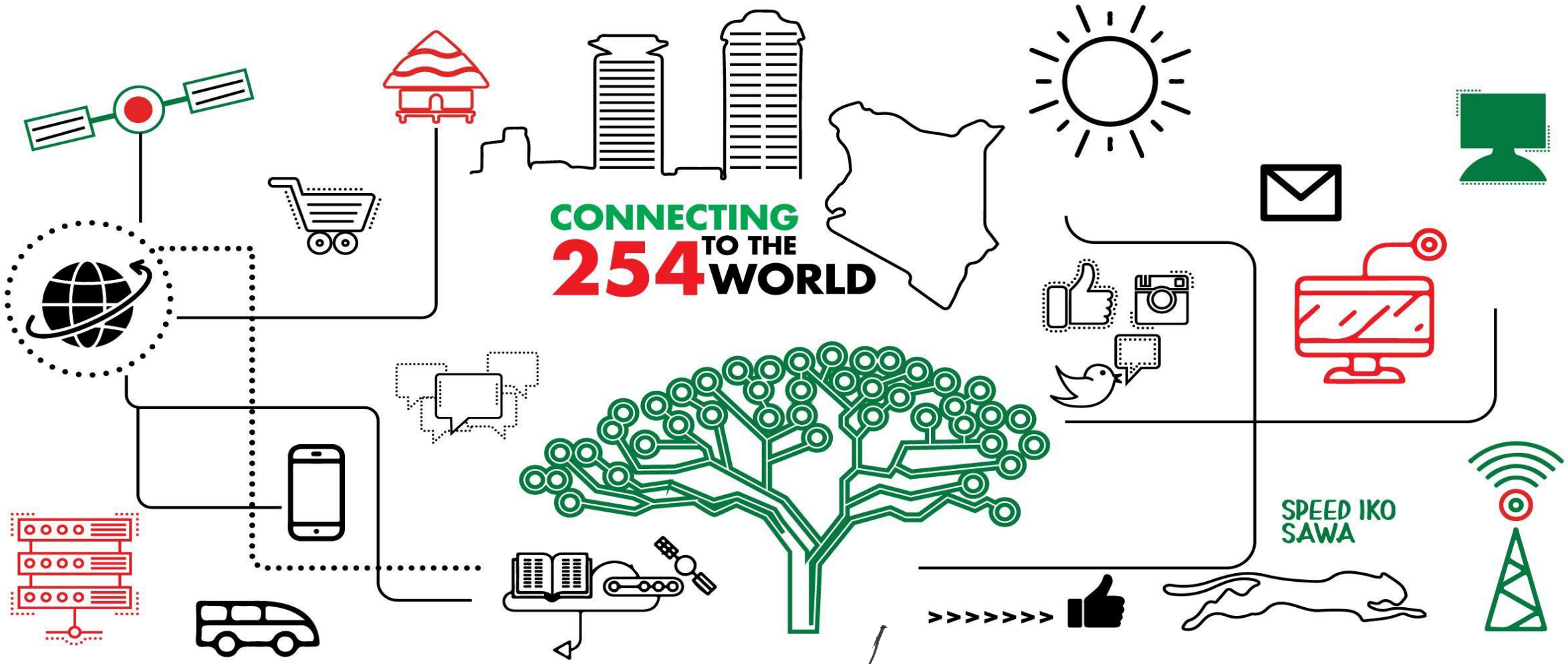
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KONZA Technopolis

Building Partnerships

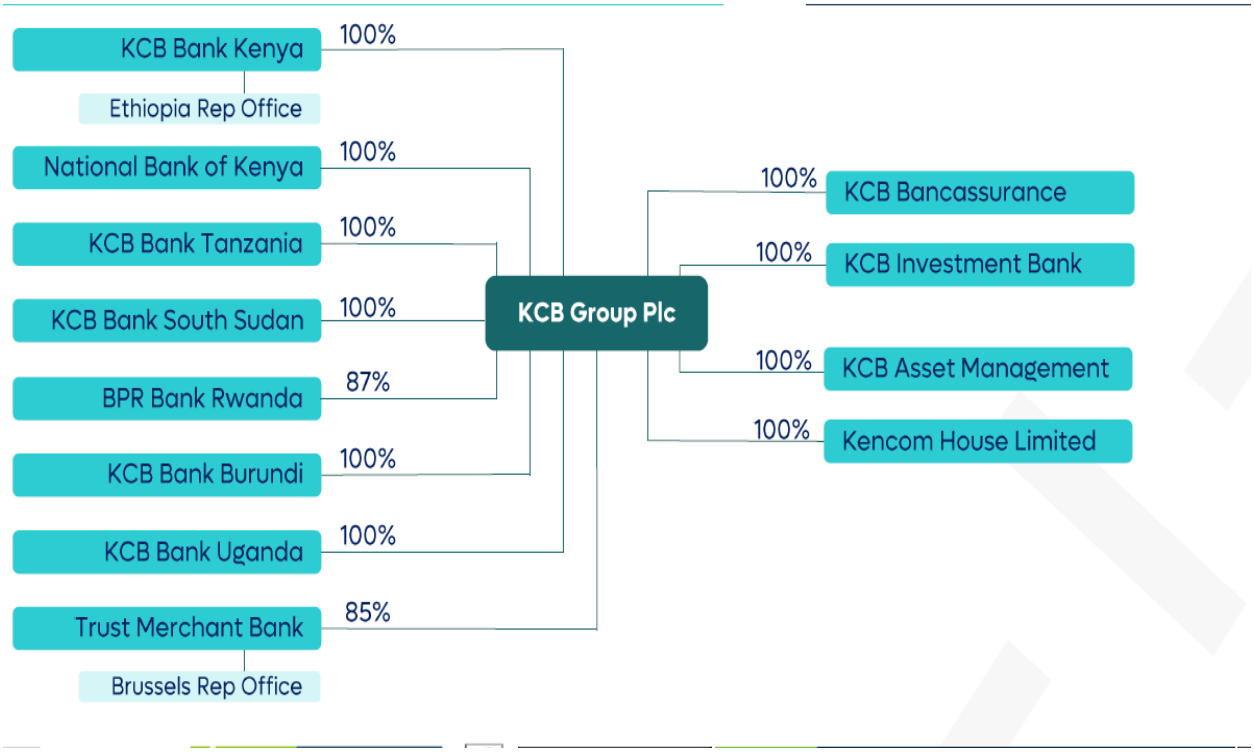
Innovators	Microsoft	Oracle	Safaricom
Common ISPs	Liquid Intelligent Technologies	Universities	COM 21
Leading Security providers	Huawei	SaaS Providers	PaaS Providers

Data Center…. Driving Innovation



1. Company Profile

KCB Group Plc (together with its affiliates, herein after the "Group") is a registered non-operating holding company that oversees KCB Bank Kenya and all KCB subsidiaries in Tanzania, South Sudan, Rwanda, Uganda, Burundi, Democratic Republic of Congo and the Representative office in Ethiopia. It also owns KCB Insurance Agency, KCB Capital, KCB Foundation and all associate subsidiaries.



The holding company was set up in January 2016 to enhance the Group's capacity to access unrestricted capital and also enable investment in new ventures, achieve operational and strategic autonomy for the Group's operating entities and enhance corporate governance across the Group in addition to providing oversight in management of subsidiaries.

The history of KCB dates back to July 1896, when its predecessor, the National Bank of India opened a branch in Mombasa to handle the business that the port was attracting at that time. In 1958, Grindlays Bank merged with the National Bank of India to form the National and Grindlays Bank. Upon independence, the Government of Kenya acquired 60% shareholding in National & Grindlays Bank in an effort to bring banking closer to the majority of Kenyans.

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In 1970, the Government acquired 100% of shareholding in the Bank to take full control of the largest commercial bank in Kenya. National and Grindlays Bank was then renamed KCB Bank. However, over the years the Government has reduced its shareholding to 17.53%.

KCB Bank is East Africa's largest commercial bank with total assets of KES 2 Trillion and capitalization of KES 249 billion. KCB Group is represented in seven countries with the total 528 branches in the region. The expansive branch network is complemented by over 1,313 ATMs across the region that offers a 24-hour access to its quick self-services and 1.3M KCB Group agents and Merchants. Subsequently, the bank also offers electronic and internet banking, mobile banking, as well as customized diaspora services platform that can be accessed on 24/7 basis.

KCB's Vision

KCB has developed a clear vision and a mission statement that is supported by core values embraced by the KCB team and integrated in the day-to-day activities of the KCB team. KCB's Vision is "To be the preferred Financial Solutions Provider in Africa with a Global Reach."

KCB's Mission and Corporate Values

KCB's Mission is "To drive efficiency whilst growing market share in order to be the preferred Financial Solutions Provider in Africa with Global Reach". KCB's key corporate values are: Closer, Connected, Courageous.

The Ownership Structure of KCB Group

The Company files monthly investor returns to meet the continuing obligations as prescribed by the Capital Markets Authority and the Nairobi Securities Exchange.

SHAREHOLDERS PROFILE AS AT 31 DECEMBER, 2023		NO. OF SHARES HELD	% Shareholding
CS National Treasury of Kenya	1	635,001,947	19.76
Kenyan Individual Investors	186,512	868,540,677	27.03
Kenyan Institutional Investors	6,564	1,423,750,971	44.30
Foreign Investors	679	286,169,220	8.91
	194,847	**3,213,462,815**	**100.00**

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Major Shareholders	No. of Shares Held	% Shareholding
CS National Treasury of Kenya	635,001,947	19.76
National Social Security Fund	312,711,292	9.73
CFC Stanbic Nominees Ltd a/c NR3530153-1	137,794,000	4.29
Kenya Commercial Bank Nominees Ltd A/C 927b	79,289,541	2.47
Standard Chartered Nominees Ltd a/c KE004667	61,384,600	1.91
Babla,Sandip Kana Sinh;Babla,Alka Sandip	29,540,800	0.92
Standard Chartered Kenya Nominee a/c KE10085	27,574,726	0.86
Standard Chartered Nominees A/C 9688	26,967,223	0.84
Babla,Sandip Kanaksinh Karsandas	26,871,400	0.84
Solanki,Chirag Menesh;Solanki,Kalavati Menesh	23,000,000	0.72
	1,360,135,529	**42.34**

KCB's Value Creation Process

a) Financial Capital: The funding for the Group comes from investors, institutional lenders and deposits from our clients. The funds are used to run the activities of the Group and generate returns for shareholders.

- Shareholders' Funds Kshs. 249 billion
- Borrowings – Kshs. 2 Trillion
- Customer Deposits – Kshs. 1.5 Trillion

b) Intellectual Capital: KCB's intellectual assets, such as brand value, innovative products, innovation capacity and reputation plays a key role in growing the business. Strong brand affinity and exceptional innovation capacity keeps KCB ahead of the curve.

c) Social And Relationship Capital: These are key assets as it relates to relationships with our stakeholders (Customers, country governments, regulators, employees, investors, other financial institutions and media).

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d) Manufactured Capital: KCB's business structure and operational processes that provide the structure and mechanisms through which KCB runs the bank including information technology software, systems and structures.

e) Natural Capital: This relates to KCB's impact, directly and indirectly on the environment.

- We have developed a social and environment management system for making credit decisions.
- Targeting reduction of carbon footprint by 5% annually
- Adopted 8 SDGs

f) Human Capital: KCB's human capital - people, management and leadership – are key to the growth of the business and increasing shareholder returns.

- Staff Head Count: 12,227
- Permanent employees: 10,567
- Short term employees: 1,660
- Male: 49% Female: 51%

KCB's Stakeholders

KCB's stakeholders are the individuals, groups of individuals or organizations who influence our business or are affected by our business. As a Group, KCB appreciates that there are different clusters of stakeholders' groups and have prioritized those with whom we have a direct relationship and communicate to regularly.

KCB's stakeholders include investors, employees, customers, regulators, government, suppliers, the media, civil society and communities.

KCB is committed to working with all our stakeholders – understanding their expectations and interests, creating opportunities for making our business better and helping KCB achieve its vision to be the bank that defines great customer experience. KCB offers a variety of ways for stakeholders to contact us and let us know their needs and concerns. This communication includes collection of stakeholder feedback and dissemination of information from the Group.

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The rate of engagement, type of engagement and mechanism of engagement varies according to each stakeholder group and the issue at hand. Most importantly, we are proactive in identifying and responding to our stakeholders concerns and expectations.

Main Company Objectives and Business Areas

KCB Bank Kenya Limited is the largest commercial bank operating in Kenya and uniquely positioned to cater for all of the banking and financial requirements of its Retail and Corporate customers.

The bank provides the full range of domestic and international banking and financial products and services including a limited Islamic banking offering in Kenya and Tanzania. The main areas of business of KCB are in Corporate Banking, Retail Banking, Treasury and Mortgages.

i. **Corporate Banking:** KCB's Corporate Banking comprises of Investor Services, Relationship Management, Trade Finance & Financial Institutions, Asset Based Finance and Corporate Finance. This Function is charged with the responsibility of marketing, developing and monitoring the corporate banking asset and liability portfolio.

ii. **Retail Banking**: KCB's Retail Banking encompasses Personal Banking, Biashara Banking, Advantage Banking and the Card Business. This Function is responsible for the overall management of the delivery of Retail Banking products and services across the branch network.

iii. **Treasury:** The Treasury Function is charged with providing effective management of the services the group offers in the local and international money markets, bonds and fixed income markets as well as the derivatives market. Other key objectives of the Function are the achievement of optimum liquidity levels and risk management.

iv. **Mortgages:** KCB S&L Mortgages is the mortgage arm of KCB, and it is charged with the responsibility of delivering mortgage products.

Risk Management, Audit, Information Technology, Human Resources, Finance, Credit, Marketing and other support functions, also supports the Bank operations.

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a. **Risk Management**: Risk Management comprises of Portfolio Management, Market Risk, Operational Risk Management and Reputation Risk Management, Strategic Risk Management and Ethics.

b. **Audit**: KCB's Audit Division is responsible for the development and implementation of annual audit plans for the Bank that monitor and control processes to enhance internal controls and management of risk in the business. The main areas in the Function are Branch Network Audit, Information Systems Audit, Business Solutions and Support Audit and Quality Assurance.

c. **Information Technology:** The Information Technology Function is responsible for providing the technology and process solutions for the bank and its subsidiaries to ensure wider product delivery, faster turnaround times and better customer service.

d. **Human Resources:** KCB's Human Resources Team ensures the attraction, development and retention of an optimal workforce at all levels. The main areas in the Human Resources Function are Business Support, Employee Relations, Training & Development and Compensation & Benefits.

e. **Financial Planning and Control:** The Financial Planning and Control Function is responsible for translating corporate initiatives into quantifiable finance plans, maintenance of sound accounting systems and the provision of relevant Management Information. The main areas under the Finance Function are Finance Management, Information Management & Reporting, Planning and Budgeting.

f. **Strategy and New Business:** The Strategy and New Business Function is responsible for providing leadership for the Group's market research and strategy. The main areas in the Function are Project Management, Strategy, Research and Innovation.

g. **Marketing and Communications:** The Marketing and Communications Function is responsible for developing marketing plans and strategies to drive revenue growth for the entire group. The main areas in the Function are Marketing, Advertising, and Sponsorships.

h. **Credit:** The Credit Function is responsible for the management of credit risk for the group's performing and non-performing Corporate and Retail lending

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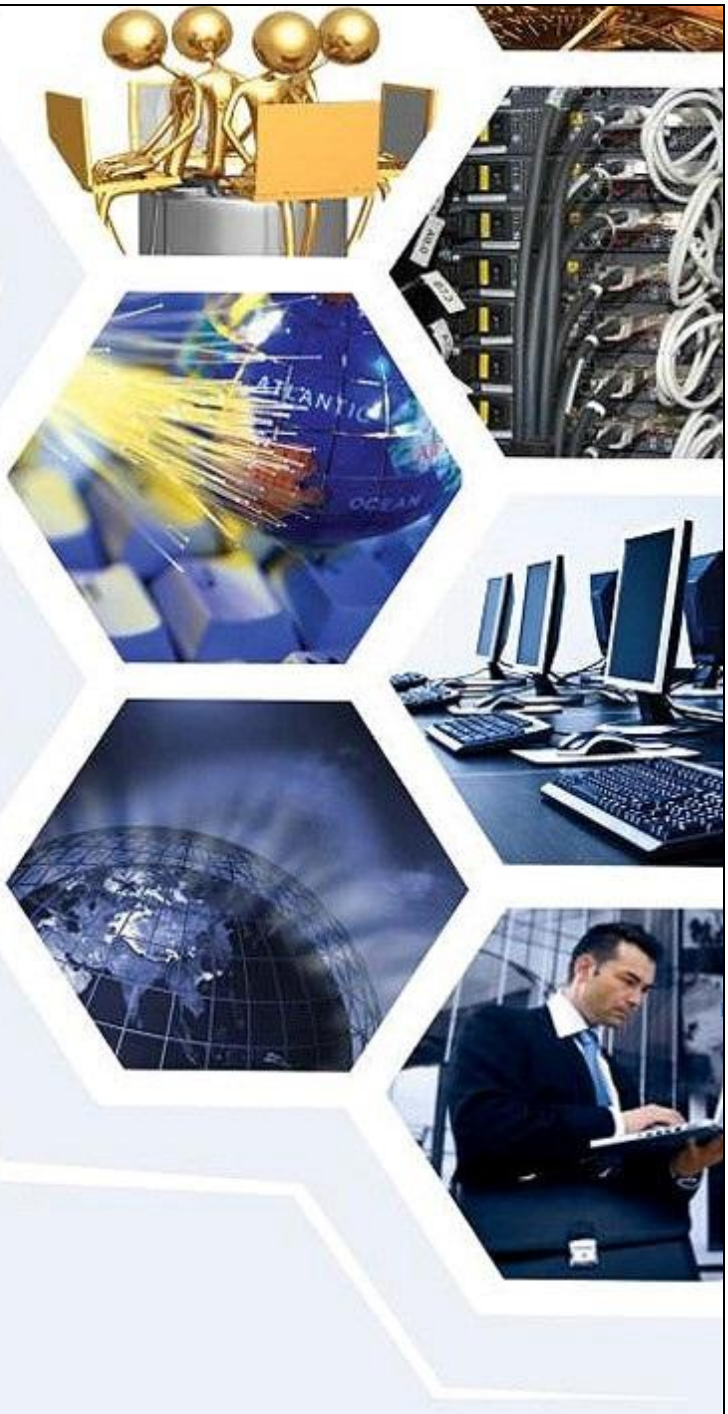
portfolios. The Function comprises of Retail Credit, Corporate Credit and Debt Recovery

i. **Back Office and Customer Service:** The Back Office and Customer Service Function is responsible for effective and efficient delivery of Group Operations services (both In-country and cross-Border) to customers (both Internal & External) while minimizing operational losses.

j. **Logistics:** The Logistics Function is responsible for the effective and efficient delivery of cost effective, value adding tools and services that facilitate the delivery of Stellar Customer Services through Customer Service Improvement, Strategic Cost/Spend Management, Risk Management and Management Information Systems (MIS) Sharing with the Business.

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Dhanush



L.B.O.

DHANUSH PROFILE

Submitted by:

Dhanush Softech Private Limited

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Begumpet, Hyderabad,

Telangana, 500003

Ph: +91 40 49135000

Fax: +91 40 30586061

Email: info@dhanushsoftech.com

Website: www.dhanushsoftech.com

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Table of Contents

1 Organization and Profile.....4

1.1 About Dhanush 4

1.2 Dhanush Service Offerings 5

1.2.1 Organization Structure/ Organogram 6

1.3 Brief about Dhanush Key Personnel's 7

1.4 List of Board of Directors 9

1.5 Dhanush Association with UNICEF and other NGOs 10

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1 Organization and Profile

1.1 About Dhanush

Dhanush Softech Private Limited, a Global IT/ITES Service Provider with IT consultants specialized in multitude of Technology and business domains. Combining Superior experience and extensive capabilities across major industries and business functions, Dhanush collaborates with Customers to help them become highly successful in their business pursuit.

Dhanush Softech has established in August 2021 and having registered office in India. Our committed teams have a unique blend of functional & operational knowledge, technical expertise and result-oriented management experience ranging from Application Development to end-to-end IT Implementation projects.

Dhanush InfoTech Private Limited is a Parent Company of Dhanush Softech, a Global IT & Healthcare Services and Products market leader with more than 300+ IT consultants specialized in multitude of Technology and Business domains. Combining Superior experience and extensive capabilities across major industries and business functions, Dhanush collaborates with Customers to help them become highly successful in their business pursuit.

Dhanush has niche strengths to provide end-to-end IT services right from Consulting, IT System Design, Project Execution, Product Upgrades, Support and Maintenance along with the Training using a robust Training Platform.

Having built strong domain skills in niche verticals like Healthcare, Telecom, Training & Education, Banking & Insurance, Retail, Transportation (Logistics), Oil & Gas along and Government.

Dhanush Delivers State-of-the-Art Solutions and services on Oracle EBS, Microsoft ERP & CRM, Business Intelligence and Data-Warehousing products like Hyperion, Middleware Technologies like Oracle Fusion Middleware, Cloud and Data Center services

Dhanush has niche strengths to provide end-to-end IT services right from Consulting, IT System Design, Project Execution, Product Upgrades, Support and Maintenance along with the Training using a robust Training Platform

IT Products and Out Sourced Product Development is another important service line of Dhanush, with Specialized products like Human Capital Management System, Hospital Information Management System, Telemedicine System, Learning Management System, Document Management System are few of those versatile IT products available with flexible options of Capex or Opex usage.

The stable delivery model, best development practices, latest technologies clubbed with Deep business knowledge and Partnership with premium product vendors like Oracle (Gold Partner), Microsoft (Gold Partner) has enabled Dhanush to carry out IT services like ERP Implementation, Rollout, Migration, Upgrade, Support and Training to prestigious Customers across the globe and Win Microsoft Best Implementation Partner in WECA region.

Dhanush able to make impeccable progress for so long and sustain the same, for believing in Core value of the organization, which is "***Sincere Efforts for Customer Success***"

1.2 Dhanush Service Offerings

Our End-to-End IT Services portfolio is industry focused and ranges from solution design to outsourced application support, development and enhancement services. Through our services, we enable our clients to enhance their business operations.

Our Service Offerings include:

- **Education/Training:** Education ERP, ICT Services includes Training, Learning Management System, Content Development & Deployment
- **Healthcare:** ICT Services for Health Care Domain including Hospital Information system and Telemedicine
- **Telecom:** ICT Services for Telecom Domain include services in OSS & BSS
- **Enterprise Resource Planning:** ERP System Integration Services for Oracle and Microsoft Technologies
- **Dhanush Products:** Developed software products in the areas of Human Capital Management System, Project Management and Document Management System
- **Government:** Large – Turnkey ICT Project Deliveries for Government sector

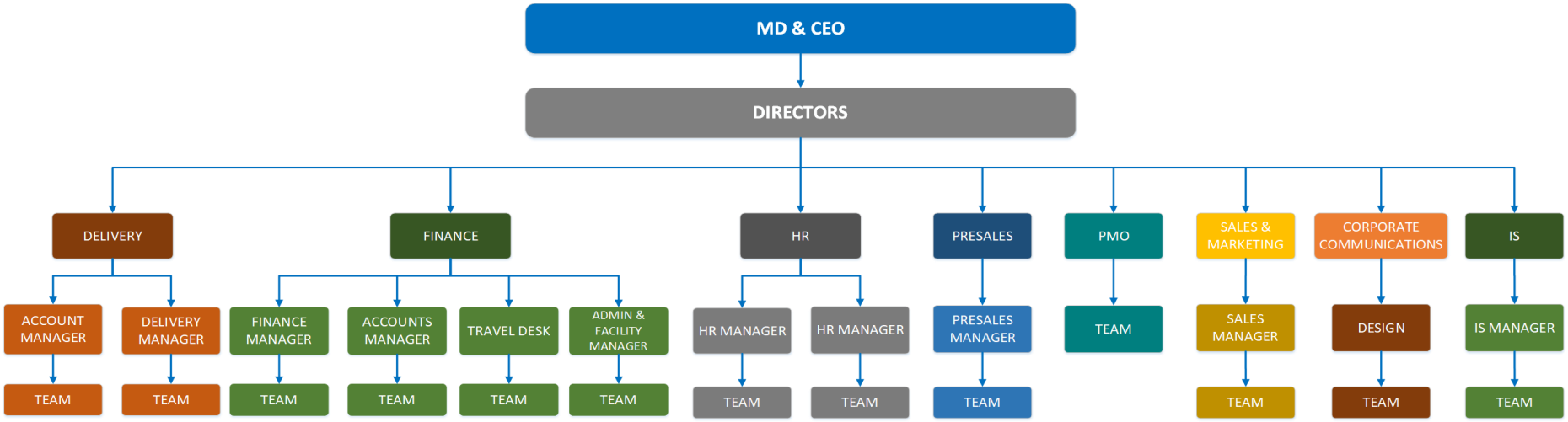
1.2.1 Organization Structure/ Organogram

Number of staff employed: 300+

Qualifications: Master of Business Administration, Master of Computer Science, Master of Technology, Bachelor of Technology, Bachelor of Engineering

Level of Experience: 4+ to 20+ years of experience

Organization Structure



Experience

No. of years the company has been in operation:

Dhanush has been into business since June 2008 with its Head Quarters in India and spread across worldwide since 2008. Dhanush started its business in Kenya since January 2009. In short term, Dhanush has spread its operations in different countries and laid its strong footprint with offices in Kenya, Uganda, South Africa and Australia.

With its innovation and implementation methodologies, Dhanush has a global client list across various countries like Kenya, Uganda, South Africa, Australia, USA, and India.

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1.3 Brief about Dhanush Key Personnel's

DSN Murthy – Chairman & Managing Director

DSN Murthy, Chairman & Managing Director of Dhanush, a Post Graduate in Business Management from NITTE, an extreme innovator and a strong believer and Investor in the strengths of the African Market and the potential it can offer to the world.

DSN Murthy (DSN) has founded Dhanush, a Global ICT Products and Services Organization providing niche ICT Services to Fortune 100 Customers in various verticals like Telecom, healthcare, education, e-Governance, Aerospace and Consulting, with Offices Spread in 8 Countries, operations in 35 Countries and a Headcount of 1000 Consultants

DSN is known for sharp business acumen in spotting business opportunities from common places and creating wealth and value for the Customers, Employees and Society.

DSN has been driven by the passion - to build an organization deeply committed to Values, with the firm belief that success in business eventually but inevitably follows with your unflinching commitment to Core values. DSN strongly believes that ordinary people are capable of extraordinary things when organized into highly charged teams, and takes keen personal interest in developing leaders and teams that focus on predictable outcomes.

Key Achievements of Dhanush under the Leadership of DSN:

- Regionally Aligned Global Delivery Model, an innovative Delivery model aimed at local talent enablement and knowledge empowerment. This Unique Business Delivery Model, first ever in the world has resulted in highly satisfied customers like MTN in South Africa, Airtel in 18 African countries, Government of Kenya, UN Organizations like UNICEF. By Adopting this Model, large number of jobs are being created across 25+ African countries and this Model has been extended to Australia with the international Global base in India
- ICT Vision for Africa, by the virtue of serving Sub-Saharan Africa, for past decade, DSN has paved a visionary path in the area of ICT Services for Africa by closely collaborating with Indian IT leaders for provision of Niche services in the sectors of Healthcare, Telecom, Education & Training, Retail and Govt
- Healthcare Solutions, Dhanush under the Leadership of DSN has been working closely with UN agencies like UNICEF to provide innovative solutions in the areas of Healthcare for rural poor by using latest solar power driven Telemedicine solutions to significantly minimize child mortality and Improve the quality of Medicare to the Women & Child. Using this technological innovation, Dhanush offer a unique & affordable Primary Healthcare for healthier Africa
    - Dhanush is closely working with UNICEF India & Ministry of Health, Govt. of India on Development, Rollout and Support of ANMOL (Auxiliary Nurse and Midwife On Line) - An Android Tablet based Mother and Child Healthcare Solution.
    - Dhanush has partnered with Govt. of Andhra Pradesh, India for the innovative idea of converting existing Urban Primary Healthcare Centers (UPHC) into "Electronic Urban Primary Health Centers (e-UPHC)" to provide better and affordable Healthcare services to Urban poor people. Under this project, Dhanush has established 60 + Digital Clinics with all the modern Telemedicine equipment along with Technological services under one roof. Dhanush has also invested in the provision of Hardware, Network connectivity, Interior furnishings, and Furniture

L.B.O.

- Education & Training, Dhanush has invested and created effective solutions to impart the Business Ready Skill Development, Training and Education to the African Youth in the areas of Vocational Education and other Employment enhancing courses thus building confidence in exploring global opportunities and creating Jobs and Wealth
- Global Best Technology for Africa, By the Virtue of Working with World's Best Organizations and having Indian Background, Dhanush was able to imbibe the Global Best Standards in Technology Innovation, Methodologies, Skills, Training and Process knowledge and inherit these inventions into African Market in the areas of Telecom, Healthcare, Education by adopting them to local market requirements by localizing them with African people. The approach is getting extending for other Business Verticals like Mining, retail and others.
- Global Leadership & Contribution
    - DSN had been honored to participate in the Indian Business Delegation by FICCI during India's Prime Minister, Shri Narendra Modi's historic Africa Tour covering the countries of South Africa, Tanzania and Kenya, between 8th July to 11th July 2016, DSN met with various Lawmakers, Business personalities, Government Officials and other notable personalities from the respective countries.
    - During Prime Minister's Historic visit to Kenya a critical MOU had signed with Top ranking financial institution, which will catalyze the proliferation of Dhanush's Telemedicine solution across Africa.
    - DSN has been Honored as "Business Ambassador "for his efforts in formulating the Tri-City-Sister partnership with Brisbane (Australia)-Ipswich (Australia)-Hyderabad (India) and creating conducive Business ecosystem between these cities from Australia and India for Trade & Business improvement
    - Contributed towards creating peace & stability during Indian student-attacking period in Australia by reinstalling the much required Trust & Confidence between the Australia & India
    - Has been instrumental in creating and stabilizing the framework for bringing the Australian Skills for empowerment of the Indian and African Youth in the Vocational Training space

Mr. KL Murthy, Director

KL Murthy heads Presales and Solutions at Dhanush, besides also heading ERP Practice (Oracle & MS Axapta). He has over 20 years of experience in practice management, delivery management, team management, account management and general business management. He oversees customer discussions, customization of solutions, due-diligence and technological R&D. He is also responsible for managing the strategic leadership forum of business operations.

Murthy has worked with major technology giants such as Apple and Cisco alongside India based IT MNCs like Tech Mahindra. His practice management experience extends to Oracle ERP and related products catering to the business requirements of various market verticals. His expertise in delivery management includes identifying and de-risking of the delivery/ engagement from perceived risks based on technology, geography and business verticals.

Murthy holds a Bachelor's in Engineering from Osmania University and a Masters in Electronics & Communication Engineering from JNTU.

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Mr. Tarakeshwar Rao, Vice President
Tarakeshwar Rao is a Post Graduate from Symbiosis University in Finance and Holds an MBA from Jaipur National university in IT Systems. He has 10+ Years of experience in Business Process Re-engineering (BPR/GPR), ICT Strategy, eGovernance, Program/Project Management, IT Implementation and Change Management. Tarakesh has worked with many prestigious organizations like Deloitte, Unit trust of India and other IT MNC's. Where he has been working under various profiles such as client engagement management role where he is responsible for overall client relationship management, project issue and challenge mitigation, and most importantly ensuring client satisfaction, playing a significant role in up-sale in existing clients or even to new clients using positive references from existing clients. And demonstrated experience as program manager for a large G2C program in government domain with large number of stakeholders and stringent timeline ensured delivery quality is never compromised In Dhanush he primarily Heads the Delhi office as a Regional Manager and has developed large integrated IT business opportunities involving Public health service lines and also is part of various e-Governance transformations happening under Digital India. Tarakesh also holds a degree in Public Health Management and various certifications in project management and technology like Prince 2, ITIL V3 and MCSE etc.

1.4 List of Board of Directors

S No.	Name of the Board of Directors	Designation	DIN
1	SURYANARAYANA MURTHY DENDUKURI	CHAIRMAN & MANAGING DIRECTOR	01972416
2	LAKSHMANA MURTHY KUCHULAKANTI	DIRECTOR	09523677



1.5 Dhanush Association with UNICEF and other NGOs

Dhanush, a leader in Healthcare and Technology solutions, products and Services with over more than 10 years of serving fortune 100 Global Clientele has been associated with UNICEF since last 6 plus years as an LTA (Long Time Agreement) Partner in providing niche Healthcare and Technology solutions for developing economies of both Africa and India.

UNICEF Uganda has entrusted the responsibility of developing a Unique Telemedicine solution, which is implemented in Uganda to reduce the IMR/MMR. UNICEF India has partnered with Dhanush for development and implementation of ANMOL Solution which is a tablet based mobile solution intended for serving 200,000 plus ANMs / ASHA's across the country. Dhanush also, has been associated with UNICEF State units of West Bengal and Jharkhand in building implementing and supporting solutions related to Child Protection and WASH areas.

In the Technology Space, Dhanush InfoTech has been a pioneer in developing Tracking solutions since past decade by using the right mix of latest technologies like, Mobile, GPS, embedded systems and Data Analytics which have been deployed in various states, by both Government and Commercial organizations. The Vehicle Tracking Solution of Dhanush was highly appreciated by Greater Hyderabad Municipal Corporation (GHMC) and using Dhanush Tracking solutions for saving heavily on the fuel costs and improving the efficiency and transparency of the Swachh Bharath operations. Notable Commercial Organizations like Bajaj, Hero Honda are also using Dhanush Tracking Solutions since long time.

Our major pieces of work in the past few years are given at a glance below

Dhanush Association	Services Provide
UNICEF Uganda	• As an LTA Partner, Dhanush has Designed, Developed and Provided Training to use the Mother and Child Healthcare Kit, working closely under the guidance of Global Innovation Center, UNICEF Kenya. • Dhanush has developed USurvey, a Technical solution to capture the details of people participation on various healthcare programs being launched by Government of Uganda
UNICEF India	• Dhanush is the LTA partner with UNICEF India, and has been responsible for Design, Develop, Rollout and Support of India's flagship national level Mother & Child Healthcare Program, being rolled out with 200,000 User /Nurses (ANMs) across the Country. • Dhanush has worked on a national level Patient Unique Identification Project, which can transform the Healthcare scenario in India, by enabling seamless transfer of patient data across multitude of heterogeneous Healthcare systems • Dhanush has worked with UNICEF State unit of West Bengal for implementing state level assessment of WASH parameters at primary and upper primary schools totalling to 1,000 schools

L.B.O.

	• With UNICEF Jharkhand, Dhanush has worked on Child Protection Solution, in providing Application support, issue resolution for Smooth operation.
UNICEF Maharashtra	• Dhanush is entrusted with the Responsibilities of designing, developing and deploying Android and Web Application which will assist the Zilla Parishad Administration of ZPs of Sangli and Kolhapur for Tracking, Tracing and Quarantine management of Covid19 Prime suspected people and other people who are suspected to have contacted the Prime Suspects. • Dhanush has developed IT based Shelter Management System for Migrant Camps and Homes in Maharashtra under COVID-19 to provide shelter for the Migrant workers and their families should be a safe, decent, and secured covered place.
Jhpiego India	• Dhanush has been a long-time partner with Jhpiego (Johns Hopkins Program for International Education in Gynecology and Obstetrics) and has been entrusted with the responsibility of developing Delivery management solution called MWMIS (Maternity Wing Management Information System)
United Nations Development Programme (UNDP)	• Dhanush has developed of Android & IOS based Mobile Application for Migrant Workers Registration System and web based interface provisioning dashboard and reports to help analyze the data for decision making • Dhanush has developed a Web-based integrated Tribal Scheme Management Information System (iTSMIS) Application along with a mobile app for online as well as offline data entry to monitor fund allocation and utilization under various schemes/programmes of MoTA and outcome-based monitoring for Government of India in association with UNDP. • Dhanush has developed GIS Enabled Entitlement Tracking (GEET) - Development of Partnership Module and GIS based Dashboard/module as an enhancement to the existing GEET system (Web & Mobile App for enumerators) • Dhanush has developed Supply Chain IT Application for electronic Vaccine Intelligence Network (eVIN) - Web & Mobile Application. Electronic Vaccine Intelligence Network (eVIN), a unique innovation that brings together technology, people and processes to strengthen the vaccine supply chain by digitising information on vaccine stocks and storage temperatures. eVIN in terms of Stock Visibility, Stock Management, Distribution, Order Management, Temperature Monitoring and Reports. • Dhanush has developed a Web & Mobile based MIS Application for real time tracking of the implementation of the Forest Rights Act at different implementation levels.

In the Healthcare area, Dhanush has established its strong credentials in delivering largescale primary healthcare services like management of Primary Health Centers (PHC), SubCenters in PPP Model and taking the complete ownership for the execution of RBSK (Rashtriya Bal Swasthya Karyakram) for conducting bi-annual Health screening of children who are in the age group of 0 to 18 years' age group.

L.B.O.

Dhanush



Dhanush Softech Private Limited

6th Floor, 1-8-448, Laxmi Building,

Begumpet, Hyderabad, Telangana, 500003

Ph: +91 40 49135000

Email: info@dhanushsoftech.com

Website: www.dhanushsoftech.com



VISIBILITY
TECHNOLOGY SERVICES



VISIBILITY TECHNOLOGY SERVICES

COMPANY PROFILE

SECURE SOLUTIONS, SEAMLESS SUCCESS

L.B.O.

ABOUT US

Visibility Technology Services is a managed & professional services provider in the field of information technology and information security. Our head office is located at Laiboni Centre, Kilimani in Nairobi, Kenya. We focus on leveraging our robust infrastructure and footprint to support a broad spectrum of organizations in information security, infrastructure, audit and advisory.

Visibility Technology Services provides a complete suite of end-to-end IT and Security Solutions that allow businesses and organizations to improve operational efficiency, enable innovation, mitigate risk, and reduce expenditures. We pride ourselves on having established unique service level agreements (SLAs) and fixed costs based on our customers' needs and budgets.

To help achieve your business goals, we have built a state-of-the-art platform of technology assets, engineering talent, and strategic partnerships to deliver world-class services. In addition to configuring and deploying cutting-edge technology solutions, we also use the same platform to fuse the right security, disaster recovery, and management portfolio around your environment. With Visibility Technology Services, you are assured that your mission-critical data is up and always running, protected, and compliant.



OUR VISION

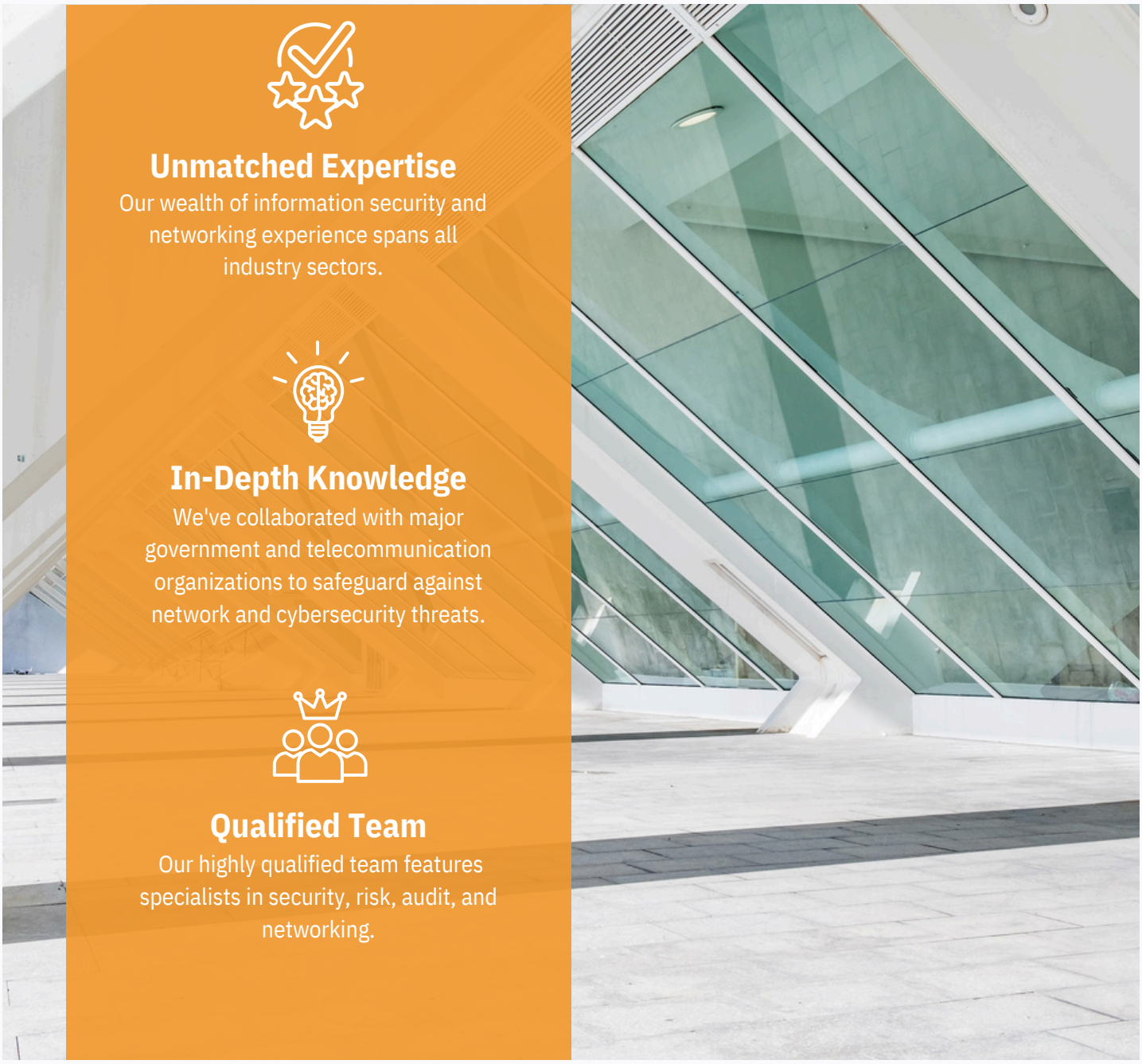
Empowering businesses to thrive in the digital age with cutting-edge cyber security. We are committed to safeguarding your digital assets, ensuring continuous protection and peace of mind in an ever-evolving cyber landscape.

OUR MISSION

Our mission is to empower businesses of all sizes to defend against cyber threats with cutting-edge technology and unparalleled expertise. We are committed to providing proactive, comprehensive security services that ensure the integrity, confidentiality, and availability of your digital assets.

THE VISIBILITY EXPERIENCE

We are not only consultants but risk management partners. We believe there are three compelling reasons why we are the ideal partner to assist you with understanding the security posture of your organization and enhancing your control environment:



Unmatched Expertise

Our wealth of information security and networking experience spans all industry sectors.

In-Depth Knowledge

We've collaborated with major government and telecommunication organizations to safeguard against network and cybersecurity threats.

Qualified Team

Our highly qualified team features specialists in security, risk, audit, and networking.

ABOUT OUR ECOSYSTEM

Visibility Technology Services Prides itself in investing in not only the right technology but also in the right partners and the right people. We continually invest in these two aspects to ensure quality service delivery:

- ☑ Strategic Partnerships
- ☑ Right People

We continually enhance the skills of internal staff by challenging them to be ahead of the curve; through continuous training to ensure they have the right skillsets and ensure that they are excellent in vendor-specific implementations.

We choose our partners based on their proven excellence and compliance to vetted standards and independent reviewers i.e. Gartner, ICSA Labs and NSS Labs to give clients the best in breed solutions in the market.



DELIVERING THE GOVERNMENT OF KENYA CYBERSECURITY PROJECTS

Visibility Technology Services is involved in engagements with the government of Kenya and other international partners in the cyber security space to map out the technical specifications, solutions and capabilities required to delivery a true zero trust framework for the government of Kenya across all MDA&Cs.

Based on the experience and expertise of Visibility and its partner to deliver national scale cyber security monitoring and management operation centers, Visibility will provide a critical role in delivery of cyber security services across all the key projects the group companies will deliver.

Cyber Security Sevices for the Health Cloud

Cyber Security Sevices for Digital Borders

Cyber Security Sevices for the Government MDAs



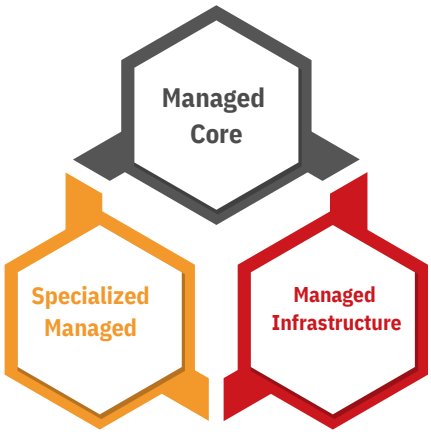
Managed Services

What is MSS?

We understand that your business information is critical to the operation and success of your organization. Important as it is, information security may not be your area of expertise but for Visibility Technology Services it is the core business.

Visibility Technology Services is a premier provider of holistic information security management. Our managed security offerings ensure that your information and information systems are protected from unauthorized access, use, disclosure, modification, or destruction.

These offerings can be categorized into three major sections below:



Managed Core

The core managed security services seek to cover the common facets required by any business for day-to-day security and network operations monitoring to ensure business resilience and offer a better detective control environment. The features provided through this as a core service in one holistic package.

Specialized Managed

The specialized managed security services seek to cover specific complementary facets of the business by niche need. These services are meant to augment an already existing security infrastructure with a measurable level of cyber security maturity; organizations would outsource the specific element that they lack expertise and/or capacity to run internally and have it managed on their behalf as per an agreed SLA.

Managed Infrastructure

Corporate growth depends on an ever-evolving technology infrastructure that can support your business operations and your employees' data access everywhere they go and on every device.

The evolution of applications, mobile devices, and the compute environments is straining current networks. Network architectures must become dynamic, agile, and simple. Visibility Technology Services delivers: End-to-end, standards-based network virtualization technology that reduces network provisioning by 87%.
Unified access solutions that offer consistent policy enforcement, security, and management, with the ability to provision guest-access accounts in less than 10 seconds. Innovative data center designs that offer a 400% performance improvement and up to 20 times lower hardware costs.

Contrary to Legacy MPLS (Multi-protocol label switching) Networking or traditional networking that are locked to a specific provider; Visibility Technology Services offers a vendor neutral managed secure SD-WAN solution where more than one carrier can be utilized ensuring higher availability and ease of management of the entire network. This gives a good Return on Investment in the long run.

87%

Visibility Technology Services delivers end-to-end, standards-based network virtualization technology that reduces network provisioning by 87%.

10 seconds

Unified access solutions that offer consistent policy enforcement, security, and management, with the ability to provision guest-access accounts in less than 10 seconds.

400%

Innovative data center designs that offer a 400% performance improvement and up to 20 times lower hardware costs.



Professional Services

Visibility Technology Services provides customers with highly skilled technology professionals to serve as subject matter experts for both short- and long-term projects. Our consultants offer technical, certified expertise across all stages of service delivery and can help you maximize your technological spend as temporary staff or as backfill when you need to augment your team.

Our professional services are aimed at pro-active environments which largely seek to strengthen an organization's people, processes & technology. These services may be offered in individuality or phased out based on the need's assessment of the organization. The main benefit of services in this section include the ability to faster detect, prevent or mitigate risks which in turn leads to faster response to incidents as well as knowing and mitigating possibilities of these breaches happening within these organizations.

The professional services may broadly be categorized as below:



Training

This service is aimed at security training for staff to cover both technical and non-technical aspects to achieve an overall secure enterprise.

Vulnerability Analysis and Penetration Testing

This is an exercise that emulates adversary tactics to test against controls of an organization.

Audit

This service is aimed at providing independent third-party assurance to organizations.

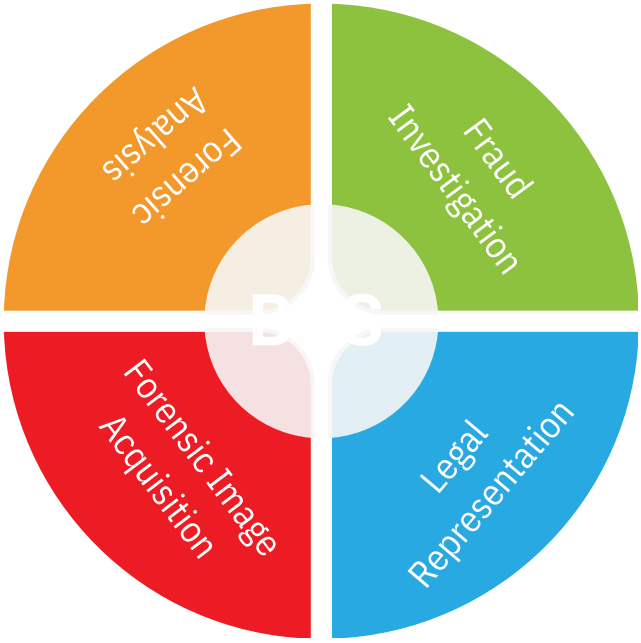
Advisory

This service is aimed at providing tailored advice and opinions to better client's environments. .

Business Recovery Services

These services seek to reduce the impact of a compromise or fraudulent activity by helping the organization recover and/or mitigate the loss incurred by such activity. The service would involve a number of recovery services dependent on the level of engagement and capacity within the organization to deal with recovery. Having staff with experience working within regulator space and industry for this offering has been our key strength to ensure the quality of service.

The Business recovery services may broadly be categorized as below:

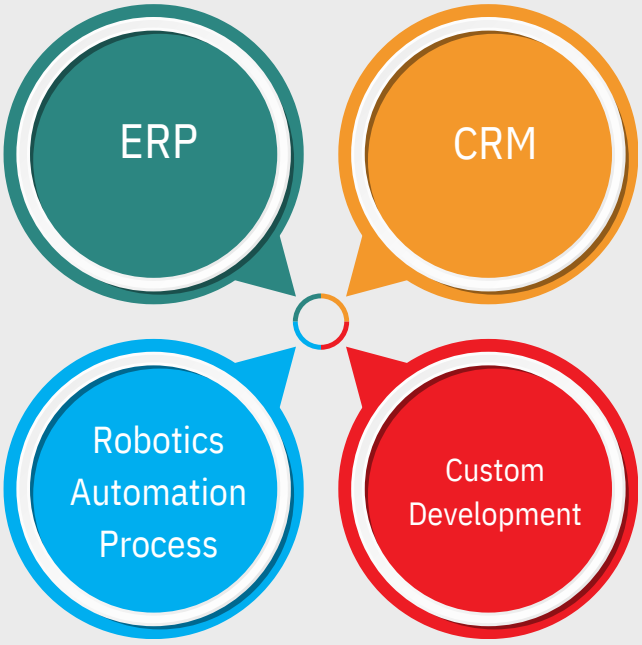


Software As A Service (SaaS)

Visibility Technology Services specializes in several software solutions that are offered to clients to ensure business automation and efficiency; We leverage core technology partners that are leaders in this field for various solutions but do custom development where a business need is not catered for or achievable through customization of an off the shelf system.
Some of the key organization solutions we customized include:

- Microsoft (Dynamics, Navision)
- Service Trace (X-1 accelerator)

The SaaS offerings may broadly be categorized as below:



At Visibility, we take charge of your cybersecurity so that you can fully focus on your business. With unwavering trust and reliability at our core, we lead you through your cybersecurity journey, guaranteeing a safer digital future.

~ Henry Karanja

Contact Us

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(+254) 0709 208 000

info@visibility.co.ke

www.visibility.co.ke

L.B.O.

Affordable | Reliable | Responsive



BUSINESS COMPANY PROFILE

2025

VILCOM NETWORKS LIMITED

L.B.O.

Hi There!

Vilcom Networks Limited, a trailblazer in the realm of connectivity, is dedicated to eradicating the digital divide. As an Internet Service Provider (ISP), we specialize in delivering robust and high-speed internet solutions to both served and underserved communities.

Our mission is clear – empower lives by connecting the unconnected. With a focus on inclusivity, Vilcom Networks goes beyond traditional boundaries, ensuring that reliable internet access becomes a reality for everyone, regardless of location.

Through innovative technologies and a commitment to community development, we are transforming the landscape of connectivity, one community at a time.

Welcome to Vilcom Networks, where every connection matters.



L.B.O.

Table Of Content



01 About Vilcom

02 Meet The Team

03 The Opportunity & The Problem

04 Addressable Market-Kenya & Mission for Africa

05 How We Do It

06 Vilcom Dedicated Internet Access (DIA)

07 Vilcom Delivery Of Dedicated Internet Access (DIA)

08 Topology of Vilcom Networks

09-11 Our Solutions

12 Our Coverage

13 Services Map

14 Testimonials Partners and Clients

15 Future Plans

16 Pictorial

About VILCOM

VISION

To be a leading Technology Solutions Provider in Africa.

One Home | One Business | One Institution | One Town | One Village at a time

C *Collaboration*

A *Agility*

R *Responsiveness*

E *Excellence*

MISSION

Vilcom which means Village Communications is your Gateway to a world of opportunities unlocking access to knowledge, skills, jobs, networking, entrepreneurship, and entertainment. We are committed to enriching lives by transforming unserved, underserved, and reserved areas into thriving, connected communities.



Collaboration

Vilcom Networks fosters a culture of teamwork, encouraging employees to share ideas and work synergistically to achieve common goals. The company values open communication and collaboration across departments, recognizing that collective efforts lead to innovative solutions.

Responsiveness

Vilcom Networks places a premium on responsiveness to customer needs. The company is dedicated to promptly addressing inquiries, resolving issues, and adapting services to meet changing demands. Customer satisfaction is paramount, and the company prides itself on its ability to provide timely and effective solutions.

Agility

Embracing change is a core value at Vilcom Networks. The company thrives on adaptability, empowering its workforce to respond quickly to evolving industry dynamics and technological advancements. Agile methodologies are ingrained in the company's approach, ensuring a nimble and responsive organization.

Excellence

Striving for excellence is ingrained in Vilcom Networks' ethos. The company upholds high standards in service delivery, technology infrastructure, and customer support. Continuous improvement and a commitment to quality characterize the company's pursuit of excellence, ensuring that customers receive top-tier internet.



Meet
The Team

Vilcom's Executive Team is experienced in Telecommunications, Cooperate and Business Operations in Africa with over 20 years experience in Business Development, Transformational Technology Solutions and Commercial strategies.



Agnes Limo

CEO

Welcome to Vilcom Networks Limited, where connectivity meets excellence. At Vilcom, we're not just an ISP; we're architects of seamless digital experiences. Our commitment to innovation, customer satisfaction, and cutting-edge technology defines us.
As CEO, I am proud to lead a team that prioritizes reliability, speed, and inclusivity in connecting served and underserved areas.
Join us on the journey to redefine connectivity.
Vilcom Networks: Affordable, Reliable and Responsive.



Peter Kipkoech

COO

Greetings from Vilcom Networks Limited! As the COO, I'm honored to guide our operations with a focus on efficiency, quality, and customer-centricity. At Vilcom, we're not just providing internet services; we're crafting solutions that empower communities. Our operational excellence ensures that every connection is reliable and swift. Join us in navigating the digital landscape with confidence. Vilcom Networks: Bridging Communities, Empowering Lives.

Our staff are customer obsessed and have continuously earned our customer's trust through dedication and excellent service provision.

THE OPPORTUNITY

Our Achievements

01 Vilcom in under 4 years is the fastest growing Internet and Technology Services provider in Kenya. Currently at **position 5** as per Communications Authority of Kenya Sector Statistics.

02 In rural areas, Vilcom Networks is actively bridging the digital divide by expanding network coverage and infrastructure. This initiative empowers communities with access to essential services such as telemedicine, agricultural information, government services, and online learning platforms, contributing to socioeconomic development



THE PROBLEM

Affordable last-mile broadband networks are seriously missing for majority of Rural population, causing huge digital divide between Africa and the rest of the world.

01 **Low Penetration**

5G accounts for 0.2% of all connections (2022). 11% households have fixed broadband compared to 59% global average(2021).

02 **Highest Cost**

1GB costs 8% of average income in Africa, 4 times the affordable Internet threshold.

03 **Usage**

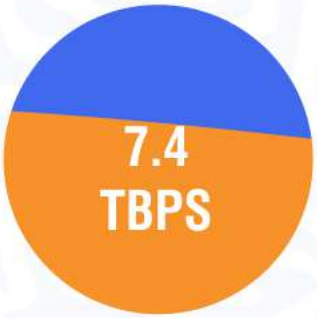
Mobile data usage per subscriber per month. 0.8 GB Sub-Saharan Africa vs 7.5 GB world coverage.

ADDRESSABLE MARKET KENYA

There is an addressable market of over 4 Million unserved homes. With another 7.4 Million MSME' s in Kenya, Corporates, Parastatals and Government institutions.
Vilcom Seeks to serve 40% of this market.



Kenya's digital economy by 2025 from $ 7.42B in 2020.



Total available international bandwidth as of 2020 only 27% utilized.



Total length of terrestrial backbone fiber.

MISSION FOR AFRICA

- Kenya's Strategic positioning is to, in the medium term expand into Uganda, Rwanda Democratic Republic of Congo and South Sudan.
- Build the world's largest terrestrial and subsea Broadband Network in Africa.
- Deliver the most affordable internet services to the next Billion African Users.
- Develop the largest Technology platforms and Solutions to spearhead the Digital Revolution in Africa.



U.B.O.

Vilcom Networks Limited strategically targets both served and underserved areas in its quest to bridge the digital divide and connect communities through the transformative power of the internet. The company recognizes the importance of providing high-quality internet services to urban and suburban regions, ensuring that users in densely populated areas have access to seamless connectivity for various online activities. This includes high-speed internet for streaming, online communication, and work-from-home scenarios, meeting the growing demands of modern digital lifestyles.

However, Vilcom's commitment extends beyond urban centers, reaching into underserved and remote areas where internet access may be limited or unavailable. The ISP acknowledges the significance of inclusivity, aiming to empower individuals in rural and less-developed regions by providing them with reliable and affordable internet connections. By targeting underserved areas, Vilcom Networks strives to unlock the potential of these communities, facilitating education, economic opportunities, and improved quality of life through internet access. This dual focus on served and underserved markets reflects Vilcom's dedication to fostering digital equity and ensuring that no community is left behind in the fast-evolving landscape of the digital age.

HOW WE DO IT

Vilcom is a Licensed Network Facilities provider with both Application Service Provider and Contractor licenses from the Communications Authority of Kenya (CA.)

We continue to build winning partnerships that give us a competitive advantage in the industry.

Our Contracts and Collaboration with Kenya Power for dark Fiber and pole Leasing and American Tower for Tower and Space collocation have shortened the time to market and achieved cost savings

Vilcom's presence at carrier neutral Data centers the Africa Data Centers, KONZA and ICOLO Data Centers presents unlimited opportunities in terms of Peering and Guaranteed Service Stability and Reliability.

Vilcom is planning to get 5G licence to accelerate network expansion.





VILCOM DEDICATED INTERNET ACCESS (DIA)

FEATURES

Dedicated Bandwidth

Vilcom Networks specializes in providing secure and reliable public Wi-Fi solutions. Whether for cafes, hotels, or public spaces, our network ensures seamless connectivity for users on the go. We prioritize privacy and encryption to safeguard user data.

Business Continuity – Guaranteed Uptime

Vilcom's DIA offers high availability with a service guarantee of 99.9% uptime. Our customers can be assured of consistent internet connectivity, even during peak usage times, as the bandwidth is dedicated solely to their use.

Fiber Optic Connection

Vilcom's DIA is delivered purely on redundant fiber with a managed Customer Premise Equipment (CPE). This enables proactive monitoring of the service, automatically raising fault tickets if an issue is detected.

24/7 Support

Vilcom's DIA includes round-the clock proactive monitoring and support to promptly address any issues. We have a dedicated Account Manager who is a Single Point Of Contact for all service-related inquiries and Support.

Low Latency, High Bandwidth Performance

Vilcom's DIA provides low latency, granular bandwidth options starting from 100Mbps, making it suitable for multiple real-time services such as Unified Communications, VOiP, Video Conferencing, Online Trading and other business application without delays, enhancing productivity and communication efficiency.

End to End Service Provision

We provide end to end Solution Design, Installation, Provisioning and Maintenance. We offer Static IPs and any support for IPv4 and IPv4/IPv6 dualstack addresses.

VILCOM DELIVERY OF DEDICATED INTERNET ACCESS (DIA)

BUYING JOURNEY

01 SPEC THE NEEDS

- Determine bandwidth requirements based on number of users and high Bandwidth usage activities..
- Agree on SLA and downtime threshold Specify Number of Static IP needs.

02 REQUEST FOR QUOTATION

- Provide a quotation on agreed specifications and scope of work. Include all taxes and fees.
- Price Negotiation and approval.

03 CONTRACTING

- Contract terms, Duration
- Payment Terms Service
- Order Form Issued

04 IMPLEMENTATION

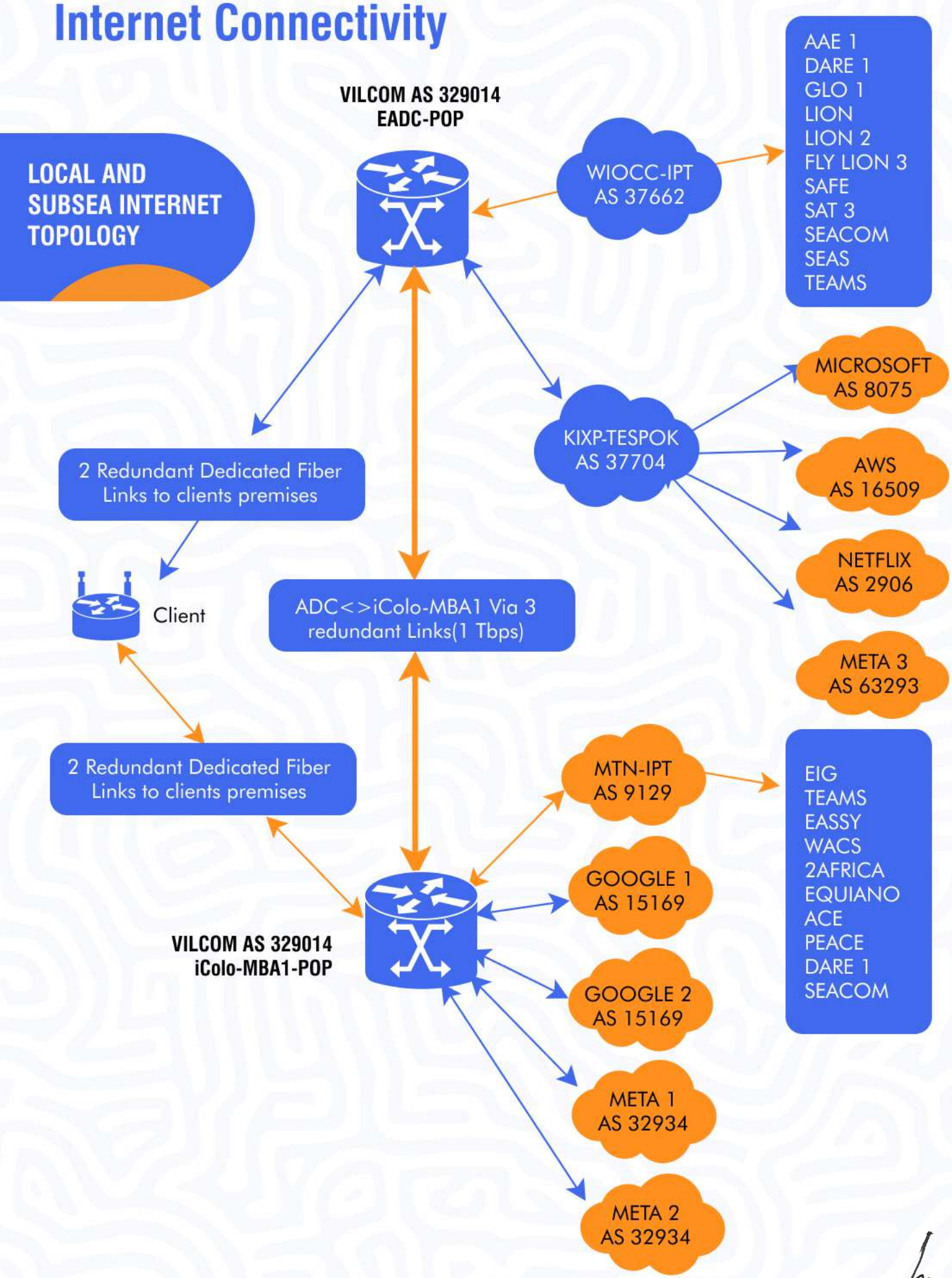
- Project Manager Assigned and Project plan issued.
- Site Survey Completed.
- Installation, Activation and Acceptance

05 SERVICE LIFE CYCLE MANAGEMENT

- Monitoring, Support and Maintenance for SLA "guarantees uptime" and Service Performance.
- Service Change Management_"Move Add Change Delete", MACD requests.
- Contract Renewal Negotiations

U.B.O.

Topology Showing Vilcoms Resilient Internet Connectivity



OUR SOLUTIONS



Public Wi-Fi

Vilcom Networks specializes in providing secure and reliable public Wi-Fi solutions. Whether for cafes, hotels, or public spaces, our network ensures seamless connectivity for users on the go. We prioritize privacy and encryption to safeguard user data.





Cloud & Web Hosting

We offer secure and scalable cloud and web hosting solutions designed to support businesses of all sizes. Our hosting services ensure uptime, reliability, and flexibility to meet dynamic business needs.

SD-WAN (Software-Defined Wide Area Network)

Our SD-WAN solutions optimize network performance by dynamically routing traffic across multiple paths. This enhances application performance, reduces costs, and simplifies management of wide area networks.



DWDM & GBE (Dense Wavelength Division Multiplexing & Gigabit Ethernet)



Vilcom Networks offers DWDM and GBE solutions that provide high-capacity data transport over fiber optics, ensuring robust and scalable connectivity for businesses requiring reliable data transmission.



GPON (Gigabit Passive Optical Network)

Our GPON solutions deliver ultra-fast broadband access over fiber optics, enabling high-speed internet connectivity for residential and business customers with minimal infrastructure.

WAN (IP MPLS)

With our WAN (IP MPLS) services, businesses benefit from secure and efficient communication across multiple locations. MPLS technology prioritizes critical applications and ensures quality of service.





Security Services

Vilcom Networks provides comprehensive security services, including firewall management, intrusion detection, and threat mitigation, to safeguard networks and data from cyber threats.

Internet Access

Vilcom Networks provides reliable and high-speed internet access tailored to meet the needs of homes, businesses, and enterprises. Our service ensures seamless connectivity and optimal performance.



Digital TV & Streaming Services

Our digital TV and streaming services deliver high-definition content and interactive features, enhancing entertainment experiences for residential and commercial customers.





IoT & Smart Connectivity Solutions

Vilcom Networks offers IoT and smart connectivity solutions that enable businesses to leverage connected devices and sensors for improved operational efficiency and customer experience.

Collaboration Tools

We offer advanced collaboration tools that facilitate seamless communication and productivity among teams. From video conferencing to document sharing, our solutions optimize workflow efficiency.





Managed IT Services

Our managed IT services provide proactive monitoring, maintenance, and support for IT infrastructure, ensuring business continuity and optimal performance.

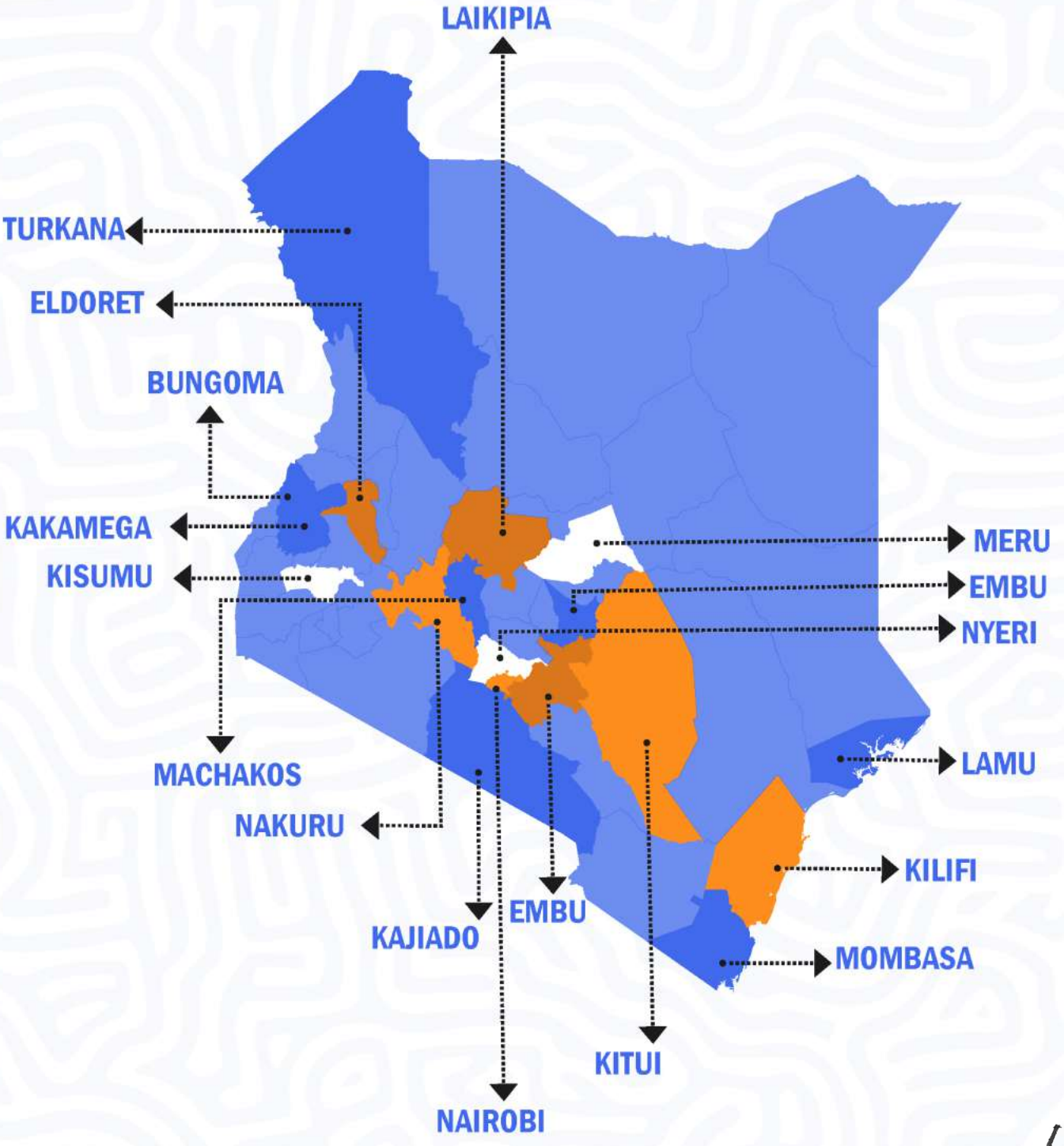
Managed Contact Centre

We offer managed contact center solutions that optimize customer interactions through voice, email, web, social media and automative support through apps and bots.



OUR COVERAGE

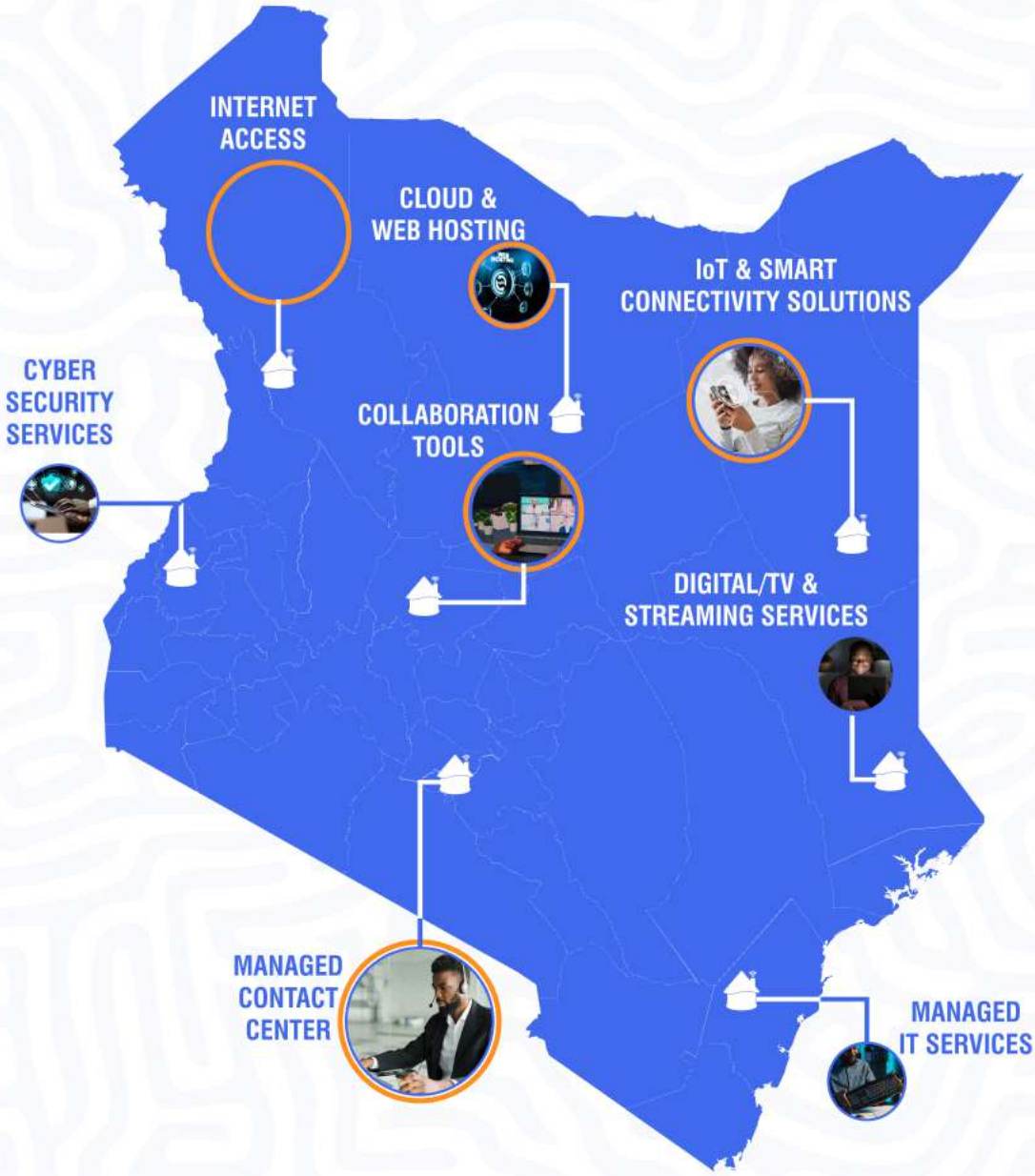
Vilcom has existing and planned presence in over 20 counties in Kenya with continued expansion in more regions. Our fiber footprint of over 5000Kms makes it easy for timely connection and expansion to our clients. We have deployed future proof technologies such as GPON, Cloud based CORE and Automated processes. Vilcom Networks operates within Stipulated laws and regulations including data privacy and Occupational Safety and Health which promotes safe work.



Affordable | Reliable | Responsive

WE BRING INTERNET TO YOU

One Home, One Business, One School, One Town
One Village at a time



TESTIMONIALS

Blasio's Cyber
I am your happy customer currently on 80Mbps business package @6999KSH monthly and YES I am getting value for my money...Best ISP in East and Central Africa. Keep up the amazing work.

Don Oriwa
The best internet service provider with very understanding and reliable customer service. I am proud to be associated with you. Thanks!

Bahim Maalim
Vilcom has the best internet as compared to other providers. I would wish that with time, you make 15mbps to be Ksh. 3000 per month. Your internet is fast. I really like the experience.

Grandy
Best of all, here at Nakuru kiamunyi☺

Collins Kipruto
The best service I have ever experienced..... very reliable 👍👍😍

Krishna Patel
They are affordable and their internet speed is great.

PARTNERS AND CLIENTS

FUTURE PLANS

Looking ahead, Vilcom Networks is focused on solidifying its position as the leading Internet Service Provider (ISP) in Kenya. Our vision encompasses several strategic initiatives aimed at expanding our reach and enhancing our service offerings to better serve our customers. Vilcom Networks aims to connect an increasing number of homes and businesses across Kenya.

We are dedicated to extending the benefits of high-speed internet to urban areas as well as remote regions, thereby bridging the digital divide. We plan to strategically position internet hotspots throughout the country to enhance accessibility. These hotspots will play a crucial role in providing internet access in areas where traditional connectivity may be limited. Vilcom Networks is committed to introducing innovative internet services that cater to the evolving needs of our users.

This includes exploring new technologies to improve connectivity, enhancing streaming capabilities, and ensuring our offerings remain at the forefront of the digital landscape. Through our initiatives, we aim to create a network that fosters connectivity and empowers communities.

Our goal is to make the internet an integral part of daily life for individuals and businesses alike, thereby contributing to socio-economic development. As we move forward, our focus is not only on connecting individuals but also enriching their online.



PICTORIAL
















Vilcom Networks

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Nairobi

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customercare@vilcom.co.ke

TECH 2B: Experience

List of Previous Large-Scale Assignments Successfully Completed in the last 5 years

S No.	Name of the Client	Assignment Name	Description of Services Provided	Contract Duration
1	Open University of Kenya (OUK)	Design, Development, Installation, Operationalize and Commission of Enterprise Resource Planning (ERP) for the Proposed Open University of Kenya (OUK)	**ERP Implementation for Open University of Kenya (OUK) by Dhanush:** • Designed, developed, implemented, and supported a comprehensive web-based ERP system for OUK. • Streamlined academic, administrative, financial, and operational workflows through a unified platform. • **Academic Lifecycle Management**: ○ Online admissions and registration ○ Curriculum creation and updates ○ Exam scheduling, results processing ○ Credit transfer and exemption workflows • **Financial Systems**: ○ Budgeting and procurement processes ○ Bid evaluation, purchase orders, invoicing ○ Billing, asset tracking, and financial dashboards • **Human Resource Management**: ○ Recruitment, onboarding, and payroll processing ○ Attendance tracking and performance reviews • **Student Services**: ○ Management of hostel, transport, canteen, societies, and work-study programs ○ Online service requests and tracking system for students	**Start Date:** 07/2023 **End Date:** 07/2026

L.B.O.

			• **System Integrations**: ○ LMS and KOHA digital library integration ○ Real-time fee payment through payment gateway ○ Integration with government and third-party platforms • **Additional Capabilities**: ○ Student digital wallet for transactions, refunds, and grants ○ Disbursement workflows and reconciliation mechanisms ○ Advanced analytics, dashboards, and BI tools for insights and reporting	
2	United Nations Development Programme ("UNDP")	Supply, install, configure, and operationalize a Supply Chain IT application, including the development of additional features/modules and integration with ANMOL and CoWIN applications.	Dhanush has developed Supply Chain IT Application – electronic Vaccine Intelligence Network (eVIN) (Web & Mobile) Application in association with UNDP • Supply, installation, configuration and customization of electronic Vaccine Intelligence Network (eVIN) application, database and related software • Supply Chain Software Platform ○ Inventory Management ○ Trend analysis & Forecasting ○ Compatibility with Mobile Platform ○ Multilingual support ○ MIS Reporting ○ Integration with Temperature Logger ○ Integration with other systems envisaged • Configuration and customization • Software Supply and Installation • Software Maintenance and Issue Resolution **Link for Web Application:** https://evinonline.in/#/	**Start date:** 07/2020 **End date:** 01/2022

L.B.O.

			Link for Mobile Application: https://play.google.com/store/apps/details?id=com.undp.evin	
3	National Health Mission (NHM), Madhya Pradesh	Development, Operation and Maintenance of the MP ANMOL Portal and Application for National Health Mission, Madhya Pradesh	**RCH MP-ANMOL Web Portal & Mobile Application** • **Development & Implementation** ○ Design, develop, and manage the RCH MP-ANMOL web portal and mobile application as per approved requirements (SRS/FRS). ○ Ensure system functionality, usability, and compliance with healthcare needs. • **Key Functional Modules** ○ **Community Module**: ANM & ASHA login, tracking of eligible couples, pregnant women, child care, VHND, RCH register, and remote support. ○ **Facility Module**: ANC tracking, delivery management, SUMAN module, referral list, and dashboard for ANMOL app. ○ **Government Integrations**: ABHA ID, F-form USG, MDCDSR, Obstetric ICU, Samagra, MPBOC, and payment integration. ○ **Additional Features**: User management, admin reports, mapping modules, WhatsApp/SMS gateways. • **Manpower Deployment** ○ Dedicated team including Project Manager, MIS Experts, Java & Mobile Developers, Software Tester, and Business Analyst, DBAs, and Helpdesk team. • **Operations & Management** ○ Customization & modifications as per NHM-MP requirements. ○ Training for officials at different levels (State/ District/ Facility).	**Start date:** 07/2024 **End date:** 07/2029

L.B.O.

			○ System monitoring & user load management. • **Documentation Support** ○ Process flow, system architecture, design, integration, user manuals, training materials (print, audio, video), and test scripts. • **Training & Capacity Building** ○ Development of training modules embedded in the portal. ○ Online/offline training sessions as per NHM-MP schedule. • **Maintenance & Helpdesk Support** ○ Application & Software Maintenance: Bug fixes, troubleshooting, performance optimization. ○ Helpdesk & Ticket Resolution: Continuous support for users.	
4	Indian Aviation Academy	Development, Hosting & Maintenance of Learning Management System (LMS)	• Development of Learning Management System (LMS) ○ Facilitate the design of online training content by converting the classroom course content provided by IAA, into system compatible formats. ○ Online training to be administered from a central position (i.e. IAA) for all the trainees/employees located pan India ○ Features that are available to Users (Administrators/ Course Managers/ Trainees or Learners) ○ Site Registration/ Signup/Portfolio Creation/ Profile Creation ○ Course Registration / Course Access/ Course Enrolment/ Course Subscription ○ Course Content Creation & Management ○ Training Management ○ Communication & Collaboration • Hosting of the Application	**Start Date:** 07/2022 **End Date:** 07/2025

L.B.O.

			• Training of Users • Application Support & Maintenance	
5	Uttarakhand Health Systems Development Projects (UKHSDP)	Development, Deployment, Management, Training and Capacity Building of Telemedicine Solution for identified Health Centers of Government of Uttarakhand under Uttarakhand Health Systems Development Project using (04) Hubs and (400) Spokes Model.	Dhanush has developed, deployed, Managed, Training and Capacity Building of Telemedicine Solution, for the identified Health Centres of Government of Uttarakhand under the Uttarakhand Health Systems Development Project using Hub [4] and Spoke [400] Model • **Deployment of Telemedicine Services:** ○ Implement a Hub and Spoke model consisting of 4 Hub Centers and 400 Spoke Health Centers across the state. ○ Enable remote consultations, tele-radiology, tele-pathology, and e-prescriptions to overcome the challenge of health professional shortages in rural/remote areas. • **Development and Management of Telemedicine Platform:** ○ Design, develop, and deploy a scalable telemedicine solution customized for Uttarakhand's geographical and administrative context. ○ Ensure real-time audio-video interaction between patients and doctors through a secure and user-friendly platform. • **Training and Capacity Building:** ○ Build capacity of healthcare workers and administrators for effective use of the telemedicine system. ○ Conduct hands-on training sessions, workshops, and refresher courses across all implementation levels. • **Health System Strengthening:** ○ Improve the effectiveness of existing healthcare delivery mechanisms.	**Start Date:** 11/2021 **End Date:** 11/2023

L.B.O.

			○ Integrate the telemedicine platform with other national systems like ANMOL, CoWIN, and the National Health Mission (NHM). • **Project Management and Monitoring:** ○ Ensure efficient project implementation with strong monitoring mechanisms. ○ Support decision-making through data analytics and MIS (Management Information Systems) dashboards. • **Sustainability and Scalability:** ○ Establish operational protocols and governance models to ensure long-term sustainability of the system. ○ Provide for integration and expansion beyond the initial 4 Hubs and 400 Spokes. • Application Support & Maintenance of the system	
6	Integrated Financials Management Information System	Development and Implementation of an In Classroom and Virtual / Online Learning / Training Program of the IFMIS Academy	Dhanush Learning Management Solution (LMS) is a home grown secure Web-based e-Learning system being used to train IFMIS users • Using LMS, concepts such as e-Books and Flash animated presentations can be incorporated into the e-learning content in addition to providing a virtual online classroom environment • LMS also ensures 24 X 7 availability of training content, developmental content and performance content from any location with web access • Conducting IFMIS Re-engineering training for 48 ministries with 10000+ end-users over a period of 5 years • Classroom and Lab based training is being provided in the following areas which resulted a significant change in the Productivity :	**Start Date:** 12/2011 **End Date:** 04/2016

L.B.O.

			○ Being agile in Change Management ○ Oracle EBS R 12 Financials (Payables, Receivables, Reporting) ○ Oracle Hyperion (Planning & Budgeting) ○ Information & Communication Technology (ICT) ○ Motivational Training	

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Collections

S/No	Name of the Client	Assignment Name	Description	Contract Duration
1.	Kenya Revenue Authority (KRA)	Tax Collection Services	KCB is one of the appointed collection banks by the National Treasury and Kenya Revenue Authority (KRA) for receiving government revenues, including: • Taxes (via KRA iTax platform) • Customs payments • Import Declaration Fees • Excise duties KCB offers **Payment Services** that allow businesses or individuals with or without KCB Bank accounts to make KRA tax payments directly from their KCB Online Banking platforms or through other available payment rails provided by the Bank which include: • **i-Bank, QuickPay, or Host-to-Host API**: Enables bulk or single tax payments (e.g., PAYE, VAT, DST) directly from your account—fully online, secured, and efficient • Mobile & Paybill Payment via local Mobile Mone systems such as M-PESA, Airtel Money, Tkash. The Paybill accounts setup in respective Mobile money systems are linked to corresponding KCB's Corporate collections accounts. In-Branch or RTGS/EFT/M-Pesa via KCB App. Customers through KCB Branch network can do EFT, RTGS, Mobile Banking, Pesalink to transact to make payments to KRA. These payments are done using relevant account references provided by KRA. Notification to KRA is handled by the Bank to update Taxpayer's position.	Start Period: 2013 End Period: Ongoing

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2	National Social Security Fund	Member contribution both personal and through employees	NSSF Kenya partners with KCB Bank, for accepting contributions. The payment rails supported include: • **Cash deposit** – customers can visit any of the KCB branches present the e-slip for payment which is posted and notification send to NSSF is updated against the member account. • **EFT/RTGS** – Customers initiate transfers through EFT or RTGS to the target accounts in KCB Bank by providing eslip numbers in the reference field. • **KCB agency Banking** outlets offer NSSF remittances • **Other methods** – M-PESA, cheque, or direct deposit at KCB Bank branches. Such collections come from individual customers paying to NSSF or remittances by employers on employee deductions.	Start Period: January 2014 End Period: Ongoing
3	Social Health Authority(SHA)	Member contribution both personal and through employees	KCB Bank is one of the collection banks for Social Health Authority. Payments are linked with SHA's digital system. Digitally generated payment slip from the SHA system is used to make payment by both individual contributors and employers and updated in SHA system. Channels provided by KCB include: • Direct bank transfers into SHA-designated KCB account through KCB Branch Network, i-Bank, Mobile Banking, Agency Banking. Employers (and individuals who prefer bank deposits) can remit SHIF contributions directly into a designated KCB current account created for SHA SHIF collections. • M-PESA Pay-bill 200222. Individuals (especially in informal employment) can pay via M-PESA using the pay-bill number 200222, following SHA's e-Slip and Pay-bill instructions. These payments are submitted to the collection Bank account in KCB Bank. • Other Mobile Money Channels *(through KCB's MyKash*	Start Period: October 2024 End Period: Ongoing

L.B.O.

			platform). KCB's MyKash (USSD *522# or Mobile App) enables transfers from a KCB account to pay-bill numbers and mobile wallets—effectively supporting SHA pay-bill payments among its options.	
4	Kenya Ports Authority	Port Charges and other internal revenue collection	KCB Bank Kenya facilitates a range of collections through its branch network and digital channels. These collections primarily cover port-related fees and services. Here are the key collections handled: 1. **Port Charges and Fees:** ○ Import and export handling charges ○ Terminal handling charges ○ Storage fees ○ Wharfage fees ○ Demurrage and container detention charges 2. **Marine Services Payments:** ○ Pilotage fees ○ Tug services ○ Mooring/unmooring fees ○ Berthing fees 3. **Lease/Rental Fees:** ○ Charges for leased port premises or container yards 4. **Security and Gate Pass Fees:** ○ Vehicle and personnel gate passes ○ Security service-related payments 5. **KPA Tender Payments:** ○ Application fees for tenders and procurement processes 6. **Miscellaneous Receipts:** ○ Payments for permits, licenses, and administration charges Channels supported include: • KCB Branches Nationwide • KCB Online Banking (Corporate and Retail)	Start Period: July 2023 End Period: Ongoing

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			• KCB Mobile Banking (App and USSD *522#) • KCB Bank Agents (KCB Mtaani) RTGS and EFT Transfers	
5	Judiciary	Collection of court fines	Judiciary runs an integrated platform linked with e-filing and case management systems for: • Payment of court fees and deposits • Collections for forfeitures • Processing refunds • Issuing receipts via SMS and case tracking systems KCB collection services enable the Judiciary to have: • Instant notifications to judiciary systems and users • Secure database validation (e-filing identifiers matching judiciary systems) • Automated reconciliation of court fee receipts • Faster refund and forfeiture processing	

Payments/Disbursements

S/No	Name of the Client	Assignment Name	Description	Contract Duration
1.	Social Protection	Cash Transfer Program	KCB Bank plays a significant role in the disbursement of social protection funds in Kenya, particularly under the Inua Jamii program. This program provides cash transfers to vulnerable groups, including older persons, orphans and vulnerable children, and persons with severe disabilities. KCB has disbursed billions of shillings under this program, contributing to the financial well-being of thousands of beneficiaries. The Bank is a key partner in the Inua Jamii program, which is the government's flagship social welfare initiative. KCB, along with other commercial banks, facilitates the disbursement of these funds through individual accounts established for beneficiaries.	Start Period: 2013 End Period: Ongoing

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2	Ministry of Education	Capitation Fund Disbursement	KCB Bank is involved in disbursing capitation funds to schools, acting as an agent for government funds meant to support education. These are government grants given to schools to cover tuition fees and other educational expenses per learner, a key component of Kenya's Free Day Secondary Education program. Amount channeled to KCB is disbursed to schools having accounts in KCB who constitutes 50% of the total disbursed amount.	Start Period: January 2014 End Period: Ongoing
3	National Disaster Management Authority (NDMA)	Safety net fund Disbursement	The NDMA, mandated to manage drought risk in Kenya, partners with various entities, including financial institutions, to implement its programs. KCB Bank the main Bank for these operations. NDMA uses KCB for disbursing funds, including those related to the Hunger Safety Net Programme (HSNP), a cash transfer program for drought-affected communities. The NDMA also utilizes the National Drought Emergency Fund (NDEF), a multi-donor fund, to ensure resources are available for drought preparedness, response, and recovery and this is handled through KCB.	Start Period: October 2024 End Period: Ongoing
4	Youth Enterprise Development Fund (YEDF)	KCB's 2jiajiri program	This program focuses on training and financing young people in various vocational skills, with the aim of establishing sustainable businesses or transitioning them into gainful employment. KCB's 2jiajiri program was specifically designed to work alongside initiatives like the Youth Enterprise Development Fund and the Uwezo Fund to tackle youth unemployment in Kenya	Start Period: 2016 End Period: Ongoing
5	Hustler Fund (Financial Inclusion Fund)	Hustler Fund	The Hustler Fund, also known as the Financial Inclusion Fund, is a Kenyan government initiative designed to improve access to financial services for individuals and Micro, Small, and Medium Enterprises (MSMEs). It aims to provide affordable credit, savings, insurance, pension, and investment products to those who are	Start Period: Sept 2022 End Period: Ongoing

L.B.O.

			typically underserved by traditional financial institutions. The Hustler Fund operates through a digital platform, making it accessible to a wide range of users. The fund also incorporates savings and investment components, encouraging financial security and long-term wealth building. KCB Bank maintains the loan Book for Airtel and Telkom customers and all the customer savings, which is 5% of the borrowed loan across all telcons.	
6	Uwezo fund	Uwezo fund Disbursement	KCB Bank serves as a disbursement partner for the Uwezo Fund, facilitating the transfer of funds to eligible groups. The Uwezo Fund is established to provide financial access to women, youth, and persons with disabilities for enterprise development.	Start Period: Feb 2014 End Period: Ongoing

Reconciliation and Exception Management

Reconciliation is the process of verifying and aligning records between two or more systems to ensure accuracy, consistency, and completeness of transactional data. In financial operations, this typically involves matching internal records (e.g., general ledger, payment logs) with external sources (e.g., bank statements, partner systems) to detect discrepancies, duplicates, or missing entries.

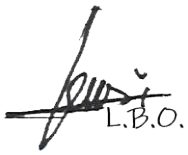
To streamline this critical function, we utilize a **bot-driven automated reconciliation process** that performs the following tasks:

1. **Automated Data Retrieval**
    - The bot extracts transactional data from multiple integrated systems (e.g., Core banking, External partner reports etc) on a scheduled or on-demand basis.
2. **Rule-Based Matching**
    - Our reconciliation system applies predefined logic (e.g., match on reference number, date, and amount) to reconcile entries across systems.
    - Partial matches or tolerance thresholds can be configured to minimize false exceptions.
    - Manual matching is also supported in cases where transactions were manually posted with non-matching references.

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3. **Exception Flagging and Classification**
    - Unmatched or irregular items are automatically flagged and categorized (e.g., duplicates, missing records, timing mismatches).
    - Each exception is logged and routed to the appropriate resolution workflow.
4. **Automated Reversals**
    - In the case of errors such as double entries or invalid transactions, the bot/bulk poster can initiate reversals, journal entries or rollback actions based on defined rules, with full audit traceability.
    - Original reference and unique identifiers are maintained to create a correlation between the reversal and the original transaction.
5. **Reporting and Audit Logs**
    - Dashboards provide real-time visibility into reconciliation status, exception numbers, and resolution progress.
    - Every action by the bot and Bank users are logged for audit and compliance purposes.

This approach reduces reconciliation cycle times by over 90%, minimizes manual intervention, and ensures high levels of data accuracy and financial integrity — making it a reliable, scalable solution for high-volume environments.



Open University of Kenya (OUK) – Development of Education ERP

Assignment Name	Design, Development, Installation, Operationalize and Commission of Enterprise Resource Planning (ERP) for the Proposed Open University of Kenya (OUK)
Name of Client	Open University of Kenya (OUK)
Client Address	The Cradle, Silicon Savanna, Konza Technopolis P. O. Box 2440 - 00606 Nairobi, Kenya

About Open University of Kenya (OUK)

The Open University of Kenya (OUK) is a pioneering, fully digital national institution established by the Government of Kenya to democratize access to higher education. Designed to meet the evolving needs of a dynamic and digitally connected society, OUK offers accessible, affordable, and flexible learning opportunities to students across the country and beyond. As a key pillar in Kenya's digital transformation and education reform agenda, the university delivers accredited, high-quality academic programs entirely online—encompassing lectures, assessments, and robust student support systems. OUK is committed to promoting lifelong learning, upskilling the workforce, and expanding educational reach to underserved communities, empowering learners to study anytime, anywhere, at their own pace.

Background of the Project

The OUK ERP system was developed as a comprehensive, integrated digital platform to support end-to-end academic, administrative, and financial processes for the university. The project supports over 20 academic programmes and 10–15 short courses and was designed to facilitate 100% online education, from student admission to graduation. The platform is integrated with payment gateways, third-party LMS and library systems, and also includes internal HR and finance modules. The ERP serves all students in Kenya, eliminating the need for physical presence at any stage.

Objectives

- To provide a national-level, fully digital education platform for Kenyan learners.
- To implement a centralized ERP covering academic, financial, and HR operations.
- To ensure smooth online admissions, classes, exams, and certification.
- To integrate various third-party systems like payment gateways, LMS, and library services.
- To support real-time analytics and data tracking for students, faculty, and administrators.

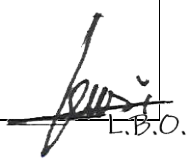
Scope of Work

Dhanush has design, development, implementation, and support of a comprehensive Enterprise Resource Planning (ERP) system tailored for the Open University of Kenya (OUK). The solution aims to streamline academic, administrative, financial, and operational processes through a fully digital and integrated platform.

1. **ERP System Development and Implementation**
   - Design and deployment of a scalable, web-based ERP system aligned with OUK's digital-first strategy.
   - Full automation of university operations with user-friendly interfaces for students, faculty, and administrators.

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2. **Academic and Student Lifecycle Modules**
    - **Academic Management**: Management of programs, courses, faculties, and departments.
    - **Admissions & Registration**: Online application, merit-based selection, and student onboarding.
    - **Curriculum Management**: Program structure creation, course mapping, and revisions.
    - **Examinations & Assessment**: Online exam scheduling, results processing, and grading workflows.
    - **Credit Transfer & Exemptions**: Automated workflows for credit evaluation and approval.
    - **Reattempt & Supplementary Exams**: Module for tracking reattempt eligibility and scheduling.
    - **Cohort/Intake Management**: Batch-wise student grouping and tracking across intakes.
    - **Content Management**: Central repository for academic materials, announcements, and policies.
    - **Student eWallet**: Wallet-based transactions for fees, services, and refunds.
    - **Student Services**: Online modules for handling transfers, club memberships, societies, hostel allotment, canteen facilities, transport requests, and work-study assignments.
3. **Financial Management Modules**
    - **Budget Planning & Management**: Multi-departmental budgeting with real-time status tracking.
    - **Procurement & Bid Management**: eTendering, vendor registration, and bid evaluation processes.
    - **Purchase Orders & GRNs**: Automated generation and tracking of purchase orders and goods receipt notes.
    - **Invoicing & Billing**: Generation of student and vendor invoices, late fee calculations.
    - **Accounts Payable/Receivable**: End-to-end tracking of transactions, dues, and collections.
    - **Fixed Asset Management**: Asset registration, depreciation, and lifecycle tracking.
    - **Inventory Management**: Centralized control over university inventory and consumables.
    - **Income and Expenditure Tracking**: Real-time financial dashboards for oversight and planning.
4. **Human Resource Management**
    - **Recruitment & Onboarding**: Digital vacancy posting, candidate evaluation, and hiring workflows.
    - **Payroll Management**: Automated salary processing, deductions, and tax computations.
    - **Attendance Management**: Integration with biometric or digital attendance systems.
    - **Performance Appraisal**: Annual review cycles, goal-setting, and feedback loops.
    - **Loan & Advance Management**: Tracking and managing staff loans and advances.
    - **Part-Time Staff Management**: Contract creation, payment tracking, and assignment allocation.
5. **Student Lifecycle and Online Workflow**
    - Seamless online experience for students—from registration, course enrollment, fee payments, assessments, and progression to final certification.
    - Automated notifications and status updates at each stage of the academic journey.
6. **System Integrations**
    - **Payment Gateway Integration**: Real-time online fee payments, transaction tracking, and automated reconciliation.
    - **Learning Management System (LMS)** Integration: For seamless access to courses, assignments, and academic content.



- **KOHA Library Integration**: Digital library access, book borrowing, and research tools.

7. **Additional Functional Capabilities**
   - **Multi-System Integrations**: Experience in integrating with internal university systems and external government/third-party platforms.
   - **Statewide Collections Handling**: Capability to manage collections from multiple state agencies and public universities.
   - **Multi-Channel Payment Services**: Provision of payment solutions tailored for diverse end-users (students, institutions, government bodies).
   - **Student Digital Wallet Management**: Secure digital wallet solution for managing student financial transactions, refunds, and grants.
   - **Disbursement Workflows**: Processing and tracking of payments to students and institutional partners.
   - **Reconciliation and Exception Management**: Real-time reconciliation of financial records, handling discrepancies and exception resolution.
   - **Data Analytics & Reporting**: Dashboards and BI tools for monitoring usage, academic performance, and administrative efficiency.
   - **Ministry of Education (MoE) Financial Services**: Specialized modules for Capitation Management, grant disbursement, and reporting to MoE.

L.B.O.

UNDP – Supply, Install, Configure & Operationalize a Supply Chain IT Application (eVIN AE)

URL for eVIN Web Application	https://evinonline.in/#/
URL for eVIN Mobile App	https://play.google.com/store/apps/details?id=com.undp.evin

Assignment Name	Supply, install, configure, and operationalize a Supply Chain IT application, including the development of additional features/modules and integration with ANMOL and CoWIN applications.
Name of Client	United Nations Development Programme ("UNDP")
Client Address	55, Lodhi Estate, New Delhi 110003, India.

About UNDP

The United Nations Development Programme (UNDP) is the largest UN agency with a global development mandate, operating in over 170 countries and territories. In India, UNDP has been working since 1951, partnering with the Government of India, civil society, and communities to address national and global development challenges and support the achievement of the Sustainable Development Goals (SDGs).

UNDP plays a key role as one of the implementing partners of the GAVI Alliance-funded Health System Strengthening (HSS) project. Through this collaboration, and in partnership with the Ministry of Health and Family Welfare (MoHFW), UNDP is actively supporting efforts to strengthen India's immunization supply chain and improve immunization coverage rates across the country.

Background of the Project

The Electronic Vaccine Intelligence Network – Advanced Edition (eVIN AE) is a flagship initiative of the Ministry of Health and Family Welfare (MoHFW), Government of India. It has played a pivotal role in strengthening the country's immunization infrastructure—supporting both Routine Immunization and the COVID-19 vaccination drive—by ensuring uninterrupted vaccine supply, rational distribution, and maintenance of cold chain quality.

eVIN
ELECTRONIC VACCINE
INTELLIGENCE NETWORK



eVIN is an innovative system that integrates technology, trained personnel, and streamlined processes to digitize vaccine stock management and monitor real-time cold chain temperatures. Through the use of a robust IT infrastructure and mobile-based tools, eVIN enables real-time tracking of vaccine stocks and storage temperatures at thousands of cold chain points nationwide.

This digital platform has emerged as a transformational health system innovation, designed to ensure equitable vaccine access by promoting efficient logistics and minimizing delays in delivery. With a strong focus on operational visibility, eVIN empowers decision-makers at all levels by providing data-driven insights for better planning and management.

The system has been successfully implemented in all 731 districts across 36 states and union territories, covering the world's largest birth cohort of over 27 million children annually.

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One of the key achievements of eVIN is the significant reduction in vaccine usage due to improved inventory management. In the initial 12 eVIN-implemented states, vaccine utilization dropped from 3,053 lakh doses in the pre-eVIN period to 2,149 lakh doses post-eVIN, resulting in an estimated savings of 900 lakh (90 million) doses, primarily by curbing wastage and mismanagement.

Objectives of the Project

- **Strengthen Supply Chain Efficiency:** To establish a robust, transparent, and real-time vaccine (or resource) logistics system that ensures optimal stock availability at all storage and distribution points.
- **Ensure Temperature Compliance:** To maintain and monitor recommended cold chain temperature ranges (2°C to 8°C for vaccines) using digital sensors, ensuring vaccine potency and safety.
- **Enable Real-Time Monitoring:** To provide real-time data visibility on stock levels, transactions, and cold chain status through mobile and web platforms for timely decision-making.
- **Reduce Wastage and Stock-Outs:** To minimize vaccine wastage and prevent overstocking or stock-outs through data-driven forecasting and inventory control.
- **Promote Accountability and Transparency:** To introduce digital traceability of vaccine movement and usage, enhancing accountability among stakeholders across the supply chain.
- **Support Evidence-Based Decision-Making:** To empower program managers and policymakers with dashboards, analytics, and reports for better planning and allocation of resources.
- **Capacity Building and Training:** To train frontline health workers, cold chain handlers, and program officials in using digital tools for vaccine logistics and management.

Scope of Work

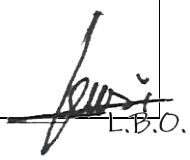
Dhanush has worked on eVIN Project for Design, development, Install, Configure, Operationalize and maintenance of Supply Chain IT Application (eVIN) that digitizes vaccine stocks and monitors the temperature of the cold chain through a smartphone application

1. **System Design & Development**
   - Development of mobile and web-based applications to capture real-time data on vaccine stocks and cold chain temperatures.
   - Integration of IoT-based temperature loggers for automated monitoring of cold storage units.
   - Support for offline functionality with data synchronization.
   - Implementation of features for stock issuance, receipt, return, disposal, and batch-level tracking.
2. **Cold Chain Equipment Integration**
   - Installation and configuration of temperature loggers at all cold chain points (ILRs, deep freezers, etc.).
   - Integration of logger data via GPRS/SMS/GSM into the eVIN platform.
   - Configuration of automatic alerts for temperature excursions.
3. **Data Management & Dashboards**
   - Development of real-time dashboards for monitoring vaccine availability and cold chain performance.
   - Role-based access at district, state, and national levels.
   - Report generation for consumption trends, wastage, expiry, and forecasting.
4. **User Training & Capacity Building**

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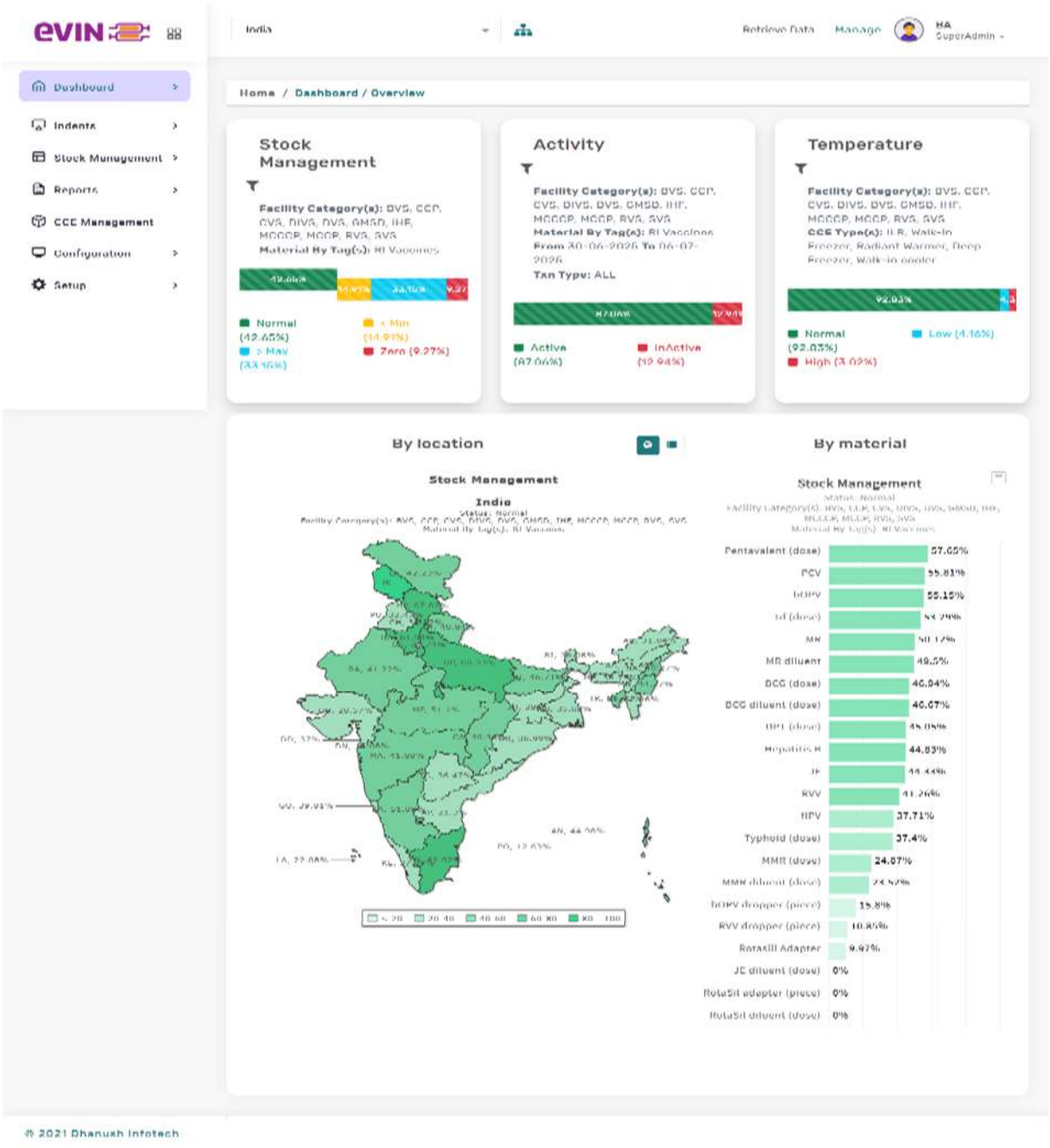
- Training for Cold Chain Handlers (CCHs), Vaccine and Logistics Officers, District Immunization Officers (DIOs), and State-level Program Managers.
- Provision of training materials, job aids, and Standard Operating Procedures (SOPs).

5. **Operations & Maintenance**
   - Technical support and helpdesk services for system operations.
   - Regular software updates and enhancements.
   - Monitoring of data quality and user adoption via field visits and remote audits.
6. **Monitoring & Evaluation**
   - Development of an M&E framework to assess system performance and impact.
   - Review of key performance indicators (KPIs), including:
     - Reduction in stock-outs
     - Frequency of temperature excursions
     - Data entry compliance
     - Vaccine wastage reduction
7. **Scalability & Sustainability**
   - Design of scalable architecture to support expansion into new geographies or health programs.
   - Support for government ownership and institutionalization within MoHFW.
   - Documentation and knowledge transfer for long-term sustainability.
8. **Functional Modules Developed**
   - Dashboard: Overview, Stock Management, CCE Management, Activities, Indents, Custom Dashboard
   - Indents: Indents, Releases, Shipments, Discrepancies, Purchase Indents, Manufacturer Transactions
   - Stock Management: Stock Report, Stock Deviant, Transactions
   - Reports: Activity Reports, CCE Management, Custom Reports, Stock Management, Indents
   - CCE Management: Cold Chain Equipment tracking and operations
   - Configurations: System-level settings and customizations
   - Setup: Master data entry and foundational configurations
9. **System Integration Capabilities**
   - Integration with IoT sensors installed at cold chain points for temperature monitoring.
   - API integration with UWIN (Unified Welfare Interface for Newborns) for mapping vaccine product data and generating wastage reports.
   - Integration with eVIN AE (Advanced Edition) for real-time stock and temperature compliance monitoring.
   - Use of Fusion Reports to visualize data through charts and graphs.
10. **Data Analytics Implementation**
    - Use of in-built dashboards and analytics tools for insights on stock levels, temperature stability, and supply chain performance.
11. **Reconciliation & Exception Management**

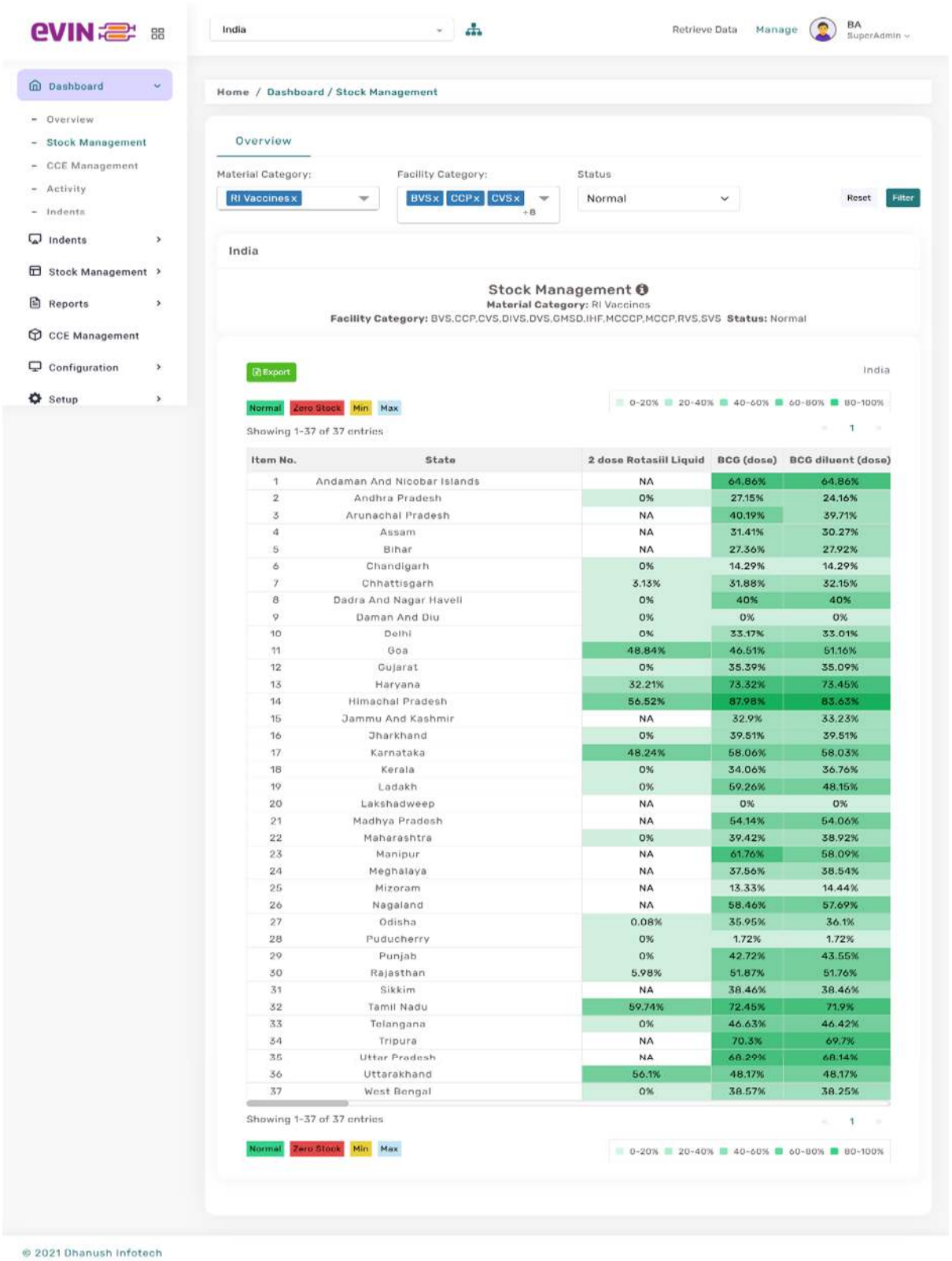


- System support for reconciliation of stock data, temperature breach events, and other exceptions to ensure accuracy and compliance.

Below is the Screenshot of Analytic Dashboard

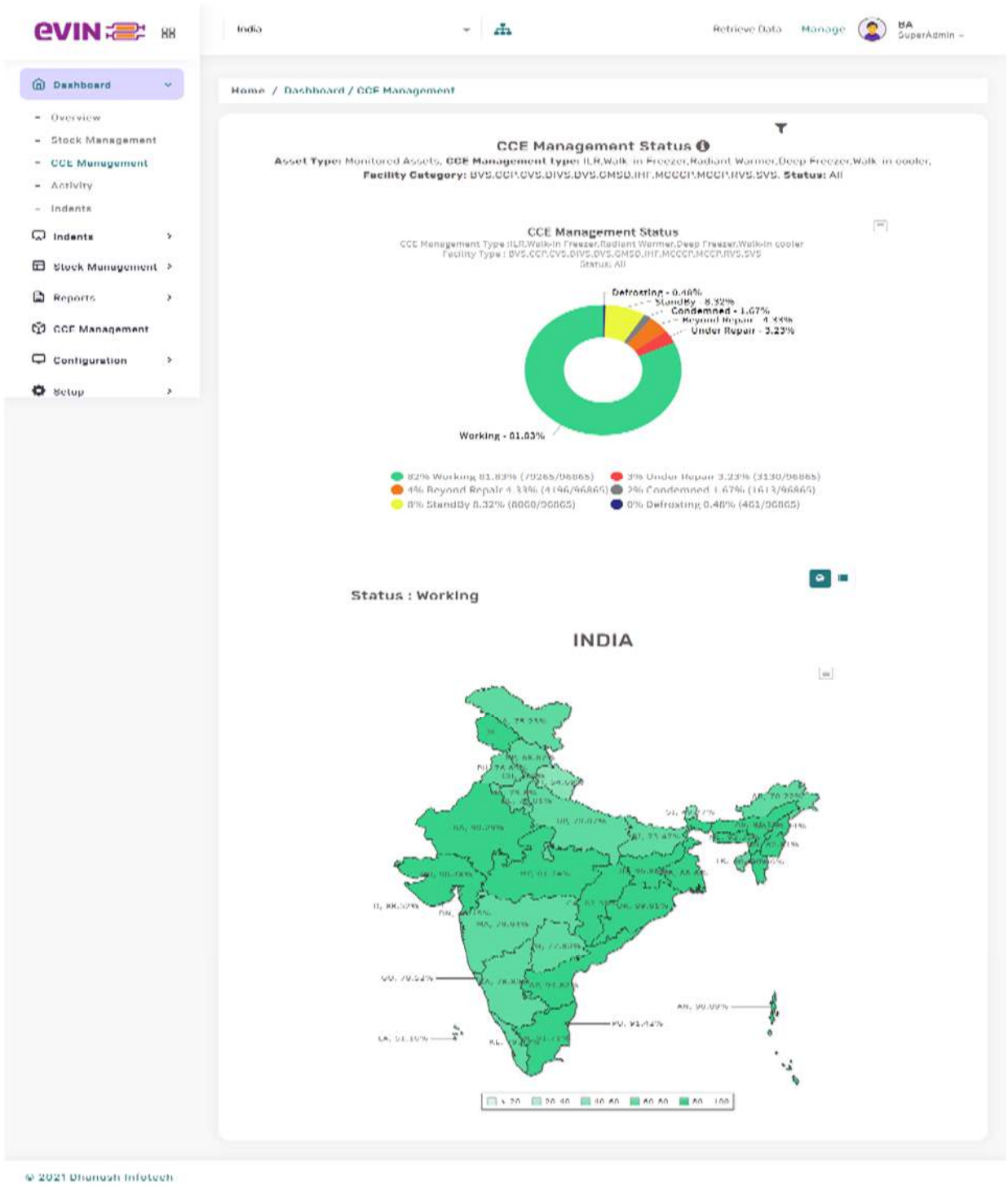


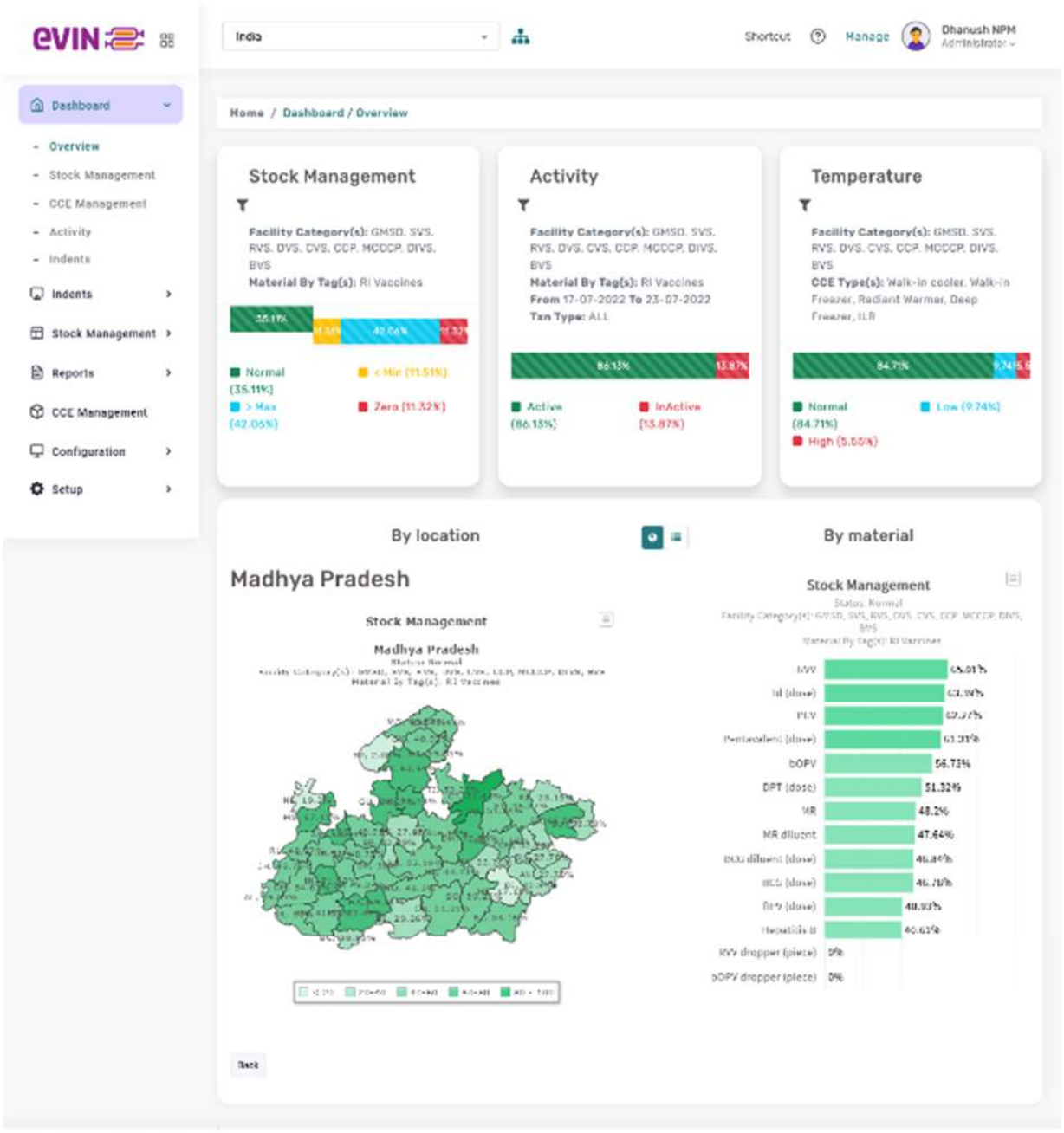
Below is the screenshot of Stock Management:



Below is the screenshot of CCE Management:

L.B.O.


eVIN
India
Retrieve Data
Manage
BA
SuperAdmin
Dashboard
Overview
Stock Management
CCE Management
Activity
Indents
Indents
Stock Management
Reports
CCE Management
Configuration
Setup
Home / Dashboard / CCE Management
CCE Managamant Status
Asset Type: Monitored Assets, CCE Management Type: ILR,Walk-in Freezer,Radiant Warmer,Deep Freezer,Walk-in cooler,
Facility Category: BVS,CCP,CVS,DIVS,DVS,GMSD,IHF,MCCP,MCCP,RVS,SVS, Status: All
CCE Management Status
CCE Management Type :ILR,Walk-in Freezer,Radiant Warmer,Deep Freezer,Walk-in cooler
Facility Type : BVS,CCP,CVS,DIVS,DVS,GMSD,IHF,MCCP,MCCP,RVS,SVS
Status: All
Defrosting - 0.48%
StandBy - 8.32%
Condemned - 1.67%
Beyond Repair - 4.33%
Under Repair - 3.23%
Working - 81.83%
82% Working 81.83% (79265/96865)
3% Under Repair 3.23% (3130/96865)
4% Beyond Repair 4.33% (4196/96865)
2% Condemned 1.67% (1613/96865)
8% StandBy 8.32% (8060/96865)
0% Defrosting 0.48% (461/96865)
Status : Working
INDIA
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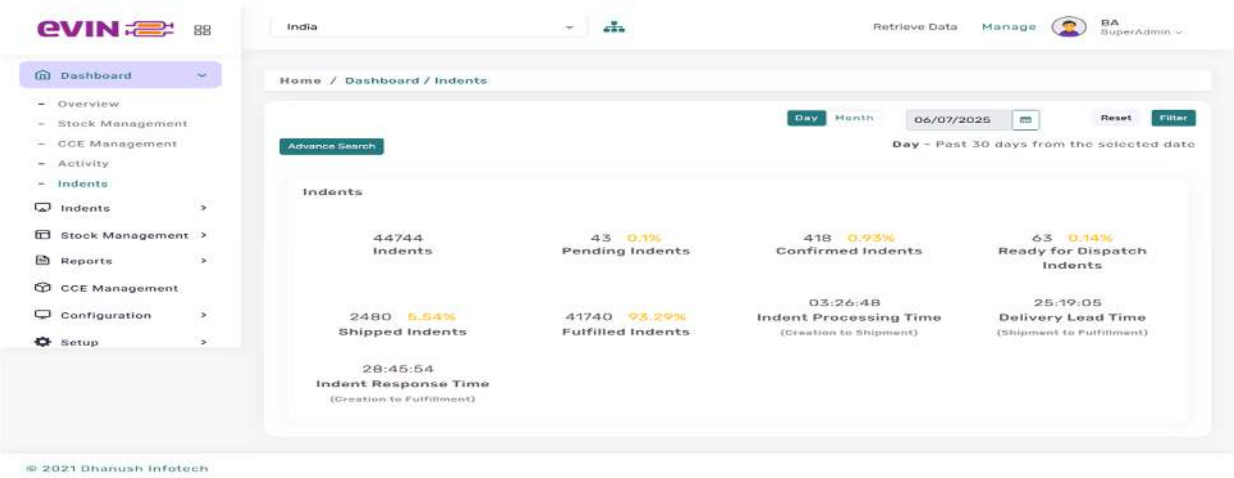

eVIN
India
Shortcut
Manage
Dhanush NPM
Administrator
Dashboard
Overview
Stock Management
CCE Management
Activity
Indents
Indents
Stock Management
Reports
CCE Management
Configuration
Setup
Home / Dashboard / Overview
Stock Management
Facility Category(s): GMSD, SVS, RVS, DVS, CVS, CDP, MCDCP, DIVS, BVS
Material By Tag(s): RI Vaccines
35.11%
42.06%
Normal (35.11%)
> Max (42.06%)
< Min (11.51%)
Zero (11.32%)
Activity
Facility Category(s): GMSD, SVS, RVS, DVS, CVS, CDP, MCDCP, DIVS, BVS
Material By Tag(s): RI Vaccines
From 17-07-2022 To 23-07-2022
Txn Type: ALL
86.13%
13.87%
Active (86.13%)
InActive (13.87%)
Temperature
Facility Category(s): GMSD, SVS, RVS, DVS, CVS, CDP, MCDCP, DIVS, BVS
CCE Type(s): Walk-in cooler, Walk-in Freezer, Radiant Warmer, Deep Freezer, ILR
84.71%
Normal (84.71%)
Low (9.74%)
High (5.55%)
By location
Madhya Pradesh
Stock Management
Madhya Pradesh
By material
Stock Management
MV
td (dose)
PLV
Pentavalent (dose)
bOPV
DPT (dose)
MR
MR diluent
BCG diluent (dose)
BCG (dose)
fIPV (dose)
Hepatitis B
MV dropper (piece)
bOPV dropper (piece)
65.01%
61.39%
61.31%
56.73%
51.32%
48.2%
47.64%
0%
0%
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Below is the screenshot of Indent Module:

Indent is a process of moving/Pushing the materials from one facility to another facility

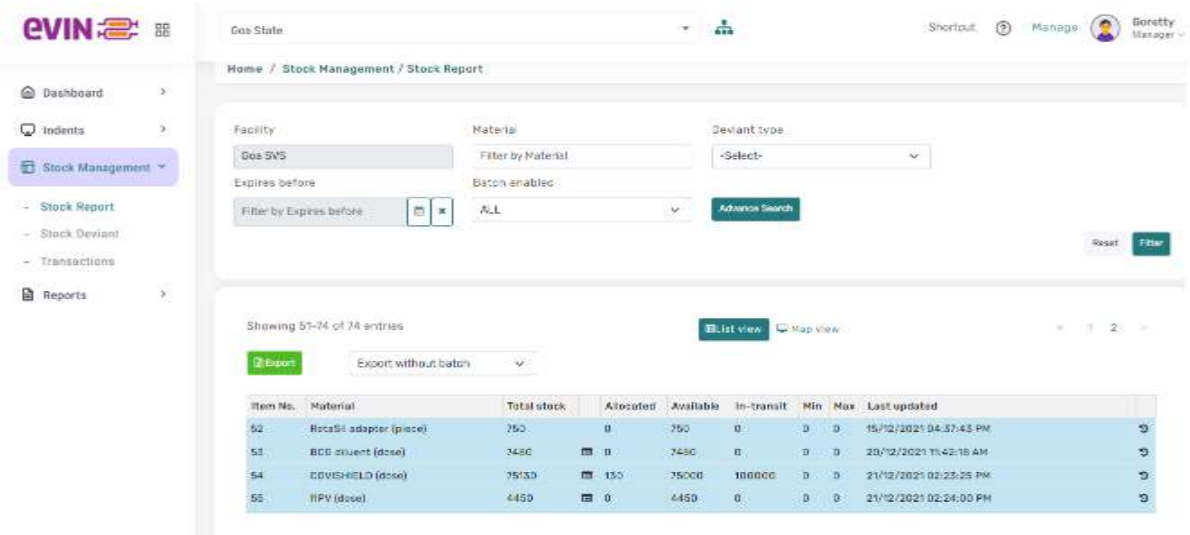
- Vaccine transfer through orders and invoice management
- Inter block, inter district and inter-state vaccine transfer facility
- Order shipped and in-transit tracking feature
- Demand and forecasting analysis to plan immunization program



Below is the screenshot of Inventory Module

Inventory provides centralization details of materials, stock levels, transaction history, order history, and material specifications

- Real time vaccine stock monitoring across all Cold chain points (Vaccine storage station)
- Hierarchy level stock visibility (National, State, Region, Division, District Block and Cold chain point)
- Stock out, max and minimum stock alert notifications
- Create transactions option to ensure stocks are up-to-date



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United Nations Development Programme

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Contract for Services

Between the United Nations Development Programme **("UNDP")**

and

Dhanush InfoTech Private Limited **(the "Contractor")**

1. **Country Where Goods Will be Delivered and/or Services Will be Provided:** INDIA.

2. **This Contract is a result of UNDP:** Direct contracting
   Number & Date: Request for Proposal (RFO/248/IND-2020) dated December 23, 2020.
   RACP Case # 0000029122: RACP-CRC-2020-IND-RBAP

3. **Contract Reference (e.g. Contract Award Number): CONTRACT # 2020 / 366**

4. **Is this a Long Term Agreement?:** No.
   Call-off Contract to LTA # 2020/005 – **Long Term Agreement (LTA) for "***Provision of Software Development and associated Technical Support Services on Information Technology aspects to UNDP and other UN Agencies in India***"**.
   If this is an LTA, please note that Article 3 of UNDP's General Conditions of Contract (Long Term Agreement) apply.

5. **Subject Matter of the Contract:** Services

6. **Summary Description of Goods and/or Services:** Supply, Install, Configure and Operationalize a Supply Chain IT Application.

7. Term/Period of Contract
   (a) Contract Starting Date: 24-December-2020
   (b) Contract Ending Date: 30-June-2021

8. **Total Contract Amount: INR 1,13,92,000** (Indian Rupees One Crore Thirteen Lakh Ninety-Two Thousand Only), excluding applicable taxes.
   8a. **Advance Payment:** Not Applicable.

9. **Total Value of Goods and/or Services:**
   [] if the amount in Block 8 is below US$50,000 and the contract is for Services only– UNDP General Terms and Conditions for Institutional (de minimis) Contracts apply
   [x] for all other Contract – UNDP General Terms and Conditions for Contracts apply

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United Nations Development Programme

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10. **Payment Method:** [x] cost reimbursement

The amount contained in 8 above is the maximum total amount of reimbursable costs under this contract. The breakdown of costs in Annex III - Price Schedule contains the maximum amounts per cost category/ deliverable, that are reimbursable under this Contract. The Contractor shall reflect in his invoices the amount of the actual reimbursable costs incurred under the deliverable in the performance of services.

11. **Contractor's Name**: Dhanush InfoTech Private Limited
Address: #1-8-448, Lakshmi Building, 5th & 6th Floors, Begumpet, Hyderabad, Telangana, India, PIN 500 003.
Country of incorporation: INDIA
Email: info@dhanushinfotech.com
Website: www.dhanushinfotech.com
Ph: +91 40 49135000; Fax:+91 40 30586061

12. **Contractor's Contact Person's Name**: Mr. Venkatesh Nataranjan
Title: Director
Address: #1-8-448, Lakshmi Building, 5th & 6th Floors, Begumpet, Hyderabad, Telangana, India, PIN 500 003.
Telephone number: +91-22-6140 0900
Ph: +91 40 49135000; Fax:+91 40 30586061
Email: n.venkatesh@dhanushinfotech.com

13. **UNDP Contact Person's Name**: Dr. Manish Pant
Title: Chief, Health and Governance, UNDP
Address: 55, Lodhi Estate, New Delhi – 110003
Telephone number: +91-99530 60859
Email: manish.pant@undp.org

14. **Contractor's Bank Account to which payments will be transferred**:
Beneficiary: Dhanush InfoTech Private Limited
Account Name: INR Account - ICICI
Account number: 007505008329
Bank name: ICICI
Bank address: S.R. Nagar
Bank SWIFT Code: ICIC0000075
Bank Code: ICIC0000075
Routing instructions for payments:

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This Contract consists of the following documents, which in case of conflict shall take precedence over one another in the following order:

- **This face sheet ("Face Sheet").**
- Annex-I: UNDP General Terms and Conditions for Contracts referred to in Block 9 above.
- Annex-II: Terms of Reference (TORs) and other details/conditions related to services.
- Annex-III: Price Schedule.
- **The Contractor's Technical and Financial Proposal dated** December 24, 2020; these documents not attached hereto but known to and in possession of the Parties, and forming an integral part of this Contract.

All the above, hereby incorporated by reference, shall form the entire agreement between the Parties **(the "Contract"), superseding the contents of any other negotiations and/or agreements, whether** oral or in writing, pertaining to the subject of this Contract.

This Contract shall enter into force on the date of the last signature of the Face Sheet by the duly authorized representatives of the Parties, and terminate on the Contract Ending Date indicated on the Face Sheet. This Contract may be amended only by written agreement between the duly authorized representatives of the Parties.

IN WITNESS WHEREOF, the undersigned, being duly authorized thereto, have on behalf of the Parties hereto signed this Contract at the place and on the day set forth below.

For the Contractor		**For UNDP**	
Signature:		Signature:	
Name:	Venkatesh Natarajan	Name:	Aliaksandr Chaliadzinski
Title:	Director	Title:	Operations Manager
Date:	26-12-2020	Date:	24-Dec-2020

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Amendment # 02 to the Contract-2020/366

Between

United Nations Development Programme (UNDP)

And

Dhanush InfoTech Private Limited (Contractor)

Reference is made to the Contract No.2020/366 dated 24th December 2020 and Amendment#01 signed between the United Nations Development Programme (UNDP), and Dhanush InfoTech Private Limited with respect to the scope of the Contract (TOR), and as per mentioned within UNDP Rules and Regulations, any modification to this Contract shall require an amendment in writing between both parties and duly signed by the authorized representatives of the Contractor and UNDP.

Therefore, Parties hereby agree on the following;

WHEREAS UNDP has requested, and Dhanush InfoTech Private Limited has agreed to amend the said Contract in order to include '*Development of Additional Features / Modules for Supply Chain IT Application and Integration with ANMOL & CoWIN Application*'. This provision of additional features & integration will be costed at INR 1,45,39,200/- (Indian Rupees One Crore Forty-Five Lakh Thirty-Nine Thousand and Two Hundred only). TORs and calculations for such amendment is provided in "ANNEX : Amendment#02".

NOW THEREFORE, the relevant Contract provisions indicated below are hereby amended to read as follows:

- *Section 7 (b) of the Contract shall be changed to read as follows:*

  7. (b) Contract Ending Date: 01-May-2022.

- *Section 8 of the Contract shall be changed to read as follows:*

  8. Total Contract Amount: INR 2,59,31,200 (Indian Rupees Two Crore Fifty-Nine Lakh Thirty-One Thousand and Two Hundred only) plus GST, as applicable.

NEVERTHELESS, all other terms and conditions of the Contract, except as expressly modified herein, all other terms of the contract shall remain unchanged and shall continue in full force and effect.

This Amendment will come into effect as of the date of last signature hereof by UNDP and the Contractor.

For UNDP:

By: _____ (Signature)

Nadia Rasheed

Resident Representative a.i.

Date: 31-Jul-2021

For the Contractor:

By: _____ (Signature)

Name: K L Murthy

Title: Director

Date: 02-Aug-2021

DHANUSH INFOTECH PVT. LTD. INDIA HYDERABAD

AA

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Client Certificate of Satisfactory Performance Letter

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CERTIFICATE OF SATISFACTORY PERFORMANCE

Ref. No. **Date:** 03-04-2023

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **M/s Dhanush Healthcare Systems Private Limited** (Formerly Known as Dhanush InfoTech Private Limited) was issued a Contract No. 2020/366, dated 24th December 2020 & Contract No. 2022/079, dated 14th April 2022 was signed between United Nations Development Programme (UNDP) and the Dhanush Healthcare Systems Private Limited (Formerly Known as Dhanush InfoTech Private Limited) for providing services under the following Project (s):

1)	Name of the Project/ Assignment:	Supply, Install, Configure and Operationalize a Supply Chain IT Application.
2)	Duration of Contract (in years/ months/days, whichever applicable):	26 Months
3)	Date of commencement of services by the Bidder:	24th December 2020
4)	Date of User Acceptance Testing & Go-live:	30th June 2021
5)	Date of completion of services by the bidder:	28th February 2023
6)	Contract Value:	Rs. 5,39,59,200
7)	Location of Work (list of addl. Sites, if any):	New Delhi
8)	Brief description of the Scope of Work explaining precise nature of contract and the services rendered/ being rendered by the Bidder:	Design, development, Install, Configure, Operationalize and maintenance of web & mobile based Supply Chain IT Application (eVIN) that digitizes vaccine stocks and monitors the temperature of the cold chain through a smartphone application • Supply, installation, configuration and customization of electronic Vaccine Intelligence Network (eVIN) application, database and related software • Supply Chain Software Platform o Inventory Management o Trend analysis & Forecasting o Compatibility with Mobile Platform

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  - Multilingual support
  - MIS Reporting
  - Integration with Temperature Logger
  - Integration with other systems envisaged
- Configuration and customization
- Software Supply and Installation
- Software Maintenance and Issue Resolution
- Real-time Analytical Dashboard

The performance of the **M/s Dhanush Healthcare Systems Private Limited** has been satisfactory till date.

DocuSigned by:

4D3B51A993C4CE...

Abhimanyu Saxena,

Officer in Charge, Health Systems Strengthening,

UNDP India

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Operation and Maintenance of MP ANMOL Portal and Application

Assignment Name	Development, Operation and Maintenance of the MP ANMOL Portal and Application for National Health Mission, Madhya Pradesh
Name of Client	National Health Mission, Madhya Pradesh
Client Address	Link Road No. 03, in front of Patrakar Colony, Bhopal- 462003, Madhya Pradesh

About National Health Mission, Madhya Pradesh

The National Health Mission (NHM) – Madhya Pradesh is the state arm of India's flagship NHM program, initiated in 2005 by merging the National Rural and Urban Health Missions. It aims to deliver equitable, affordable, quality healthcare—especially in rural areas—through improving infrastructure (PHCs, CHCs, sub-centres), strengthening the health workforce (ASHAs, community health officers), and enhancing services in reproductive, maternal, newborn, child, adolescent, communicable, and non-communicable health.

Background of the Project

A broad spectrum of Reproductive, Maternal, Newborn, and Child Health (RMNCH) interventions has been implemented to reduce maternal and neonatal mortality rates. To enhance tracking and service delivery for women and children, the MP ANMOL Portal is being developed. This platform will enable early identification and monitoring of beneficiaries throughout the reproductive lifecycle while supporting the implementation, monitoring, and reporting of RMNCH programs. The state aims to customize and develop its own MP ANMOL application and portal to meet specific RMNCH program requirements effectively.

Objectives

- **Enhanced Tracking:** Develop a user-friendly platform to track pregnant women and infants across the continuum of care.
- **Integrated Payment System:** Facilitate payment gateways for conditional cash transfer schemes linked to the ANMOL portal/app.
- **Data Integration & Decision-Making:** Establish linkages with Central and State Government portals to integrate multiple datasets, enabling data-driven decision-making.
- **Decentralized Review Mechanism:** Create data action tools such as actionable dashboards and planning sheets for effective monitoring.
- **ASHA Incentive Management:** Automate **ASHA incentive** processing and report generation.
- **ABHA ID Generation:** Provide a module for generating **Ayushman Bharat Health Account (ABHA) IDs**.
- **Data Analytics & Insights:** Analyze field-collected data to identify trends and assist NHM-MP in implementing targeted interventions.
- **Improved Maternal & Newborn Health Outcomes:** Reduce maternal and newborn morbidity and mortality by tracking service utilization and ensuring timely referrals to higher healthcare facilities.
- **Enhanced Monitoring of MCH Indicators:** Strengthen monitoring mechanisms to improve **Maternal and Child Health (MCH)** indicators.
- **Stakeholder Access to Data:** Facilitate access to MCH-related data for analysis and monitoring by relevant departments and stakeholders.

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- **Antenatal & Postnatal Care Improvement:** Monitor antenatal and postnatal care processes to identify high-risk mothers and infants.
- **Scalable & Future-Ready Solutions:** Develop a highly scalable platform that can adapt to future project needs.

Scope of Services: RCH MP-ANMOL Web Portal & Mobile Application

The project involves comprehensive design, development, implementation, and management of the RCH MP-ANMOL Web Portal and Mobile Application with the following scope:

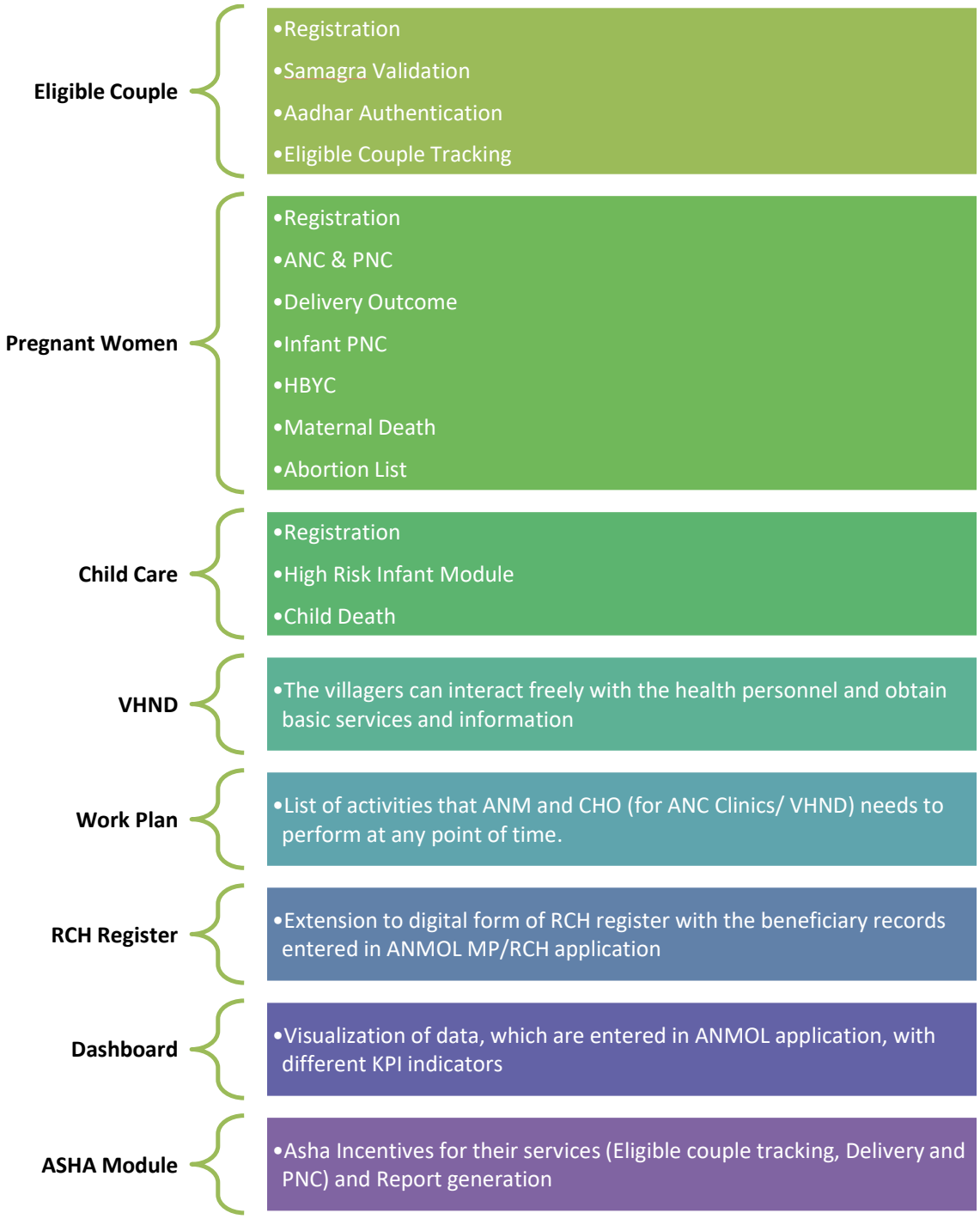
- **Application Development & Implementation**
  - Design, develop, and implement the RCH MP-ANMOL system as per the approved System Requirements Specification (SRS) and Functional Requirement Specification (FRS).
  - Ensure the system is fully functional, user-friendly, and compliant with healthcare service delivery protocols.
- **Functional Modules**
  - **Community Module**: Enables ANM and ASHA logins to facilitate tracking of eligible couples, antenatal and postnatal care, child care, VHND activities, maintenance of RCH register, and remote support functions.
  - **Facility Module**: Supports ANC tracking, delivery management, SUMAN module, referral generation, and provides dashboards for ANMOL users.
  - **Government Integrations**: Integration with ABHA ID, F-form (USG), MDCDSR, Obstetric ICU, Samagra, MPBOC, and payment-related systems.
  - **Additional Features**: Includes user management, administrative reporting, mapping modules, and integration with WhatsApp/SMS gateways for notifications.
- **System Integrations**
  - Seamless integration with multiple internal and third-party systems such as Samagra, Evitt, Sambal, and MPBOC for Health ID generation, POSHAN, RMNCH APIs using FHIR standards, facilitating real-time sharing of care contexts.
- **Manpower Deployment**
  - Deployment of a dedicated technical and functional team comprising Project Manager, MIS Experts, Java & Mobile Developers, Software Testers, Business Analysts, Database Administrators, and Helpdesk Support Team.
- **Operations & Customization**
  - Periodic customization and modification of the platform in accordance with evolving NHM-MP requirements.
  - Load management, system monitoring, and optimization to handle concurrent user access efficiently.
- **Data Entry & Volume Handling**
  - Data Entry Operators (DEOs) at PHC/CHC/DH levels capture daily maternal and child health data including pregnancy registrations, deliveries, lab results, immunizations, and interventions.
  - The system processes millions of records annually from all ANMs across the state.
- **Payment Services**

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- Integration of eKYC and DBT services to capture bank account details, Aadhaar, Samagra ID, and ABHA during beneficiary registration.
- Automated payment disbursal via PFMS and e Vittapravah (Evitt) platforms, using approved IFSC codes and bank validation mechanisms.

- **Target Beneficiaries for Disbursement**
  - Disbursements are processed for multiple beneficiary groups including pregnant women, high-risk pregnancies, institutional delivery cases, and newborns eligible under schemes like JSY and PSY.
- **Digital Wallet Handling**
  - While no separate digital wallet module is provisioned, beneficiary bank accounts function as virtual wallets for DBT credit transfers, thus serving the intended purpose.
- **Data Analytics & Reporting**
  - Real-time dashboards embedded in the facility portal, updated through mobile and web interfaces.
  - Provides multi-level analytics (block/district/state) including tracking of high-risk pregnancies, ANC visits, delivery outcomes, DBT claims, and duplicate case identification.
- **Reconciliation & Exception Management**
  - Management of exceptions such as duplicate beneficiaries, RCH ID conflicts, invalid registrations (due to missing Samagra or bank details), and failed payments due to IFSC mismatch or validation errors.
  - Resolutions include:
    - Backend deduplication and block-level mapping.
    - Alerts and dashboards highlighting failed transactions.
    - Facility-level manual override capabilities via DEO portal.
    - Inclusion of training modules and error logs in system updates.
- **Training & Capacity Building**
  - Development of interactive training modules embedded within the portal.
  - Conduct of online and offline training sessions for officials across state, district, and facility levels based on the NHM-MP calendar.
- **Documentation Support**
  - Preparation and submission of process documentation including system architecture, process flows, integration guides, user manuals, training materials (print, audio, video), and test scripts.
- **Maintenance & Helpdesk Support**
  - Continuous software maintenance including bug fixes, system optimization, and enhancements.
  - Helpdesk management and ticket-based user support system ensuring timely resolution of issues.

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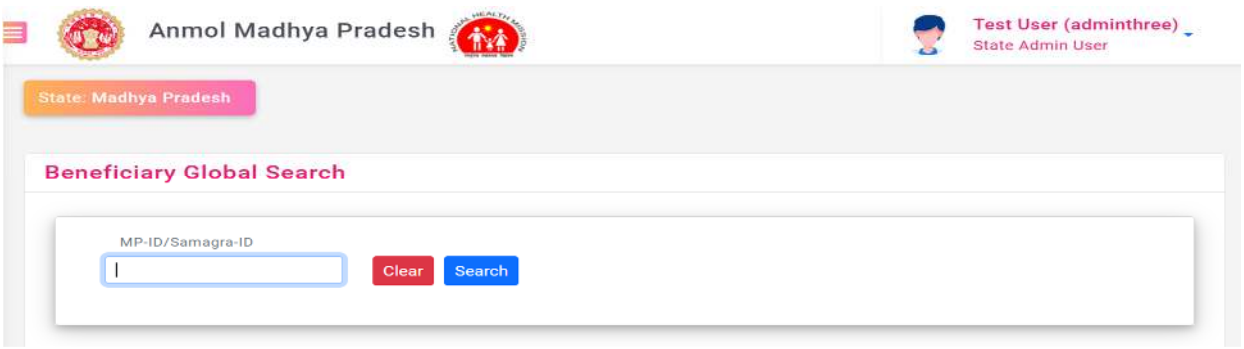

Eligible Couple
•Registration
•Samagra Validation
•Aadhar Authentication
•Eligible Couple Tracking
Pregnant Women
•Registration
•ANC & PNC
•Delivery Outcome
•Infant PNC
•HBYC
•Maternal Death
•Abortion List
Child Care
•Registration
•High Risk Infant Module
•Child Death
VHND
•The villagers can interact freely with the health personnel and obtain basic services and information
Work Plan
•List of activities that ANM and CHO (for ANC Clinics/ VHND) needs to perform at any point of time.
RCH Register
•Extension to digital form of RCH register with the beneficiary records entered in ANMOL MP/RCH application
Dashboard
•Visualization of data, which are entered in ANMOL application, with different KPI indicators
ASHA Module
•Asha Incentives for their services (Eligible couple tracking, Delivery and PNC) and Report generation

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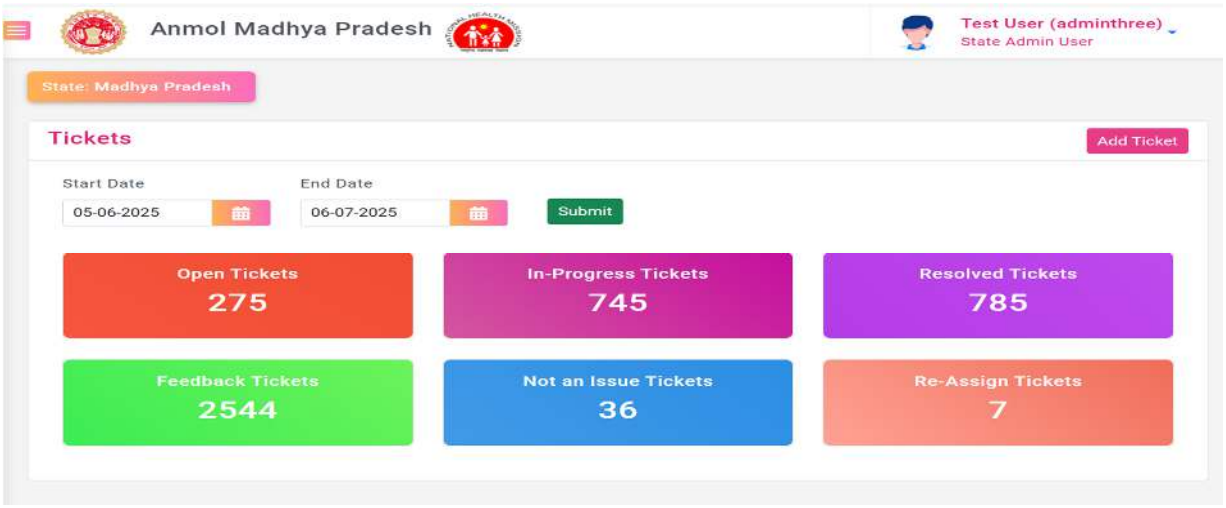
Below is the Screenshot of MP ANMOL - Dashboard:



Below is the Screenshot of MP ANMOL - Beneficiary Global Search:

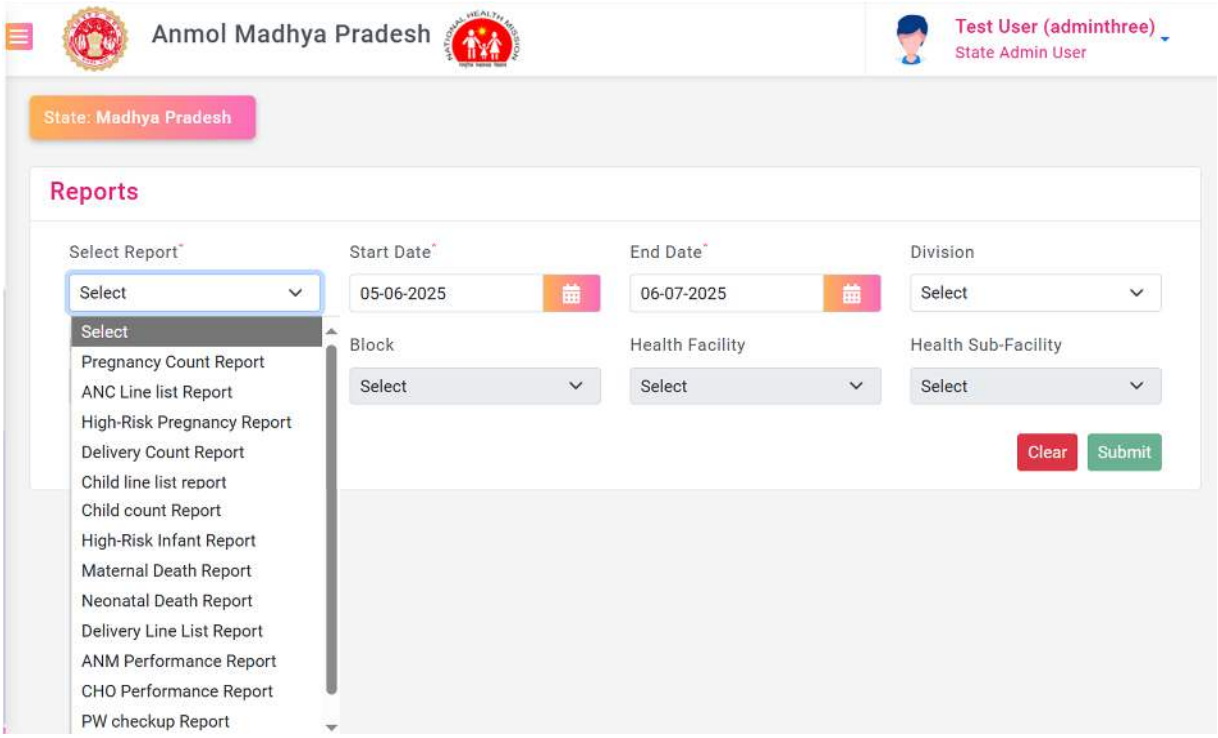


Below is the Screenshot of MP ANMOL - Helpdesk Ticket:

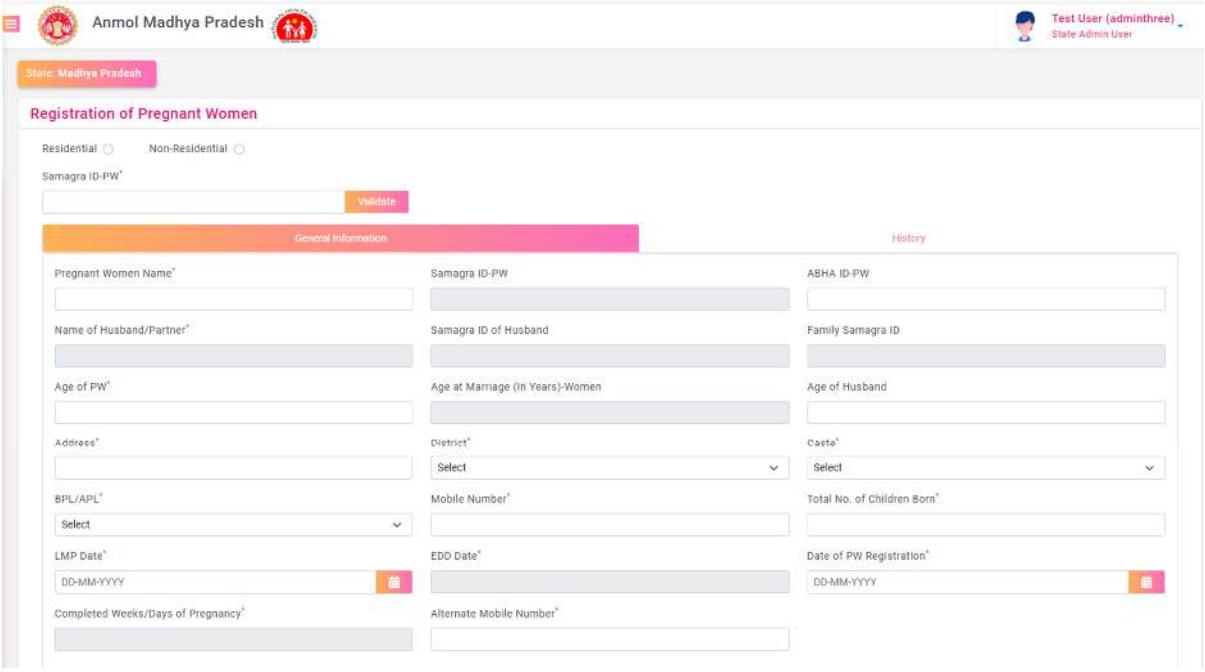


Below is the Screenshot of MP ANMOL - Reports:

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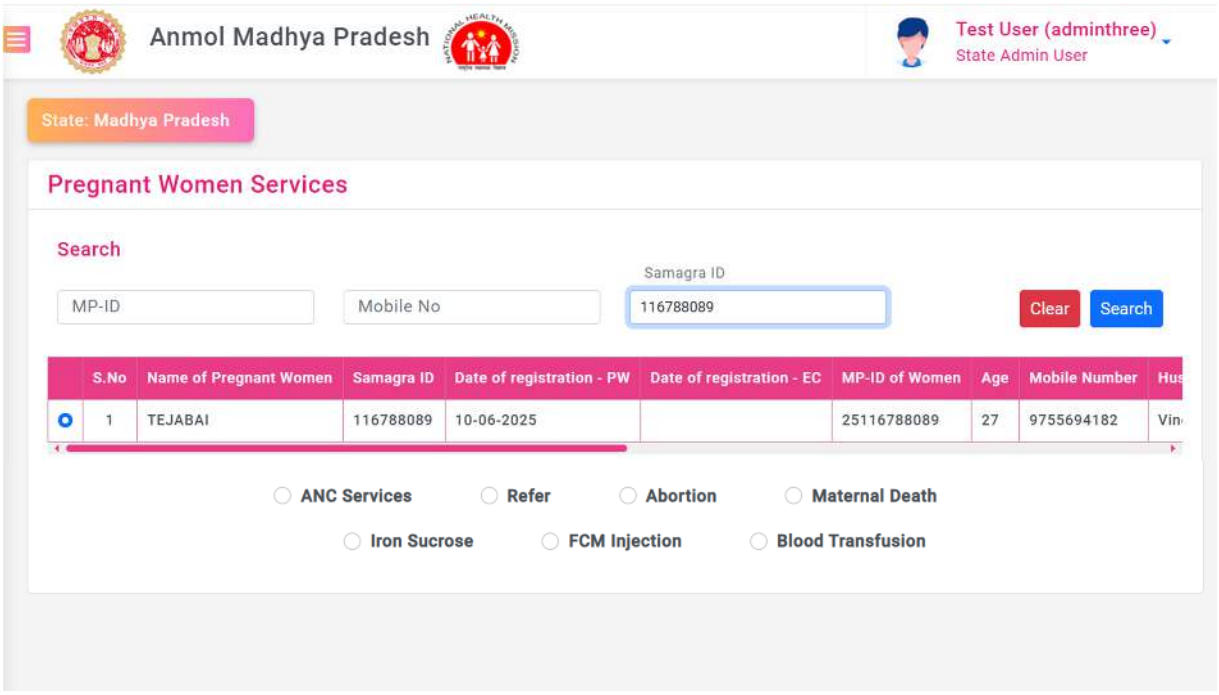


Below is the Screenshot of MP ANMOL - Pregnant Women Registration form:

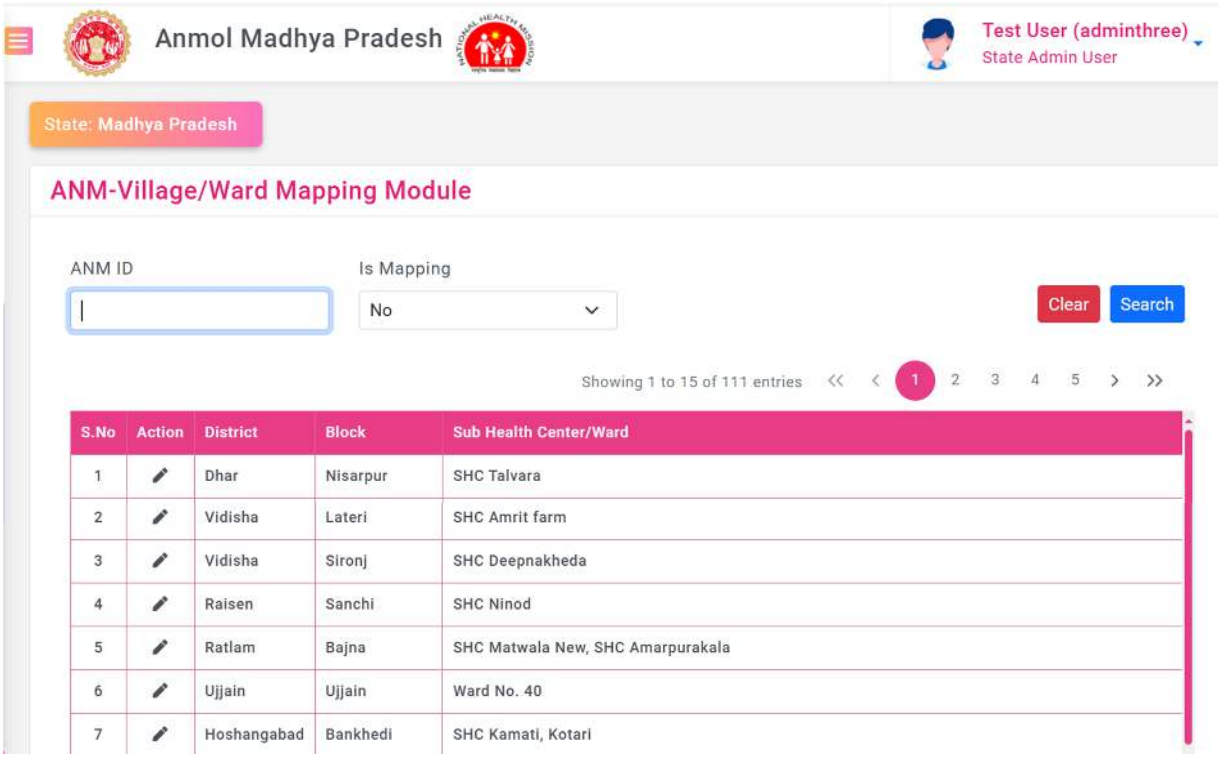


Below is the Screenshot of MP ANMOL - Pregnant Women Services:

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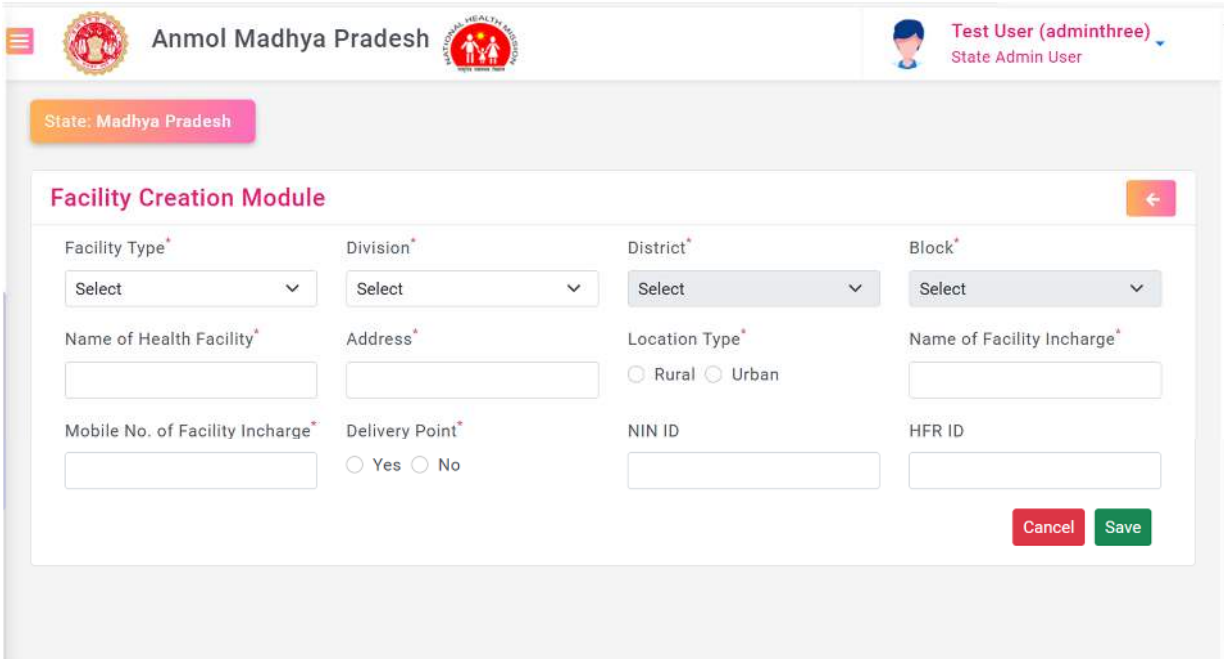


Below is the Screenshot of MP ANMOL - Mapping Module:

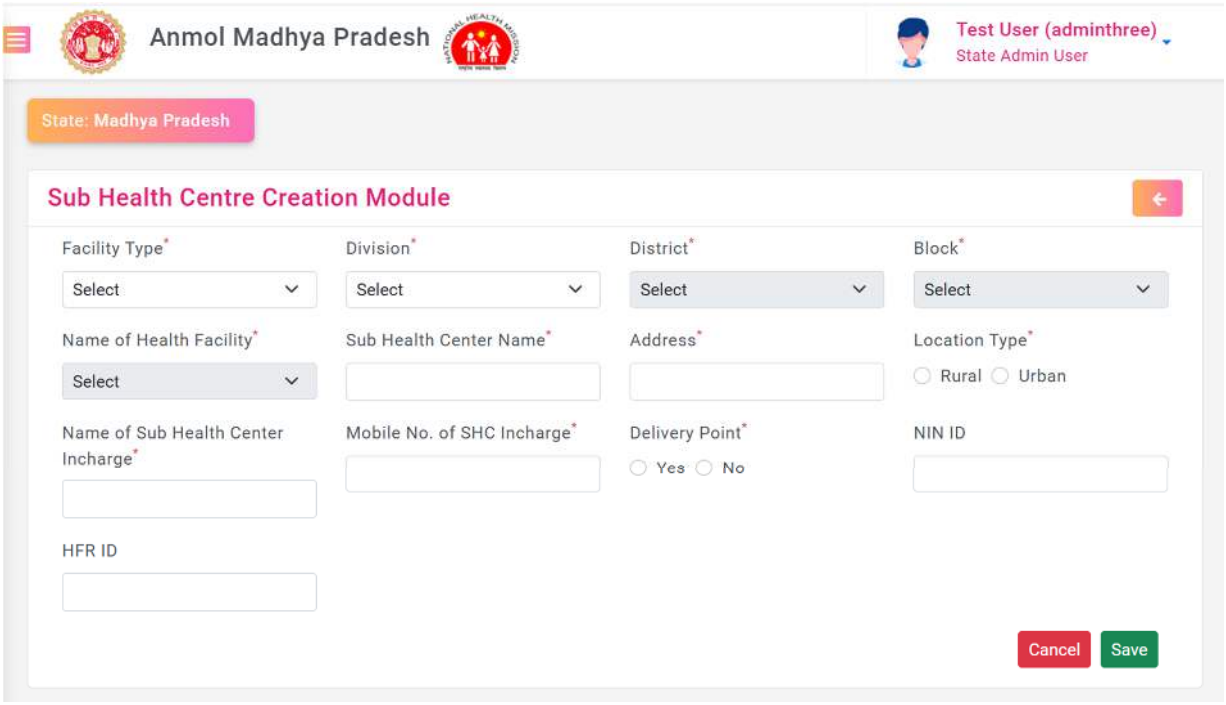


Below is the Screenshot of MP ANMOL - Facility Creation Module:

L.B.O.

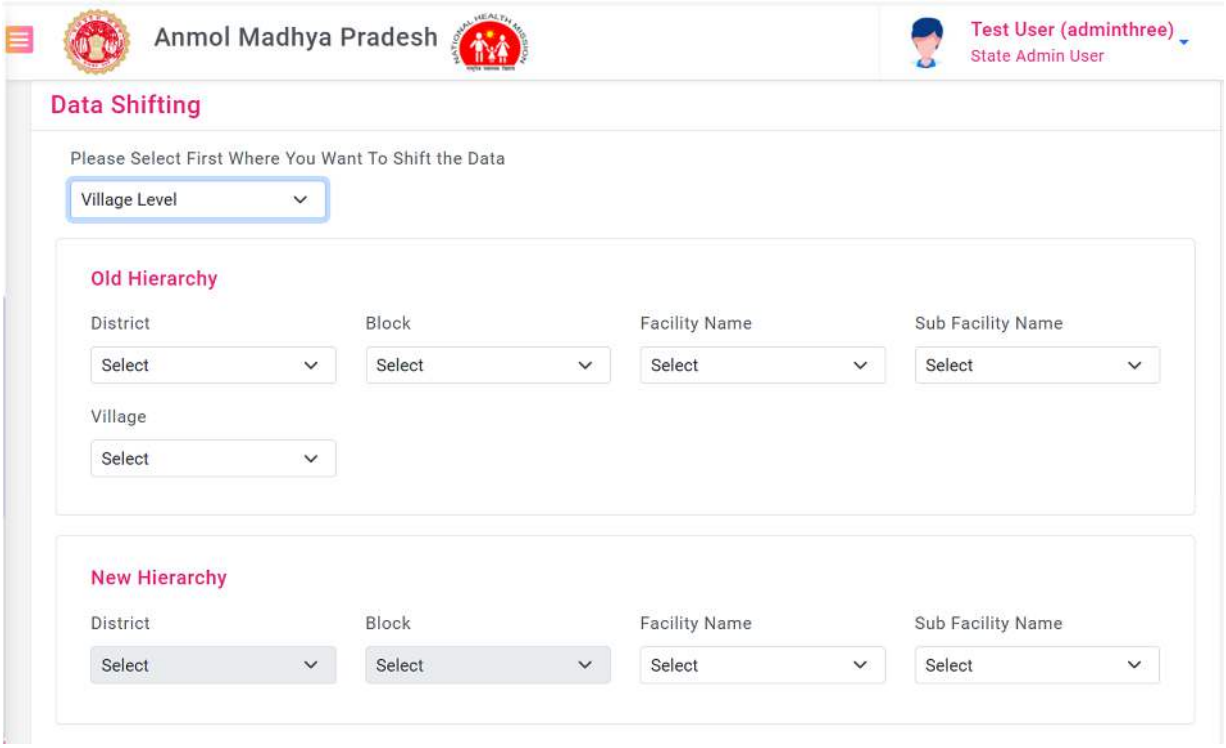


Below is the Screenshot of MP ANMOL - Sub-Health Facility Creation Module:

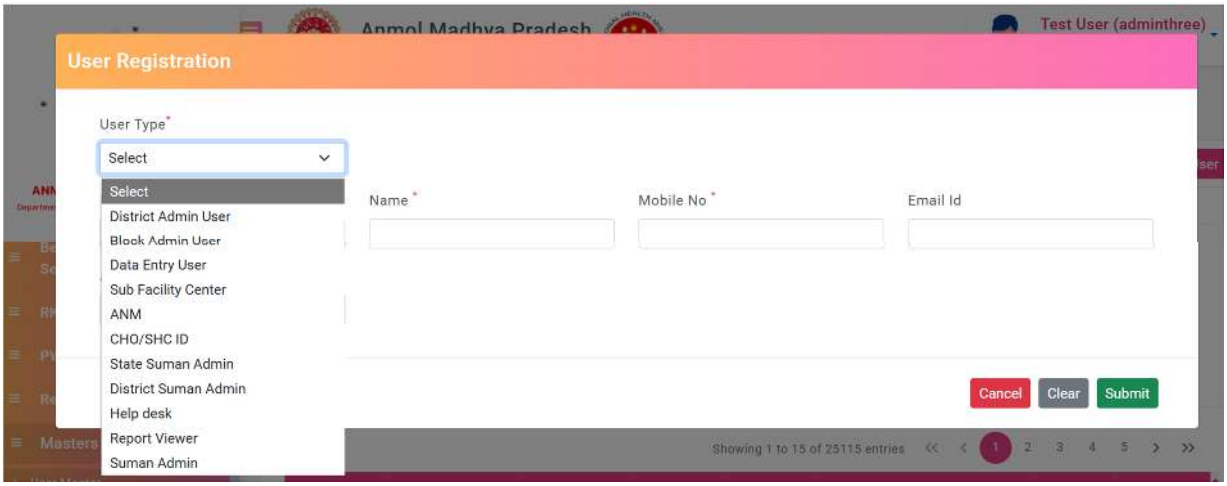


L.B.O.

Below is the Screenshot of MP ANMOL - Data Shifting Module:



Below is the Screenshot of MP ANMOL - User creation Module:



Work Order – MP ANMOL

राष्ट्रीय स्वास्थ्य मिशन
मध्यप्रदेश
लिंकरोड 03, पत्रकार कॉलोनी के सामने, भोपाल म.प्र.
Email:- tendersnhmmp@gmail.com

S. No./ N.H.M/ IT/ 2024/ 19350 Bhopal, Dated 07/06/2024

To,

K L Murthy,
Director,
Dhanush Healthcare Systems Private Limited,
#1-8-448, Lakshmi Building, 5th and 6th floors.
Begumpet Hyderabad - 500003,
Telangana, India

Sub: Work Order for Selection of an Agency for Development, Operation, and Maintenance of the MP ANMOL portal and Application for National Health Mission, Madhya Pradesh

The National Health Mission, an entity under the Department of Public Health and Family Welfare, Government of Madhya Pradesh, had released an e-tender with respect to **"Selection of an Agency for Development, Operation, and Maintenance of the MP ANMOL portal and Application for National Health Mission, Madhya Pradesh."** with **Reference No.: S. No./ N.H.M/ STORE/ 2023/ 16672 & Tender ID 2023_DHS_315415_1 dated 05/10/2023.**

With reference to the above, the Work Order for " Selection of an Agency for Development, Operation, and Maintenance of the MP ANMOL portal and Application for National Health Mission, Madhya Pradesh" is hereby awarded to M/s **Dhanush Healthcare Systems Private Limited** for a period of 05 (Five) years.

As per Section 3, clause 3.7 of the RFP, you are requested to provide acceptance for the same and need to return the signed duplicate copy of Work Order in acknowledgement thereof, within 07 (seven) working days of the receipt of this Work Order. In the event the duplicate copy of the Work Order duly signed by M/s **Dhanush Healthcare Systems Private Limited** is not received by the stipulated date, the NHM-MP may, unless it consents to extension of time for submission thereof, appropriate the Earnest Money Deposit of the agency.

Also, as mentioned in the Annexure-13 (master service agreement), clause 12 of the master service agreement of this RFP, **Dhanush Healthcare Systems Private Limited** will need to submit a Performance Security equivalent to 10% of the total contract value i.e. **INR 81,00,840 /- (Eighty One Lakh Eight Hundred Forty Only)** which shall be furnished from a Nationalized/ Scheduled Bank, before execution of the Contract, in form of a Bank Guarantee as per Annexure 14 of the RFP.

Moreover, as per section general terms of RFP, clause 5.12 of the RFP, M/s **Dhanush Healthcare Systems Private Limited** shall also need to execute the Contract with NHM-MP within 01 (one) month from the date of this Work Order and initiate working based on the defined Scope of Work.

(Priyanka Das)
Mission Director
National Health Mission,
Madhya Pradesh

No./ N.H.M/ IT/ 2024/ 19350 **Bhopal, Dated** 07/06/**2024**

Copy to:

1. Additional Chief Secretary, Govt. of MP, Department of Public Health and Family Welfare.
2. Commissioner Health, Madhya Pradesh
3. Director, NHM-MP
4. Director, Finance, NHM-MP
5. Deputy Director, Store & IT, NHM-MP

Mission Director
National Health Mission,
Madhya Pradesh

L.B.O.

Indian Aviation Academy (IAA), New Delhi – Learning Management System (LMS)

Assignment Name	Development, Hosting & Maintenance of Learning Management System (LMS)
Name of Client	Indian Aviation Academy (IAA)
Client Address	Ruchi Vihar, Vasant Kunj, New Delhi, Delhi 110070

About Indian Aviation Academy (IAA)

The Indian Aviation Academy (IAA) is the apex training institution in India dedicated to developing world-class human resources for the civil aviation sector. It functions under the collaborative leadership of three key regulatory and administrative bodies: the Airports Authority of India (AAI), the Directorate General of Civil Aviation (DGCA), and the Bureau of Civil Aviation Security (BCAS).

As the premier center of excellence, IAA is committed to providing high-quality education, specialized training, and certification programs tailored to the needs of aviation professionals across the country. Its offerings span a wide range of domains including airport operations, air traffic management, aviation safety and security, regulatory compliance, and leadership development.

IAA caters to a diverse group of stakeholders—ranging from airport ground staff and operational teams to senior management and technical personnel. The Academy continually evolves its curriculum to reflect global best practices, ICAO guidelines, and emerging trends in aviation, ensuring that India's civil aviation workforce remains at the forefront of industry standards.

Through its state-of-the-art campus in New Delhi, equipped with modern training facilities, simulation tools, and e-learning platforms, IAA plays a pivotal role in strengthening the capacity and professionalism of India's rapidly growing aviation ecosystem.

Background of the Project

The Learning Management System (IAA LMS) is a flagship e-learning initiative launched under the auspices of the Indian Aviation Academy (IAA) and the Central Government of India. This nationwide digital platform is designed to deliver standardized, scalable, and high-impact training across the civil aviation sector.

Developed to meet the evolving training needs of aviation professionals, the IAA LMS serves over **100+ airports** across India, reaching thousands of personnel working at both government-operated and private airports. The platform ensures continuous skill development, compliance training, and certification in critical operational, safety, and regulatory domains.

By integrating structured course administration with centralized performance monitoring, the LMS has transformed the traditional training ecosystem into a dynamic, technology-driven learning environment. It supports a wide range of self-paced modules, instructor-led sessions, and assessments—ensuring that aviation staff across the country remain updated with the latest industry standards and regulatory requirements.

The IAA LMS stands as a key enabler of professional excellence, supporting India's vision of maintaining a safe, efficient, and globally competitive aviation sector.

Objectives of the Project

L.B.O.

- To provide a centralized, SCORM-compliant e-learning platform for aviation professionals.
- To manage training and certification for all ground and administrative staff working at Indian airports.
- To enable role-based access and functionality for Admin, Course Nodal Officers (CNOs), Organizational Nodal Officers (ONOs), and Individual Users.
- To ensure secure payment, access control, and certification issuance.
- To ensure non-skippable, fully tracked e-learning course modules for compliance and integrity.

Below are the Services provided to IAA as part of the Scope:

Dhanush has encompassed the end-to-end design, development, implementation, and operationalization of a robust, secure, and scalable Learning Management System (LMS) tailored to the specific needs of the Indian Aviation Academy (IAA). The solution was architected to support nationwide access, ensure regulatory compliance, streamline training administration, and provide advanced monitoring and analytics capabilities.

Core Functional Scope

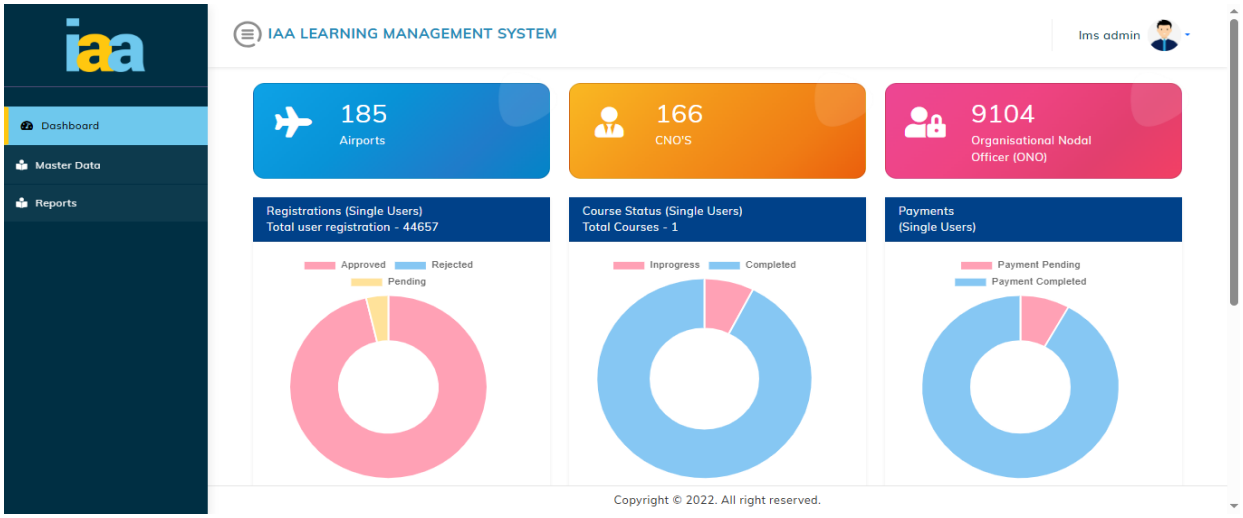
- **Development of LMS Platform**: Design and development of a comprehensive LMS platform customized for IAA's training delivery needs, ensuring high availability, scalability, and compliance with industry standards.
- **Nationwide Onboarding of Airports:** Facilitated the onboarding of over 100+ airports across India by designating Course Nodal Officers (CNOs) and Organizational Nodal Officers (ONOs) to manage localized training operations.
- **Multi-Role Access Framework:** Implemented a role-based access system to cater to diverse stakeholders including Admins, CNOs, ONOs, and individual users, each with defined permissions and responsibilities.
- **SCORM-Compliant Content Integration:** Integrated a SCORM-compliant content player to ensure seamless delivery of e-learning modules. Features included non-skippable content, mandatory time tracking, and completion criteria enforcement.
- **User Registration and Approval Workflows:** Enabled online registration for both individual users and group-based enrollments, supported by a robust approval workflow for user onboarding.
- **Secure Payment Gateway Integration:** Incorporated a secure payment gateway to facilitate course payments, supporting multiple payment modes for individuals and institutional clients.
- **Automated Certificate Generation:** Implemented automated certificate issuance upon successful course completion, with tracking of download logs and verification capabilities.
- **Comprehensive Admin Tools:** Developed centralized dashboards and audit trails to monitor user engagement, course completion, payment status, and overall LMS utilization.

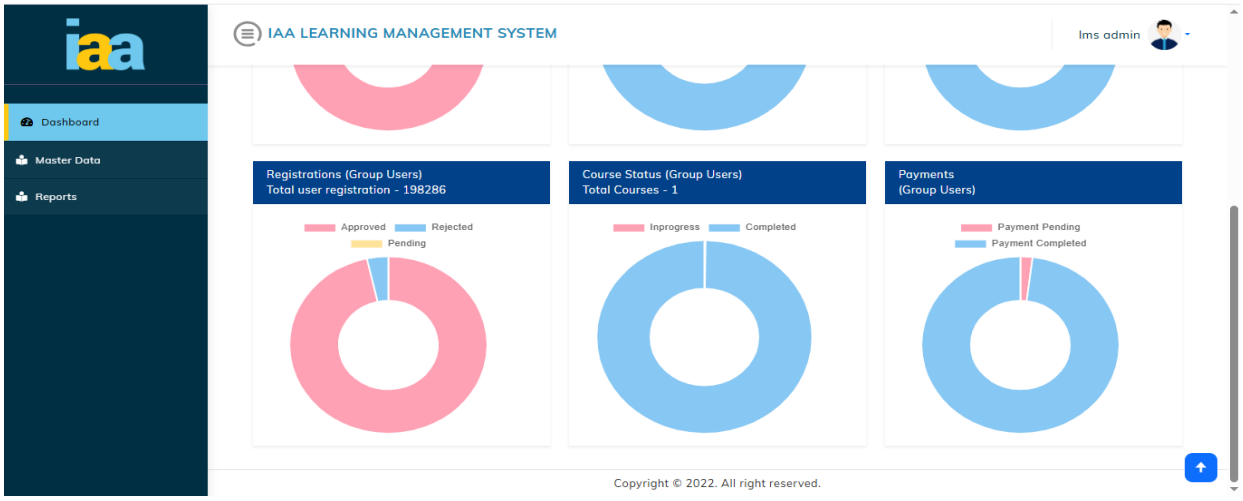
Additional Modules and Functional Enhancements

- **Integration with Internal & Third-Party Systems**: Enabled seamless integration with:
  - SCORM player
  - Payment gateway
  - Secure Email and SMS gateways for alerts, notifications, and OTP verifications

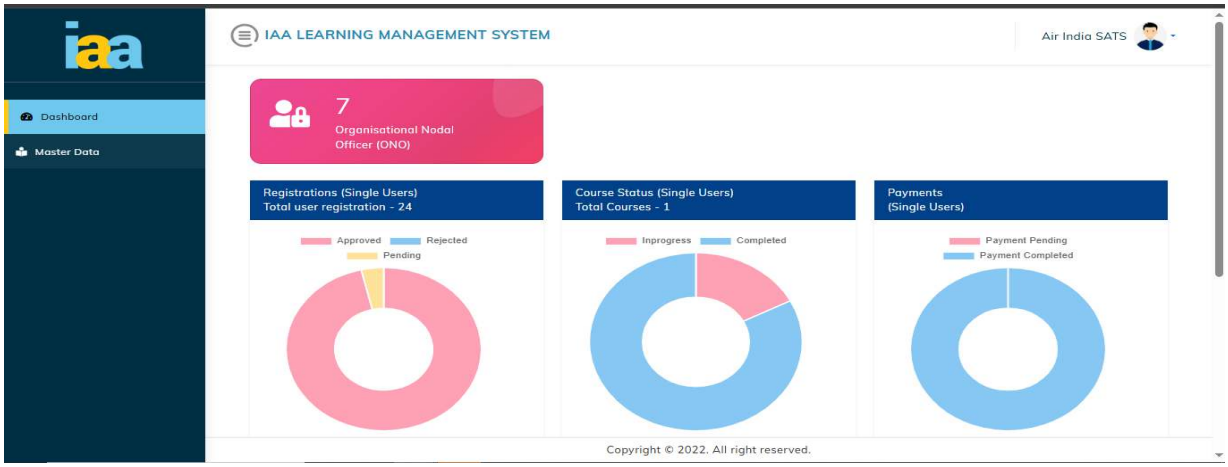
- **Multi-Agency and Airport-Wide Coverage:** Successfully registered and onboarded users from over **100+ airports** (both government and private), coordinated through ONOs for each participating organization.
- **Advanced Payment and Notification Services:** Integrated payment gateway supported both individual and institutional transactions, with automatic invoice generation and real-time notification post-approval.
- **Analytics & Business Intelligence Module:** Equipped Admin Dashboards with real-time metrics on:
  - Registered airports and users
  - Course progress and completion rates
  - Payment and transaction tracking
  - Certificate issuance logs
  - Active vs. inactive user data
- **Digital Wallet Support (Future-Ready):** Provisioned for wallet-based payments and institutional credit mechanisms to allow more flexible transaction models in future upgrades.
- **Disbursement Tracking & Beneficiary Management:** Implemented mechanisms for payment disbursement tracking linked to verified course enrollments and completions across various stakeholder entities.
- **Reconciliation & Exception Management Tools:** Integrated a comprehensive reconciliation module to manage:
  - Failed or incomplete transactions
  - Exception reports for incomplete courses
  - Auto-notification triggers
  - Manual override features for admin-level exception resolution

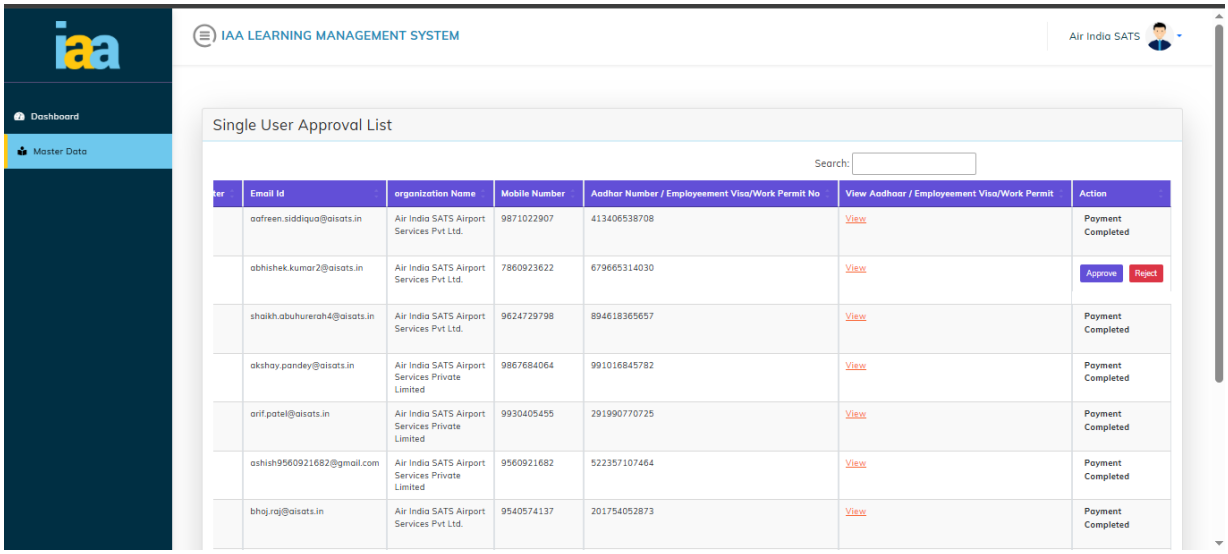
Below is the Screenshot of IAA – Admin Dashboard for Analytics for course registrations, payments, airport-wise metrics.



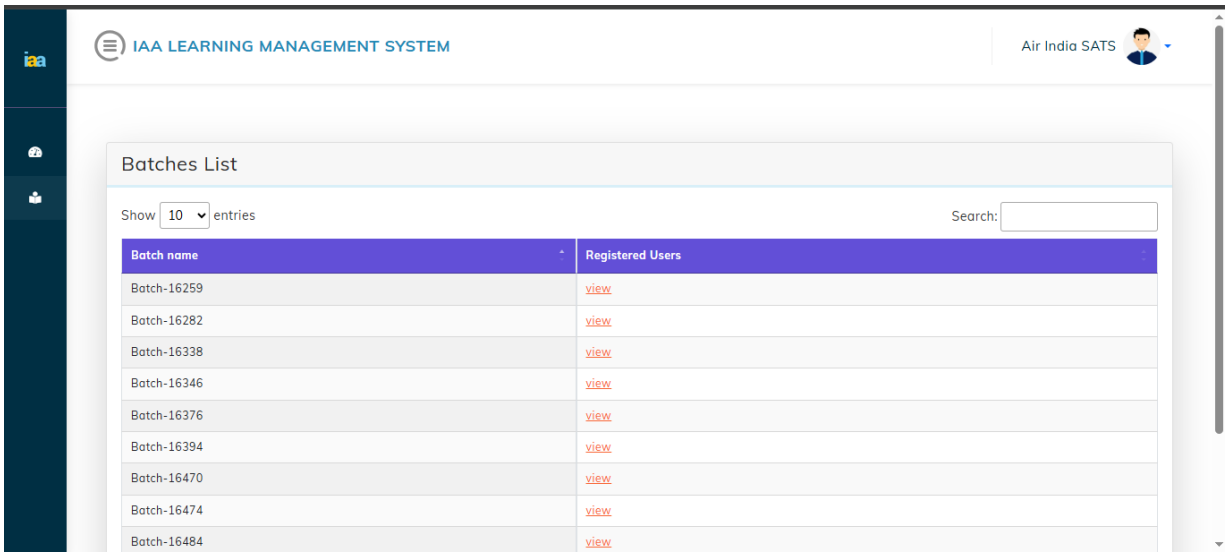


Below is the Screenshot of IAA – CNO Interface for Approval panels for user registrations and ONO registrations

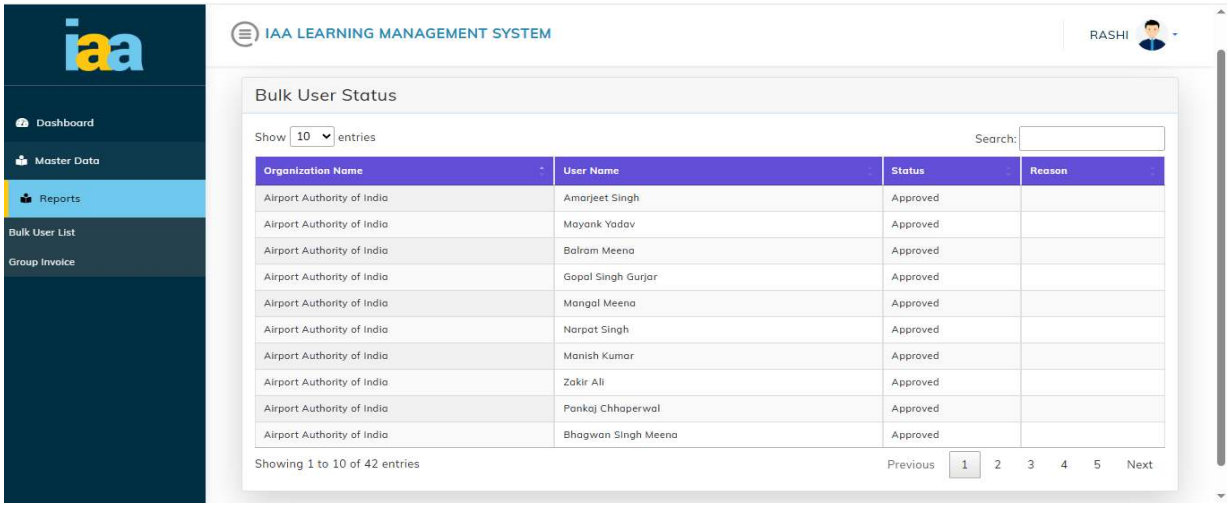




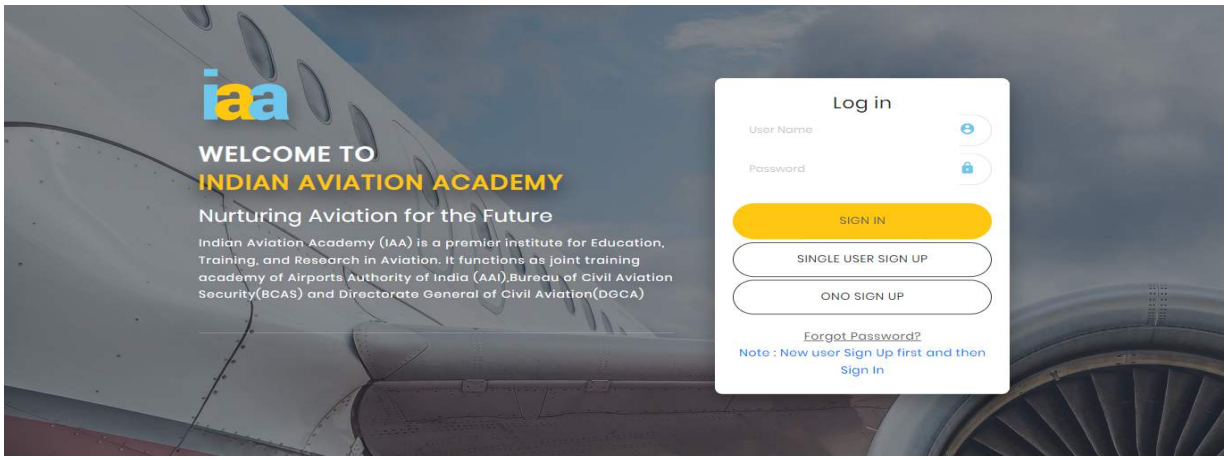
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Below is the Screenshot of IAA – ONO Interface for Bulk User Registration Module



Below is the Screenshot of IAA – Single User Dashboard for Course list, learning progress tracker, and certificate download section



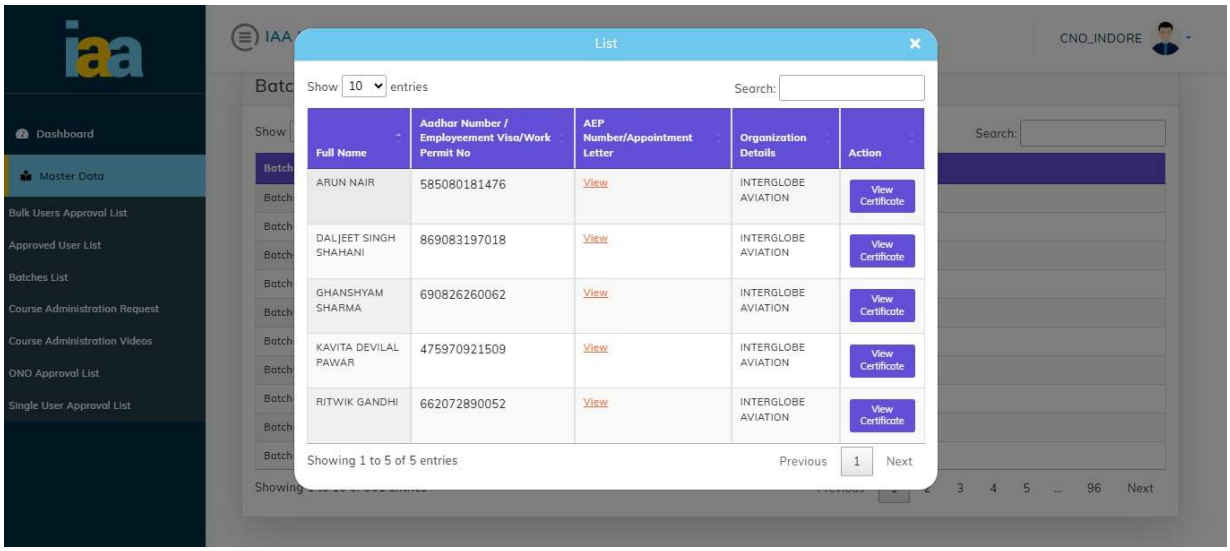
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Below is the Screenshot of IAA - SCORM Course Viewer for Content view with forward restriction, module timer, and progress bar



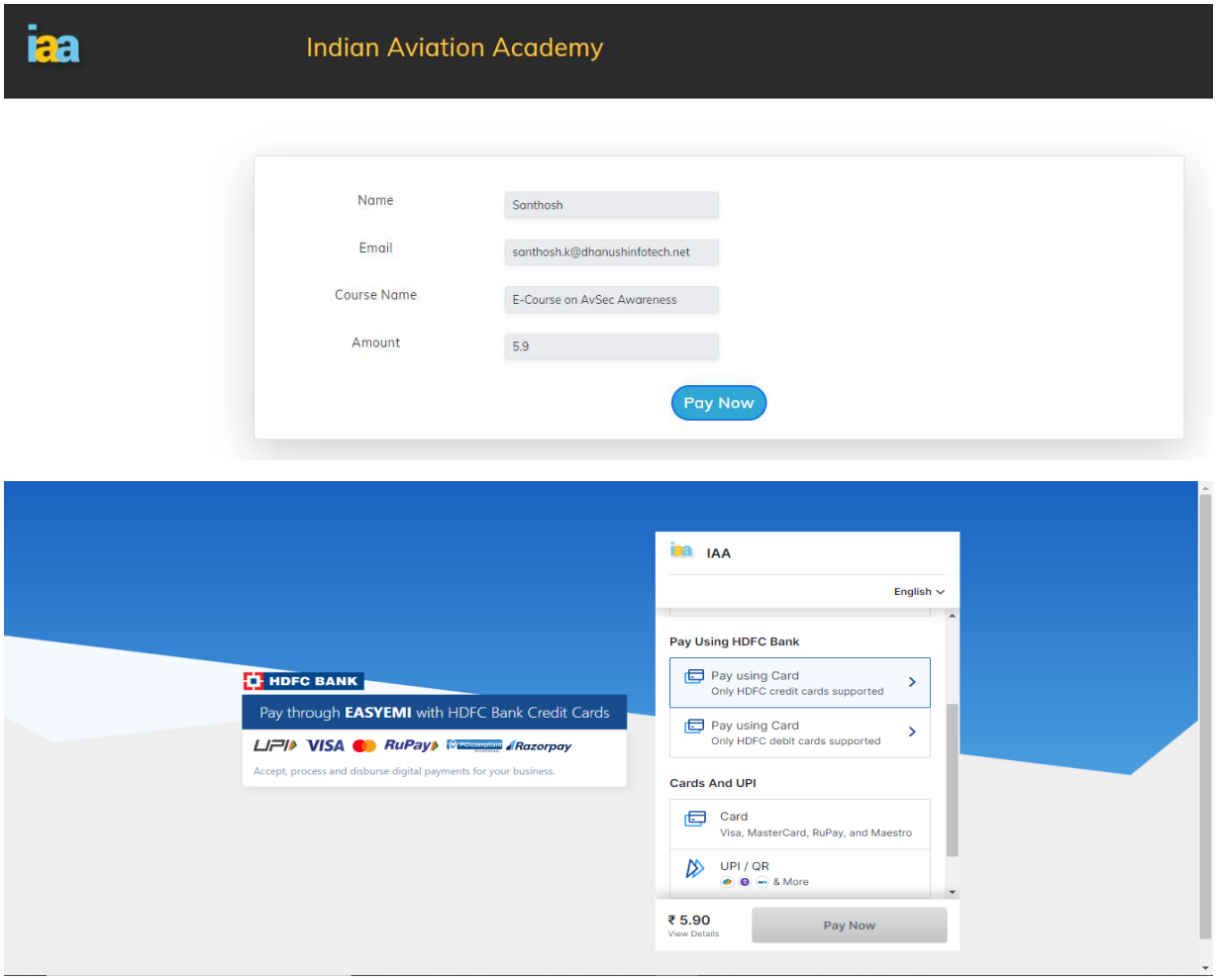
Below is the Screenshot of IAA - Certificate Generation Panel for Sample certificate and PDF download screen

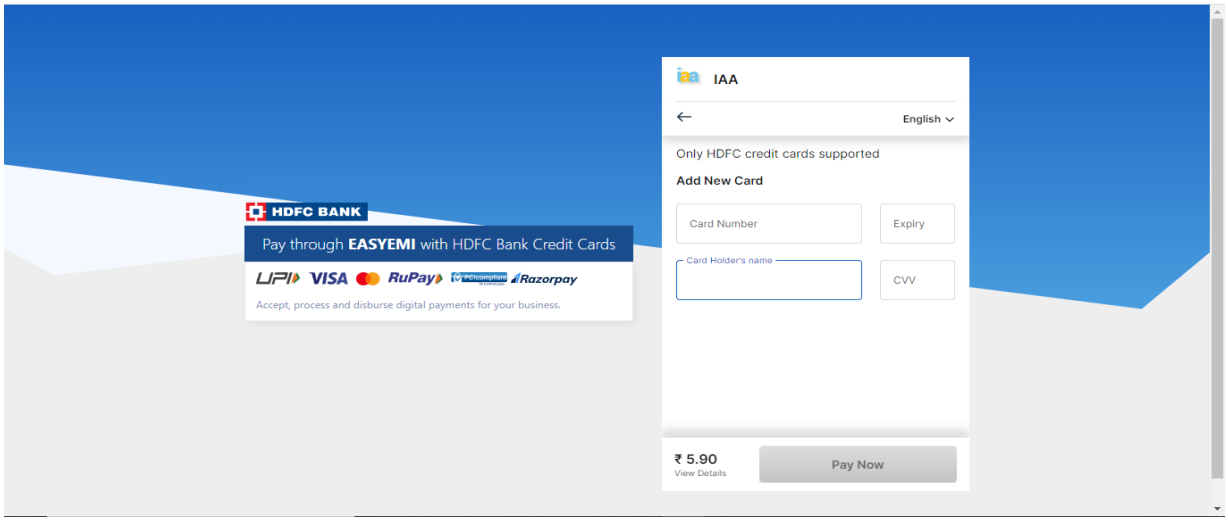


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Below is the Screenshot of IAA – Payment Gateway Interface for Secure transaction view and post payment confirmation





Gst Number : 87654DFGHJ

Invoice NO.	Service Name	Dated
IAA002095	**Online E-course Training**	**Nov 23, 2022**

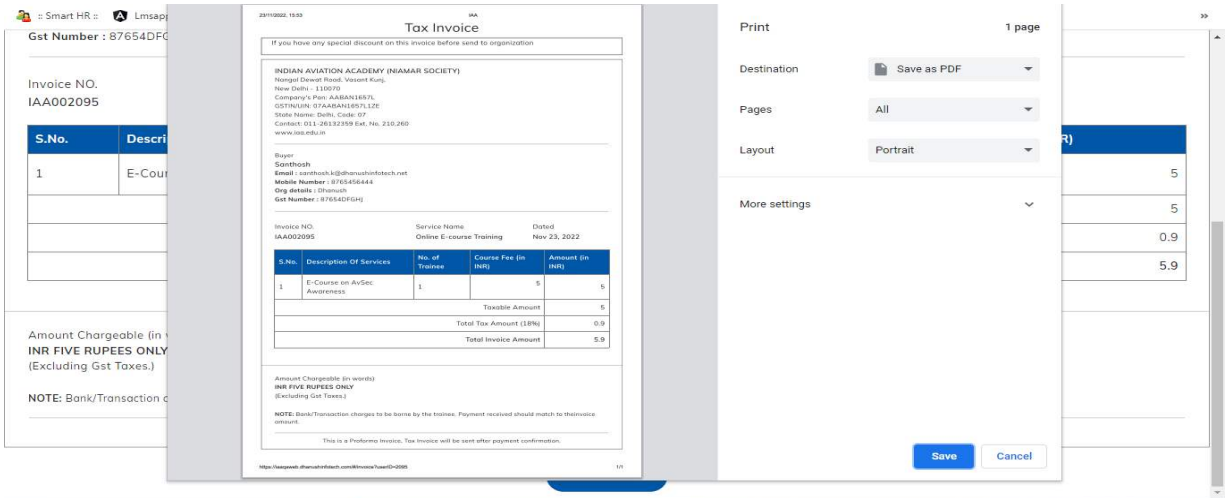
S.No.	Description Of Services	No. of Trainee	Course Fee (in INR)	Amount (in INR)
1	E-Course on AvSec Awareness	1	5	5
			Taxable Amount	5
			Total Tax Amount (18%)	0.9
			Total Invoice Amount	**5.9**

Amount Chargeable (in words)
INR FIVE RUPEES ONLY
(Excluding Gst Taxes.)

NOTE: Bank/Transaction charges to be borne by the trainee. Payment received should match to theinvoice amount.

This is a Proforma Invoice, Tax Invoice will be sent after payment confirmation.

Print



L.B.O.

Contract Agreement – Indian Aviation Academy



తెలంగాణ तेलंगाना TELANGANA

AS 399260

SL.NO. 19593 DATE: 04-07-2022
SOLD TO: SWARAJ,
S/O. NARAYANA, R/O. HYD
FOR WHOM: DHANUSH INFOTECH PRIVATE LIMITED

KONDA KAVITHA
Licenced Stamp Vendor
L No: 16-04-06/2016
RL.NO: 16-04-030/2022
H.No. 8-2-460/64, Road No.4
Sukdev Nagar, Banjara Hills, Hyderabad
Phone No:9248325639

AGREEMENT

CONTRACT AGREEMENT NO.: IAA/IT /Agreement/01/e-LMS/2022-25

This agreement is made and executed at Indian Aviation Academy NIAMAR Society, New Delhi on this 8th Day of July 2022 between IAA as a statutory corporation incorporated under Indian Aviation Academy at NIAMAR Society New Delhi- 110070 through its Director (IAA) (hereinafter referred to as "OWNER" or "IAA")

Which expression shall of the one part and **M/s Dhanush InfoTech Private Limited** (Currently Known as Dhanush Healthcare Systems Private Limited), #1-8-448, Lakshmi Building, 5th and 6th Floors, Begumpet, Hyderabad, Telangana, India Pin- 500003 referred to as **"CONTRACTOR"** which expression shall include its Administrators, Successors, Executors and permitted assigns of the other part.

Whereas, Indian Aviation Academy is desirous of getting the work of **"Development, Hosting and Maintenance of Learning Management System (LMS) at Indian Aviation Academy, New Delhi."** (Hereinafter called the "WORK") done and had invited tenders for this work as per tender documents sold for this purpose. And Whereas, **M/s Dhanush InfoTech Private Limited** (Currently Known as Dhanush Healthcare Systems Private Limited), has participated in the above referred bidding vide their tender and IAA has accepted their aforesaid proposal and awarded the work to **M/s Dhanush InfoTech Private Limited** (Currently Known as Dhanush Healthcare Systems Private Limited), as per terms and conditions, Award Letter Number: IAA/IT/e-LMS/Work Order/2022-23 dated **30.06.2022** documents referred to therein which have been accepted by **M/s Dhanush InfoTech Private Limited** (Currently Known as Dhanush Healthcare Systems Private Limited) resulting into a "CONTRACT".

8/7/2022
AM(IT)

L.B.O.

NOW THEREFORE THIS DEED WITNESSETH AS UNDER: -

1. ARTICLE 1.0 - AWARD OF CONTRACT

Indian Aviation Academy has awarded the contract to **M/s Dhanush InfoTech Private Limited** (Currently Known as Dhanush Healthcare Systems Private Limited) for the work of **"Development, Hosting and Maintenance of Learning Management System (LMS) at Indian Aviation Academy, New Delhi."** with the terms and conditions Award letter No. IAA/IT/e-LMS/Work Order/2022-23 dated **30.06.2022** and the documents referred to therein. The award has taken with effect from 10.07.2022 i.e. the 10th day after the date of issue of aforesaid letter. The terms and expression used in this Agreement shall have the same meaning as are assigned to them in the "CONTRACT DOCUMENTS" referred to in the succeeding article.

2. ARTICLE 2.0 - CONTRACT DOCUMENTS

The Contract shall be performed strictly as per the terms and conditions stipulated herein and in the following documents attached herewith (hereinafter referred to as "CONTRACT DOCUMENTS")

Sl. No.	Particulars	Page No.
1.	Agreement	1-4
2.	Work Order	5-7
3.	**E-NIT (Cover Page)**	8
i.	Index	9
ii.	e-Tender Notice	10-15
4.	**General Conditions of Contract (GCC)**	16-24
5.	**Special Conditions of Contract (SCC)**	25-29
6.	**Scope of Work/ Qualitative Requirements**	30-39
7.	**Checklists and Annexures**	
i.	Checklist (Envelope I & II)	40-42
ii.	Un-conditional Acceptance Letter (Annexure-I)	43
iii.	Undertaking Regarding Blacklisting (Annexure-II)	44
iv.	Proforma of E-payment (Annexure-III)	45
v.	Undertaking (Annexure-IV)	46
vi.	Declaration of Net Worth Proforma (Annexure-VI)	47
vii.	Affidavit of Exit Management Plan (Annexure-VII)	48
viii.	Proforma for Bank Guarantee (Annexure-VIII)	49-50
ix.	Proforma for Applying Extension of Time (Annexure-IX)	51-53
8.	**Schedule of Quantities**	54
9.	**Agency submitted Eligibility Documents**	

All the aforesaid Contract Documents shall form an integral part of this Agreement, in so far as the same or any part thereof conform to the tender document and what has been specifically agreed by the owner in its letter of award. Any matter inconsistent therewith, contrary or repugnant to or any

Nilit 8/7/2022
AM (IT)

DHANUSH INFOTECH PVT. LTD. INDIA HYDERABAD

L.B.O.

deviation taken by the Contractor in its 'Proposal' not agreed to by the owner in its letter of award or any other letter which to have been withdrawn by the contractor, for the sake of brevity, this agreement along with its aforesaid contract document shall be referred to as the "AGREEMENT".

3. **ARTICLE 3.0 - CONDITION OF CONVENANTS**

3.1. The scope of contract, consideration, terms of payment, period of completion, defects liability period, price adjustment, taxes whichever applicable, insurance, liquidated damages and all other terms and conditions are contained in the aforesaid contract documents. The contract shall be duly performed by the Contractor strictly and faithfully in accordance with terms of the Agreement.

3.2. The Agreement constitutes full and complete understanding between the parties and terms of the presents. It shall supersede all prior correspondence to the extent of inconsistency or repugnancy to the terms and conditions contained in the Agreement. Any modification of the Agreement shall be effected only by a written instrument signed by the authorized representatives of both the parties.

4. **ARTICLE 4.0**

4.1. **SETTLEMENT OF DISPUTES**

It is specifically agreed by and between the parties that all the difference or disputes arising out of the Agreement of touching the subject matter of the Agreement shall be decided by process of settlement (Dispute Resolution Mechanism) and Arbitration, as specified in clause 17 and clause 18 (page 16-17) of the General Conditions of the Contract and the provision of Indian arbitration act, 1996 shall apply and Delhi court alone shall have exclusive jurisdiction over the same or decided by Director, Indian Aviation Academy.

4.2. **NOTICE OF DEFAULT**

Notice of default given by either party to the other party under the Agreement shall be in writing and shall be deemed to have duly and properly served upon the parties here to if delivered against acknowledgement due addressed to the signatories at the addresses mentioned here in above.

This contract Agreement is allotted the number AGREEMENT NO.: **IAA/IT /Agreement/01/e-LMS/2022-25**

IN WITNESS WHEREOF, the parties through their duly authorized representative have executed these present (execution whereof has been approved by the Competent Authority of both the parties) at the day, month and year first above mentioned at.

DANUSH WEDTECH PVT. LTD. INDIA HYDERABAD

Nishit AM(IT) 8/7/2022

SIGNED FOR AND ON BEHALF OF CONTRACTOR **SIGNED FOR AND ON BEHALF OF IAA**

WITNESS:

1. Bikash Chandra Singh 8/7/2022

2.

L.B.O.

भारतीय विमानन अकादमी
राष्ट्रीय विमानन प्रबंधन केन्द्र एवं अनुसंधान समिति
Indian Aviation Academy
National Institute of Aviation Management & Research Society
A joint venture of AAI, BCAS & DGCA, Govt. of India

TRAINAIR PLUS
ICAO FULL MEMBER

Ref. No. IAA/IT/e-LMS/Work Order/2022-23 **Date: 30.06.2022**

To,
M/S Dhanush Infotech Private Limited
#1-8-448, Lakshmi Building, 5th and 6th
Floors, Begumpet, Hyderabad, Telangana
India-500003

Subject: Work order of "Development, Hosting and Maintenance of Learning Management System (LMS) at Indian Aviation Academy, New Delhi".

Reference: - 1. Tender ID: - 2022_AAI_114305_1.
2. Financial Tender opened on 15.06.2022.

Sir(s),

1. This is with reference to your offer and other documents referred above, for "Development, Hosting and Maintenance of Learning Management System (LMS) at Indian Aviation Academy, New Delhi", Indian Aviation Academy is pleased to place a work order for the same.
2. Your offer as mentioned above for the "Development, Hosting and Maintenance of Learning Management System (LMS) at Indian Aviation Academy, New Delhi." and the items as per the financial details & bill of material to this letter has been accepted by Director, Indian Aviation Academy.

3. PRICE:
3.1 The total cost of the work Rs.33,93,680/- (Rupees Thirty-Three Lakhs Ninety-Three Thousand Six Hundred Eighty Only) which is 34.36% below the estimated cost of Rs. 53,22,644/- which is inclusive of all other taxes/cess, levies and duties but exclusive of GST.

4. TIME SCHEDULE & PAYMENT TERMS:
4.1 As per clause 6,7,8 and 11 of General Terms and Conditions of the tender document IAA/IT/e-LMS/2022-23.

5. PAYING AUTHORITY:
5.1 The Executive Director (IAA), is the paying authority.

6. PROJECT MANAGEMENT

6.1 AM(IT), shall act as the Project Manager to this Contract for Indian Aviation Academy.

6.2 M/S Dhanush Infotech Private Limited. shall specify the name of its project officer(s) immediately on receipt of the Purchase Order.

Received from Chandra Singh on behalf of M/S Dhanush Infotech Pvt. Ltd. Hyderabad
30/6/22

Nishit
AM(IT) 30/6/2022

Vasant Kunj, New Delhi 110070
Phone: +91 11 26134313
Email: edtraining.niamar@aai.aero

वसंत कुंज, नई दिल्ली 110070
फोन : +91 11 26134313
ईमेल :edtraining.niamar@aai.aero

L.B.O.

7. PERFORMANCE BANK GURANTEE

   To be submitted by the vendor as per clause 7 of Special Terms and Conditions of the tender document and Format as per Annexure-VII of tender document.

8. EXIT MANAGEMENT PLAN

   To be submitted by the vendor as per clause 12 of General Terms and Conditions of the tender document and Format as per Annexure-VI of tender document.

9. This letter of award of work shall form a part of the contract and all other terms & conditions as mentioned in the tender Document No. IAA/IT/e-LMS/2022-23 shall be a binding on both the parties i.e. IAA & M/s Dhanush Pvt. Ltd.

10. As part of acceptance of this order, M/S Dhanush Infotech Private Limited is required to enter into an agreement (to be signed in duplicate on a non-judicial Stamp paper (to be stamped in accordance with stamp Act) with Indian Aviation Academy within 10 days of issued of the letter. The format of the Agreement is enclosed as Annexure-I to this contract letter.

11. A duplicate copy of this award letter is enclosed herewith, which may be Returned duly signed in each page, to this office as a token of your acceptance with seven days.

12. Please acknowledge the receipt of this letter.

Your Sincerely

AM(IT) 30/6/2022

For INDIAN AVIATION ACADEMY

Received by Brijendra Chandra Singh
Dhanush Infotech Pvt Ltd
Project Manager
30/6/22

वसंत कुंज, नई दिल्ली 110070
फोन + :9 1 11 26134313
ईमेल :edtraining.niamar@aai.aero

Vasant Kunj, New Delhi 110070
Phone: +91 11 26134313
Email: edtraining.niamar@aai.aero

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Telemedicine based Primary Healthcare Program – Uttarakhand

Assignment Name	Development, Deployment, Management, Training and Capacity Building of Telemedicine Solution for identified Health Centers of Government of Uttarakhand under Uttarakhand Health Systems Development Project using (04) Hubs and (400) Spokes Model.
Name of Client	Uttarakhand Health Systems Development Projects (UKHSDP)
Client Address	2nd floor, Indian Red Cross Society Building, P.O. Gujara, Danda Lakhond, Sahastradhara Road, Dehradun, Uttarakhand - 248001

Background of the Project



The Uttarakhand Health Systems Development Project (UKHSDP) is an initiative by the Government of Uttarakhand, supported by financing from the International Development Association (IDA) – a part of the World Bank Group. The project is being implemented by the Uttarakhand Health and Family Welfare Society (UKHFWS).

This project is part of the Government of India's broader efforts to strengthen public healthcare infrastructure and systems, especially in geographically challenging regions like Uttarakhand. The initiative recognizes the need to:

- Improve access to quality healthcare,
- Strengthen institutional capacities,
- Expand the reach of health services into underserved and remote areas using technology-driven solutions such as telemedicine.

Below are the Services Provided to UKHSDP

Dhanush has developed, deployed, Managed, Training and Capacity Building of Telemedicine Solution, for the identified Health Centres of Government of Uttarakhand under the Uttarakhand Health Systems Development Project using Hub [4] and Spoke [400] Model

- **Deployment of Telemedicine Services:**
  - Implement a Hub and Spoke model consisting of 4 Hub Centers and 400 Spoke Health Centers across the state.
  - Enable remote consultations, tele-radiology, tele-pathology, and e-prescriptions to overcome the challenge of health professional shortages in rural/remote areas.
- **Development and Management of Telemedicine Platform:**
  - Design, develop, and deploy a scalable telemedicine solution customized for Uttarakhand's geographical and administrative context.
  - Ensure real-time audio-video interaction between patients and doctors through a secure and user-friendly platform.
- **Training and Capacity Building:**

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- Build capacity of healthcare workers and administrators for effective use of the telemedicine system.
- Conduct hands-on training sessions, workshops, and refresher courses across all implementation levels.

- **Health System Strengthening:**
  - Improve the effectiveness of existing healthcare delivery mechanisms.
  - Integrate the telemedicine platform with other national systems like ANMOL, CoWIN, and the National Health Mission (NHM).
- **Project Management and Monitoring:**
  - Ensure efficient project implementation with strong monitoring mechanisms.
  - Support decision-making through data analytics and MIS (Management Information Systems) dashboards.
- **Sustainability and Scalability:**
  - Establish operational protocols and governance models to ensure long-term sustainability of the system.
  - Provide for integration and expansion beyond the initial 4 Hubs and 400 Spokes.
- Application Support & Maintenance of the system

Telemedicine Application customization and enhancements:

- Developing the Hub & Spoke network adapting learning from the existing best practices
- Below are the following modules:
  - Healthcare workers side/ consultation seeking RMPs side module
  - Consultation provider RMP's Side Module
  - Central System Module , File Archiving Module
  - Registration Module, Query Handler and Database Server
  - Decision Support System (DSS)

Rollout phase:

- Supply and installation of Hardware (Android Tablet, Router , printer) , Medical equipment, Internet (RF Connectivity ,4G connectivity)
- Rolling out the Hub & Spoke Model to be setup across the state for provision of Telemedicine facility on turkey basis.
- Procure and supply the Hardware, Software & Internet set up of 4 Hubs
- Implementation of Telemedicine solution at the 400 spokes
- Design training material and deploy multiple training strategies including workshops, classroom sessions, audio-visual features
- Exposure visits and practical work experience to impart effective training, management & maintenance of the telemedicine system for the State of Uttarakhand.

Application Support & Maintenance

To support the management of telemedicine services in the following:

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- A maximum uptime of Telemedicine network
- Access to Dashboards / Reports to be provided to PIT of UKHFWS of the UKHSDP to monitor daily, weekly, monthly and annual progress on real time basis
- To ensure consent of the patient is taken at every step of procedure by biometrics
- To ensure the retention of Medical Records of patients which cannot be accessed by anyone else except the RMP treating the patient.
- Ensuring safe, smooth and uninterrupted operation of Telemedicine Equipment.



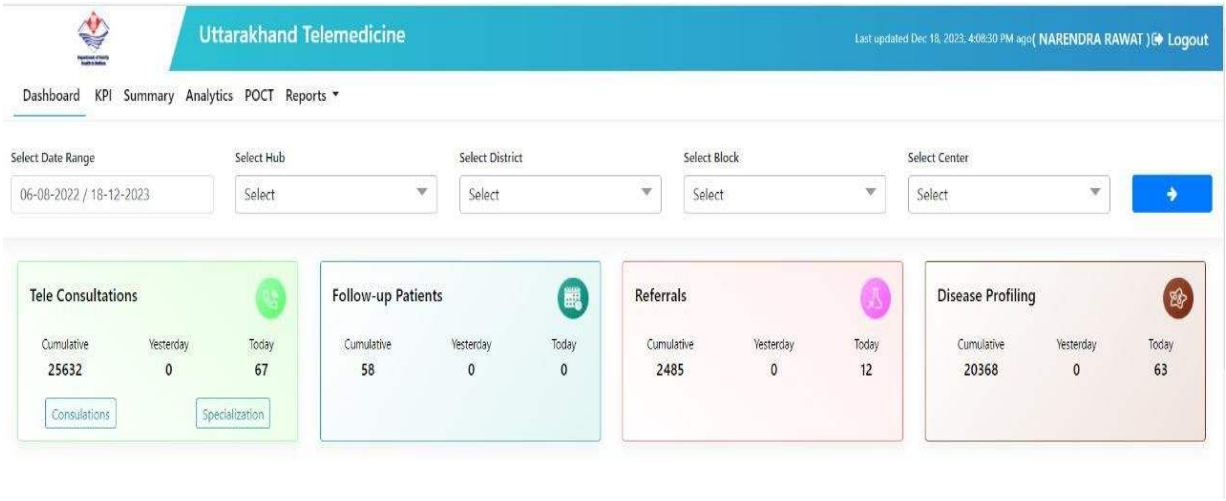
- Providing round-the-clock response to emergencies/issues arising with respect to the performance of the Telemedicine Equipment
- Carrying out periodic preventive/ routine maintenance and ensuring that the Telemedicine Equipment remains in good working condition. To ensure regular visits of bio-medical engineers at Hubs and Spokes for smooth functioning (preventive maintenance).
- Generation of Electronic Medical Record (EMR) online with video consultation file

Key Features of Telemedicine Program

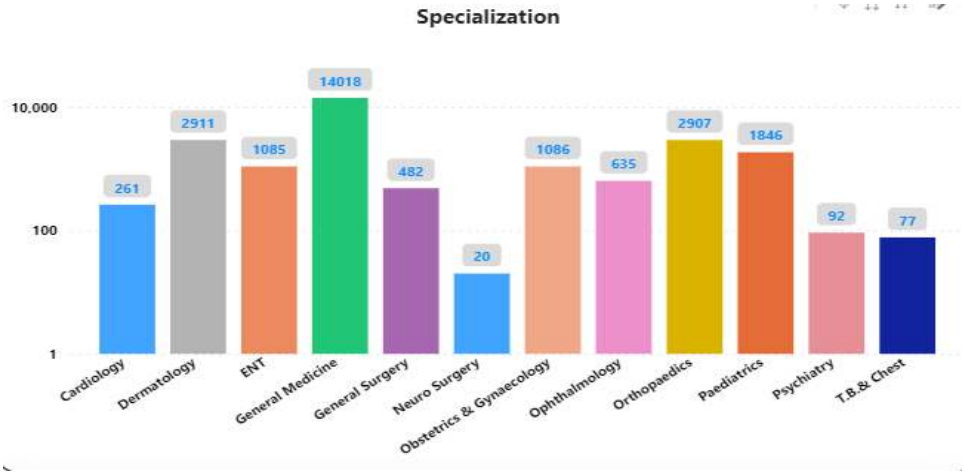
- **Ease of Use:** Provides User friendly environment at both Patient and doctor end with simple video call option to connect the patient with doctor
- **Connects patient to specialized Medical Professionals:** Trained nurse can instantly connect specialist doctor panel to view the patient status, take accurate readings from the peripherals and talk through any emergency procedures required to stabilize a patient.
- **Vital Information integration:** Provides required information to the doctors deriving through different medical monitoring devices
- **Accurate:** Provides accurate and real time patient health information through from high-tech
- **Video and audio Communication:** Offers superior broadband-based video and audio, with high quality simultaneous two-way audio communication.
- **Telemedicine through Audio consultation :** TM Solution provided by Dhanush has a facility to conduct the teleconsultation through an Audio Call
- **Data Storage and Retrieval of personal health care records from multiple devices:** Telemedicine Unit can record and transmit data from multiple patients all at the same time which allows doctors to perform remote triage, ensuring those most in need of care is treated first.
- **Telemedicine solution access through a call center or 3 way – assisted Medical consultation :** is a unique feature by which patient can access the Medical consultation by reaching a call center through an audio call and call center executive will record the details of a patient and then connects to a doctor for a video consultation

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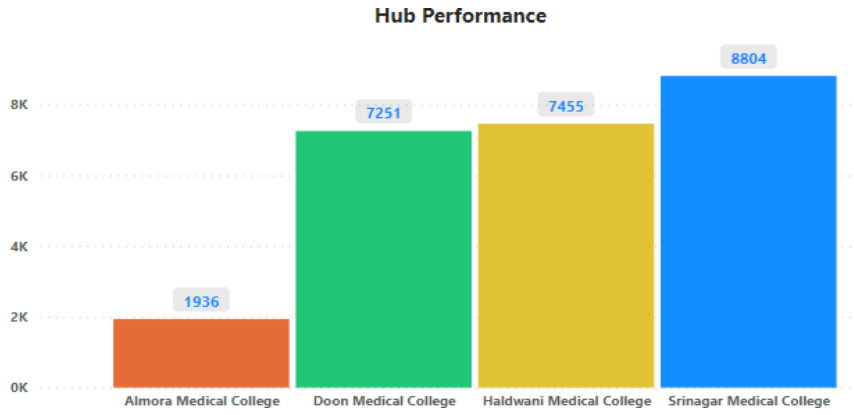
Below is the Screenshot of Uttarakhand Telemedicine – Dashboard for daily consultation monitoring, offering district-wise and specialization-wise analytics. This analytical tool provides insights into consultation trends and patterns on a doctor-specific basis, facilitating informed decision-making for optimized healthcare services.



Below is the Screenshot of UK TM - Specialization wise Consultations – Hub wise consultations



Hub-wise Consultations

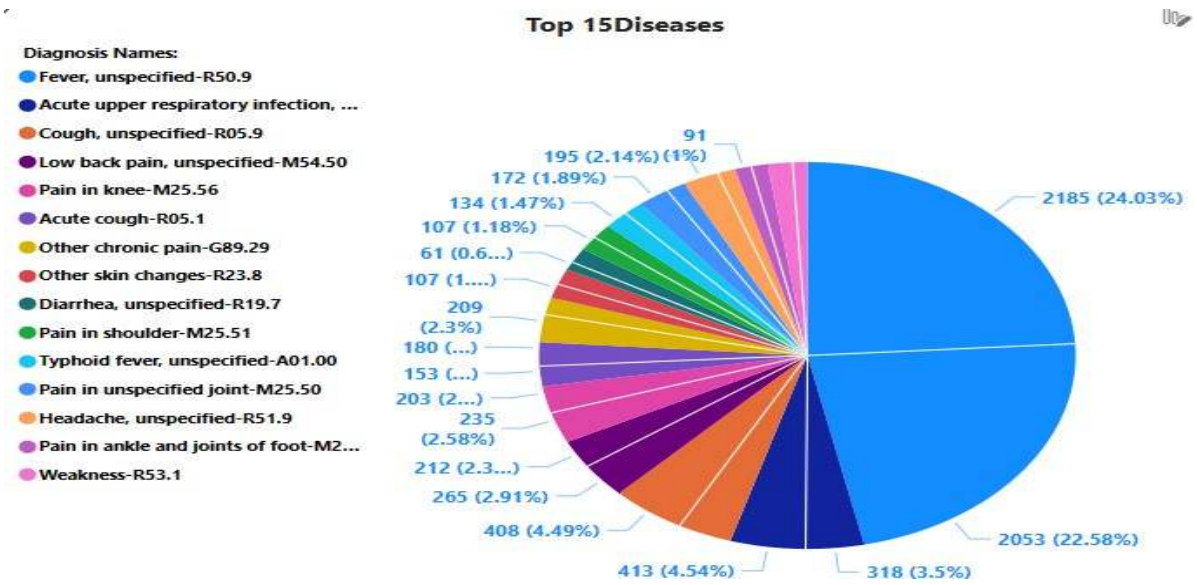


Top 25 Spokes

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Top 15 Diseases



Month wise Tele-Consultations



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भारतीय गैर न्यायिक

एक सौ रुपये

Rs. 100

रु. 100

ONE HUNDRED RUPEES

सत्यमेव जयते

भारत INDIA

INDIA NON JUDICIAL

తెలంగాణ తెలంగాన TELANGANA

AK 853099

SL.NO. 8109 DATE: 13-12-2021
SOLD TO : B. SWARAJ,
S/O. B. NARAYANA, R/O. HYD
FOR WHOM : DHANUSH INFOTECH PVT LTD

S.LAXMI NARAYANA
Licenced Stamp Vendor
Lic No. 16-11-002/2006, Ren.No. 16-11-052/2021
Off & Res. 6-3-392, Behind Panjagutta Police Station
Panjagutta, Hyderabad (South) District.
Ph: 9989868579

CONTRACT FOR CONSULTANT'S SERVICES

Lump-Sum

Project Name Uttarakhand Health Systems Development Project

***[Loan/Credit/Grant]* No.** 5948 IN

Contract No. IN-UKHFWS-209982-CS-QCBS

Between

Uttarakhand Health and Family Welfare Society

And

Dhanush InfoTech Private Limited

Dated: 17th December 2021

Additional Project Director
UKHSDP

DHANUSH INFOTECH (P) LTD. INDIA HYDERABAD

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తెలంగాణ तेलंगाना TELANGANA

AK 853100

SL.NO. 8110 ..... DATE: 13-12-2021
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Off & Res. 6-3-392, Behind Panjagutta Police Station
Panjagutta, Hyderabad (South) District.
Ph: 9989868579

I. Form of Contract

LUMP-SUM

This CONTRACT (hereinafter called the "Contract") is made the 17th day of the month of December, 2021, between, on the one hand, **Uttarakhand Health and Family Welfare Society [UKHFWS], Government of Uttarakhand** (hereinafter called the "Client") and, on the other hand, **Dhanush InfoTech Private Limited (Dhanush)** (hereinafter called the "Consultant").

WHEREAS

(a) The Client has requested the Consultant to provide certain consulting services as defined in this Contract (hereinafter called the "Services");

(b) the Consultant, having represented to the Client that it has the required professional skills, expertise and technical resources, has agreed to provide the Services on the terms and conditions set forth in this Contract;

(c) The Client has received a credit from the *International Development Association (IDA)* toward the cost of the Services and intends to apply a portion of the proceeds of this credit to eligible payments under this Contract, it being understood that (i) payments by the Bank will be made only at the request of the Client and upon approval by the Bank; (ii) such payments will be subject, in all respects, to the terms and conditions of the financing agreement, including prohibitions of withdrawal from the credit account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import, to the knowledge of the Bank, is prohibited by the decision of the United Nations Security council taken under Chapter VII of the

Additional Project Director

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Charter of the United Nations; and (iii) no party other than the Client shall derive any rights from the credit agreement or have any claim to the credit proceeds;

NOW THEREFORE the parties hereto hereby agree as follows:

1. The following documents attached hereto shall be deemed to form an integral part of this Contract:
   (a) The General Conditions of Contract (including Attachment 1 "Bank Policy – Corrupt and Fraudulent Practices);
   (b) The Special Conditions of Contract;
   (c) Appendices:
      Appendix A: Terms of Reference
      Appendix B: Key Experts
      Appendix C: Breakdown of Contract Price
      Appendix D: Form of Advance Payments Guarantee – *NOT USED*

   In the event of any inconsistency between the documents, the following order of precedence shall prevail: the Special Conditions of Contract; the General Conditions of Contract, including Attachment 1; Appendix A; Appendix B; Appendix C;. Any reference to this Contract shall include, where the context permits, a reference to its Appendices.
2. The mutual rights and obligations of the Client and the Consultant shall be as set forth in the Contract, in particular:
   (a) The Consultant shall carry out the Services in accordance with the provisions of the Contract; and
   (b) The Client shall make payments to the Consultant 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 first above written.

For and on behalf of **Uttarakhand Health and Family Welfare Society [UKHFWS], Government of Uttarakhand**

Additional Project Director
UKHSDP

[Authorized Representative of the Client – name, title and signature]

For and on behalf of Dhanush InfoTech Private Limited

DHANUSH INFOTECH PVT. LTD. INDIA HYDERABAD

DSN Murthy, Chairman & Managing Director

[Authorized Representative of the Consultant – name and signature]

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Uttarakhand Health Systems Development Project

2nd Floor, Indian Red Cross Society Building

P.O. Gujrara, Danda Lakhond, Sahastradhara Road, Dehradun, Uttarakhand – 248001

Email : apd.ukhsdp@gmail.com

Letter No. UKHSDP/Procurement / 2854 Date : 25.11.2021

To,

Dhanush Infotech Pvt Ltd.

#1-8-448, Lakshmi Building, 5th & 6th Floors,

Begumpet, Hyderabad,

Telangana -500 003

India

Subject: Notification of Award for Contract reference number: IN-UKHFWS-209982-CS-QCBS

Dear Madam/Sir,

With reference to your bid dated July 14, 2021 for Development, Deployment, Management, Training and Capacity Building of Telemedicine Solution, for the identified Health Centres of Government of Uttarakhand under the Uttarakhand Health Systems Development Project using Hub [4] and Spoke [400] Model, the committee is pleased to inform you that your proposal is accepted for contract prices as follows:

Contract price	INR 192900000 excluding Taxes (INR Nineteen Crore Twenty Nine Lacs only)

The award criteria for this contract is detailed in the shared Request for proposal document. Technical criteria element made 80% of total score and cost criteria made 20% of the total score. The overall score obtained by you is 77.84 out of 100.

You are hereby requested to return signed Letter of award within 07 days to take the process further. If you have any doubts or queries, please do not hesitate to contact us on apd.ukhsdp@gmail.com.

Authorised Signature:

Name and title of signatory: (Dr. Prem Lal) Additional Project Director

Name of Agency: Uttarakhand Health Systems Development Project

Additional Project Director
UKHSDP

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Client Certificate of Satisfactory Performance Letter

CERTIFICATE OF SATISFACTORY PERFORMANCE

Ref. No. 01#

Date: 12th March 2023

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **M/s Dhanush Healthcare Systems Private Limited** (Formerly Known as Dhanush InfoTech Private Limited) was issued a Letter no. UKHSDP/Procurement/2854, dated 25.11.2021, where after and Agreement / MOU dated 17th December 2021 was signed between **Uttarakhand Health and Family Welfare Society (UKHFWS), Government of Uttarakhand** and the **Dhanush Healthcare Systems Private Limited** (Formerly Known as Dhanush InfoTech Private Limited) for providing services under the following Project(s):

1)	Name of the Project/ Assignment:	Development, Deployment, Management, Training and Capacity Building of Telemedicine Solution for the identified Health Centres of Government of Uttarakhand under the Uttarakhand Health Systems Development Project using Hub (4) and Spoke (400) Model
2)	Duration of Contract (in years/ months/days, whichever applicable):	24 Months
3)	Date of commencement of services by the Bidder:	17th December 2021
4)	Date of User Acceptance Testing & Go-live:	06th August 2022
5)	Date of completion of services by the bidder:	17th December 2023
6)	Contract Value:	INR 19,29,00,000/- Excluding of Taxes (INR Nineteen Crore Twenty Nine Lakhs Only)
7)	Location of Work (list of addl. Sites, if any):	In 13 districts of Uttarakhand State

8) Brief description of the Scope of Work explaining precise nature of contract and the services rendered/ being rendered by the Bidder:

The scope of the Telemedicine based Primary Healthcare program:

- Implementation of Telemedicine Application at 400 PHCs (Spokes) with Specialist Doctor Hubs set up at Medical Colleges along with customization and enhancements of Telemedicine Application as per state Governments requirements

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- Developing the Hub & Spoke network adapting learning from the existing best practices
- Below are the following modules:
  - Healthcare workers side/ consultation seeking RMPs side module
  - Consultation provider RMP's Side Module
  - Central System Module, File Archiving Module
  - Registration Module, Query Handler and Database Server
  - Clinical Decision Support System (DSS)

- Supply and installation of Hardware (Android Tablet, Router, Printer), Medical Equipment, Internet (RF Connectivity, 4G connectivity)
- Rolling out the Hub & Spoke Model to be setup across the state for provision of Telemedicine facility on turkey basis.
- Procure and supply the Hardware, Software & Internet set up of 4 Hubs
- Training of the solution for the paramedical and Medical staff of state Government along with suitable training material
- Design training material and deploy multiple training strategies including workshops, classroom sessions, audio-visual features
- Application Support & Maintenance of the system

The performance of the **M/s Dhanush Healthcare Systems Private Limited** has been satisfactory till date.

14/3/23

(Signature of the Authorized Signatory of Client Organization)

Name of Authorized Signatory:

Client Organization: Uttarakhand Health & Family Welfare Society (UKHFWS)

Designation: APD

Organization's Seal:

Uttarakhand Health System Development Project

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Relevant Assignments Executed Under Legal Contract with Procuring Entities

Assignments on Provision of Payment Services to Multiple Target Customers

Open University of Kenya (OUK) – Development of Education ERP

Assignment Name	Design, Development, Installation, Operationalize and Commission of Enterprise Resource Planning (ERP) for the Proposed Open University of Kenya (OUK)
Name of Client	Open University of Kenya (OUK)
Client Address	The Cradle, Silicon Savanna, Konza Technopolis P. O. Box 2440 - 00606 Nairobi, Kenya

About Open University of Kenya (OUK)

The Open University of Kenya (OUK) is a pioneering, fully digital national institution established by the Government of Kenya to democratize access to higher education. Designed to meet the evolving needs of a dynamic and digitally connected society, OUK offers accessible, affordable, and flexible learning opportunities to students across the country and beyond. As a key pillar in Kenya's digital transformation and education reform agenda, the university delivers accredited, high-quality academic programs entirely online—encompassing lectures, assessments, and robust student support systems. OUK is committed to promoting lifelong learning, upskilling the workforce, and expanding educational reach to underserved communities, empowering learners to study anytime, anywhere, at their own pace.

Background of the Project

The OUK ERP system was developed as a comprehensive, integrated digital platform to support end-to-end academic, administrative, and financial processes for the university. The project supports over 20 academic programmes and 10–15 short courses and was designed to facilitate 100% online education, from student admission to graduation. The platform is integrated with payment gateways, third-party LMS and library systems, and also includes internal HR and finance modules. The ERP serves all students in Kenya, eliminating the need for physical presence at any stage.

Objectives

- To provide a national-level, fully digital education platform for Kenyan learners.
- To implement a centralized ERP covering academic, financial, and HR operations.
- To ensure smooth online admissions, classes, exams, and certification.
- To integrate various third-party systems like payment gateways, LMS, and library services.
- To support real-time analytics and data tracking for students, faculty, and administrators.

Scope of Work

Dhanush has design, development, implementation, and support of a comprehensive Enterprise Resource Planning (ERP) system tailored for the Open University of Kenya (OUK).

The solution aims to streamline academic, administrative, financial, and operational processes through a fully digital and integrated platform.

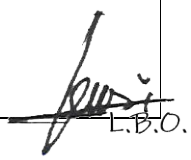
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1. **ERP System Development and Implementation**
    - Design and deployment of a scalable, web-based ERP system aligned with OUK's digital-first strategy.
    - Full automation of university operations with user-friendly interfaces for students, faculty, and administrators.
2. **Academic and Student Lifecycle Modules**
    - **Academic Management**: Management of programs, courses, faculties, and departments.
    - **Admissions & Registration**: Online application, merit-based selection, and student onboarding.
    - **Curriculum Management**: Program structure creation, course mapping, and revisions.
    - **Examinations & Assessment**: Online exam scheduling, results processing, and grading workflows.
    - **Credit Transfer & Exemptions**: Automated workflows for credit evaluation and approval.
    - **Reattempt & Supplementary Exams**: Module for tracking reattempt eligibility and scheduling.
    - **Cohort/Intake Management**: Batch-wise student grouping and tracking across intakes.
    - **Content Management**: Central repository for academic materials, announcements, and policies.
    - **Student eWallet**: Wallet-based transactions for fees, services, and refunds.
    - **Student Services**: Online modules for handling transfers, club memberships, societies, hostel allotment, canteen facilities, transport requests, and work-study assignments.
3. **Financial Management Modules**
    - **Budget Planning & Management**: Multi-departmental budgeting with real-time status tracking.
    - **Procurement & Bid Management**: eTendering, vendor registration, and bid evaluation processes.
    - **Purchase Orders & GRNs**: Automated generation and tracking of purchase orders and goods receipt notes.
    - **Invoicing & Billing**: Generation of student and vendor invoices, late fee calculations.
    - **Accounts Payable/Receivable**: End-to-end tracking of transactions, dues, and collections.
    - **Fixed Asset Management**: Asset registration, depreciation, and lifecycle tracking.
    - **Inventory Management**: Centralized control over university inventory and consumables.
    - **Income and Expenditure Tracking**: Real-time financial dashboards for oversight and planning.
4. **Human Resource Management**
    - **Recruitment & Onboarding**: Digital vacancy posting, candidate evaluation, and hiring workflows.
    - **Payroll Management**: Automated salary processing, deductions, and tax computations.
    - **Attendance Management**: Integration with biometric or digital attendance systems.
    - **Performance Appraisal**: Annual review cycles, goal-setting, and feedback loops.
    - **Loan & Advance Management**: Tracking and managing staff loans and advances.
    - **Part-Time Staff Management**: Contract creation, payment tracking, and assignment allocation.
5. **Student Lifecycle and Online Workflow**
    - Seamless online experience for students—from registration, course enrollment, fee payments, assessments, and progression to final certification.
    - Automated notifications and status updates at each stage of the academic journey.
6. **System Integrations**

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- **Payment Gateway Integration**: Real-time online fee payments, transaction tracking, and automated reconciliation.
- **Learning Management System (LMS)** Integration: For seamless access to courses, assignments, and academic content.
- **KOHA Library Integration**: Digital library access, book borrowing, and research tools.

7. **Additional Functional Capabilities**
   - **Multi-System Integrations**: Experience in integrating with internal university systems and external government/third-party platforms.
   - **Statewide Collections Handling**: Capability to manage collections from multiple state agencies and public universities.
   - **Multi-Channel Payment Services**: Provision of payment solutions tailored for diverse end-users (students, institutions, government bodies).
   - **Student Digital Wallet Management**: Secure digital wallet solution for managing student financial transactions, refunds, and grants.
   - **Disbursement Workflows**: Processing and tracking of payments to students and institutional partners.
   - **Reconciliation and Exception Management**: Real-time reconciliation of financial records, handling discrepancies and exception resolution.
   - **Data Analytics & Reporting**: Dashboards and BI tools for monitoring usage, academic performance, and administrative efficiency.
   - **Ministry of Education (MoE) Financial Services**: Specialized modules for Capitation Management, grant disbursement, and reporting to MoE.



Indian Aviation Academy (IAA), New Delhi – Learning Management System (LMS)

Assignment Name	Development, Hosting & Maintenance of Learning Management System (LMS)
Name of Client	Indian Aviation Academy (IAA)
Client Address	Ruchi Vihar, Vasant Kunj, New Delhi, Delhi 110070

About Indian Aviation Academy (IAA)

The Indian Aviation Academy (IAA) is the apex training institution in India dedicated to developing world-class human resources for the civil aviation sector. It functions under the collaborative leadership of three key regulatory and administrative bodies: the Airports Authority of India (AAI), the Directorate General of Civil Aviation (DGCA), and the Bureau of Civil Aviation Security (BCAS).

As the premier center of excellence, IAA is committed to providing high-quality education, specialized training, and certification programs tailored to the needs of aviation professionals across the country. Its offerings span a wide range of domains including airport operations, air traffic management, aviation safety and security, regulatory compliance, and leadership development.

IAA caters to a diverse group of stakeholders—ranging from airport ground staff and operational teams to senior management and technical personnel. The Academy continually evolves its curriculum to reflect global best practices, ICAO guidelines, and emerging trends in aviation, ensuring that India's civil aviation workforce remains at the forefront of industry standards.

Through its state-of-the-art campus in New Delhi, equipped with modern training facilities, simulation tools, and e-learning platforms, IAA plays a pivotal role in strengthening the capacity and professionalism of India's rapidly growing aviation ecosystem.

Background of the Project

The Learning Management System (IAA LMS) is a flagship e-learning initiative launched under the auspices of the Indian Aviation Academy (IAA) and the Central Government of India. This nationwide digital platform is designed to deliver standardized, scalable, and high-impact training across the civil aviation sector.

Developed to meet the evolving training needs of aviation professionals, the IAA LMS serves over **100+ airports** across India, reaching thousands of personnel working at both government-operated and private airports. The platform ensures continuous skill development, compliance training, and certification in critical operational, safety, and regulatory domains.

By integrating structured course administration with centralized performance monitoring, the LMS has transformed the traditional training ecosystem into a dynamic, technology-driven learning environment. It supports a wide range of self-paced modules, instructor-led sessions, and assessments—ensuring that aviation staff across the country remain updated with the latest industry standards and regulatory requirements.

The IAA LMS stands as a key enabler of professional excellence, supporting India's vision of maintaining a safe, efficient, and globally competitive aviation sector.

Objectives of the Project

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- To provide a centralized, SCORM-compliant e-learning platform for aviation professionals.
- To manage training and certification for all ground and administrative staff working at Indian airports.
- To enable role-based access and functionality for Admin, Course Nodal Officers (CNOs), Organizational Nodal Officers (ONOs), and Individual Users.
- To ensure secure payment, access control, and certification issuance.
- To ensure non-skippable, fully tracked e-learning course modules for compliance and integrity.

Below are the Services provided to IAA as part of the Scope:

Dhanush has encompassed the end-to-end design, development, implementation, and operationalization of a robust, secure, and scalable Learning Management System (LMS) tailored to the specific needs of the Indian Aviation Academy (IAA). The solution was architected to support nationwide access, ensure regulatory compliance, streamline training administration, and provide advanced monitoring and analytics capabilities.

Core Functional Scope

- **Development of LMS Platform**: Design and development of a comprehensive LMS platform customized for IAA's training delivery needs, ensuring high availability, scalability, and compliance with industry standards.
- **Nationwide Onboarding of Airports:** Facilitated the onboarding of over 100+ airports across India by designating Course Nodal Officers (CNOs) and Organizational Nodal Officers (ONOs) to manage localized training operations.
- **Multi-Role Access Framework:** Implemented a role-based access system to cater to diverse stakeholders including Admins, CNOs, ONOs, and individual users, each with defined permissions and responsibilities.
- **SCORM-Compliant Content Integration:** Integrated a SCORM-compliant content player to ensure seamless delivery of e-learning modules. Features included non-skippable content, mandatory time tracking, and completion criteria enforcement.
- **User Registration and Approval Workflows:** Enabled online registration for both individual users and group-based enrollments, supported by a robust approval workflow for user onboarding.
- **Secure Payment Gateway Integration:** Incorporated a secure payment gateway to facilitate course payments, supporting multiple payment modes for individuals and institutional clients.
- **Automated Certificate Generation:** Implemented automated certificate issuance upon successful course completion, with tracking of download logs and verification capabilities.
- **Comprehensive Admin Tools:** Developed centralized dashboards and audit trails to monitor user engagement, course completion, payment status, and overall LMS utilization.

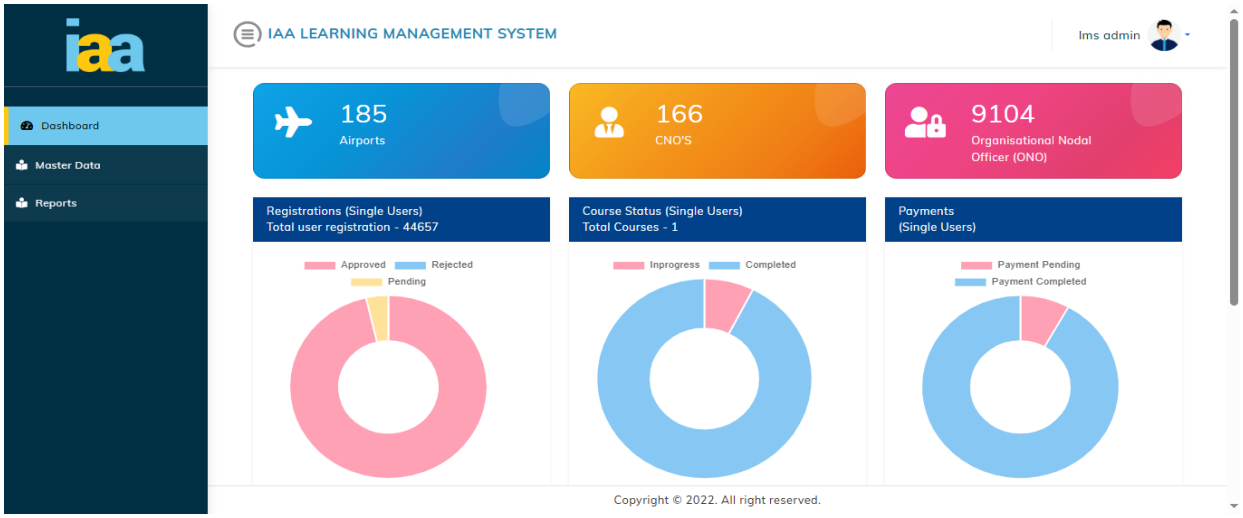
Additional Modules and Functional Enhancements

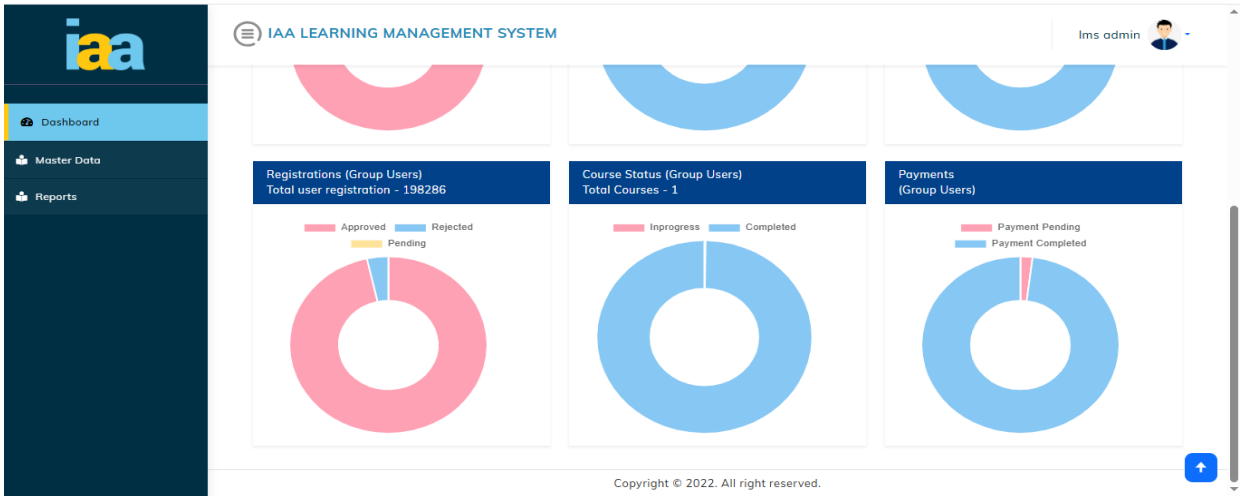
- **Integration with Internal & Third-Party Systems**: Enabled seamless integration with:
  - SCORM player
  - Payment gateway
  - Secure Email and SMS gateways for alerts, notifications, and OTP verifications

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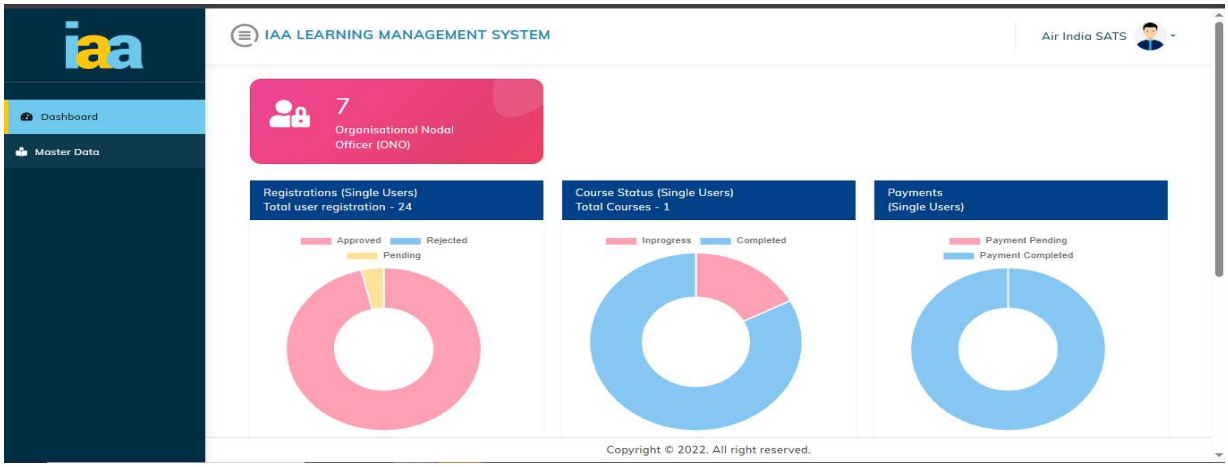
- **Multi-Agency and Airport-Wide Coverage:** Successfully registered and onboarded users from over **100+ airports** (both government and private), coordinated through ONOs for each participating organization.
- **Advanced Payment and Notification Services:** Integrated payment gateway supported both individual and institutional transactions, with automatic invoice generation and real-time notification post-approval.
- **Analytics & Business Intelligence Module:** Equipped Admin Dashboards with real-time metrics on:
  - Registered airports and users
  - Course progress and completion rates
  - Payment and transaction tracking
  - Certificate issuance logs
  - Active vs. inactive user data
- **Digital Wallet Support (Future-Ready):** Provisioned for wallet-based payments and institutional credit mechanisms to allow more flexible transaction models in future upgrades.
- **Disbursement Tracking & Beneficiary Management:** Implemented mechanisms for payment disbursement tracking linked to verified course enrollments and completions across various stakeholder entities.
- **Reconciliation & Exception Management Tools:** Integrated a comprehensive reconciliation module to manage:
  - Failed or incomplete transactions
  - Exception reports for incomplete courses
  - Auto-notification triggers
  - Manual override features for admin-level exception resolution

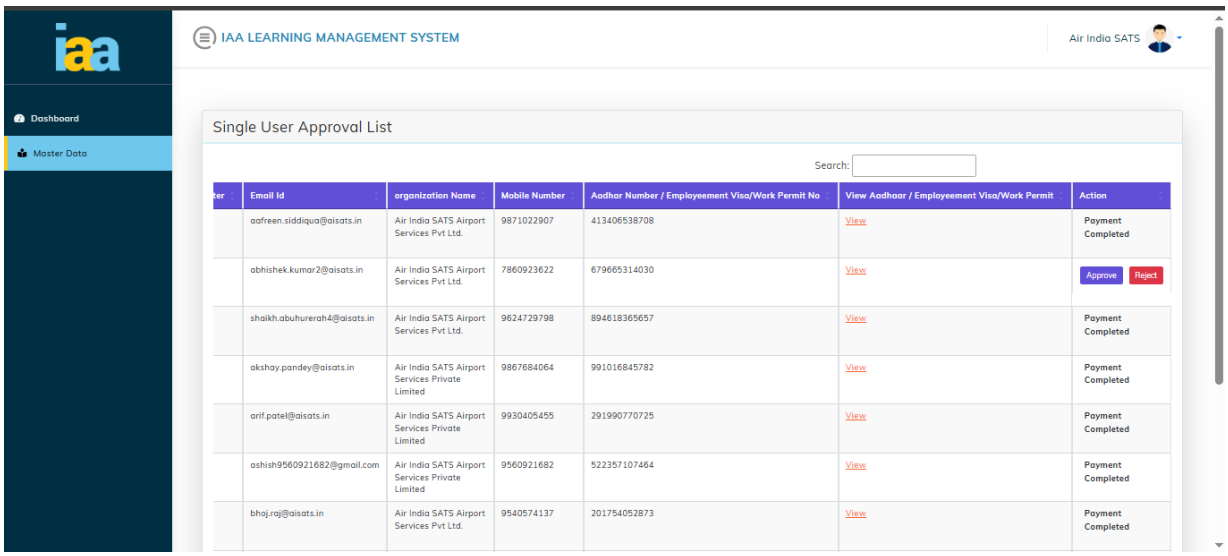
Below is the Screenshot of IAA – Admin Dashboard for Analytics for course registrations, payments, airport-wise metrics.



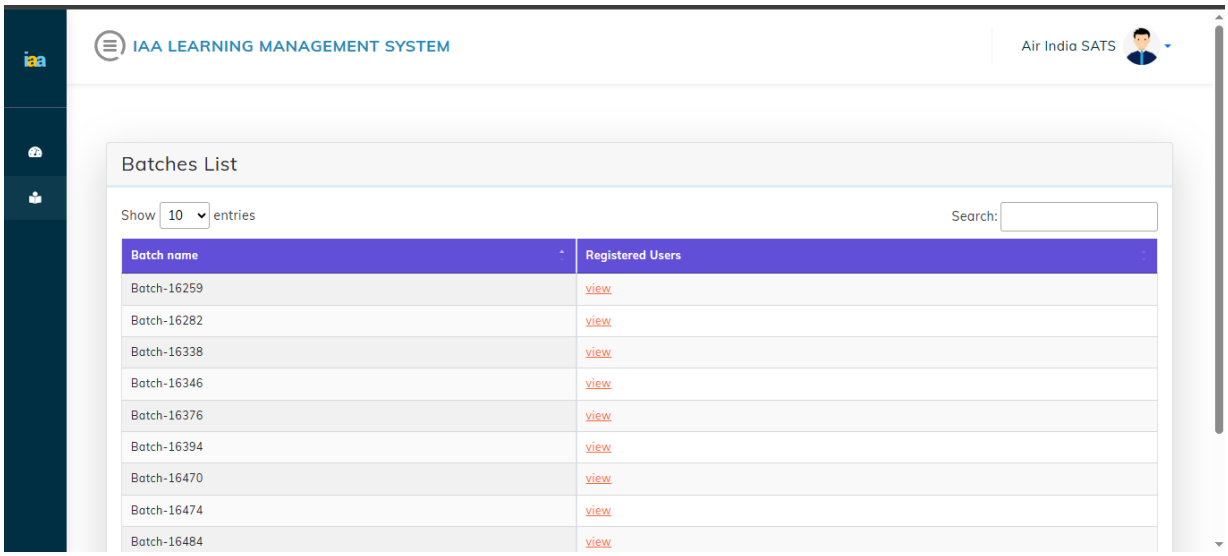


Below is the Screenshot of IAA – CNO Interface for Approval panels for user registrations and ONO registrations

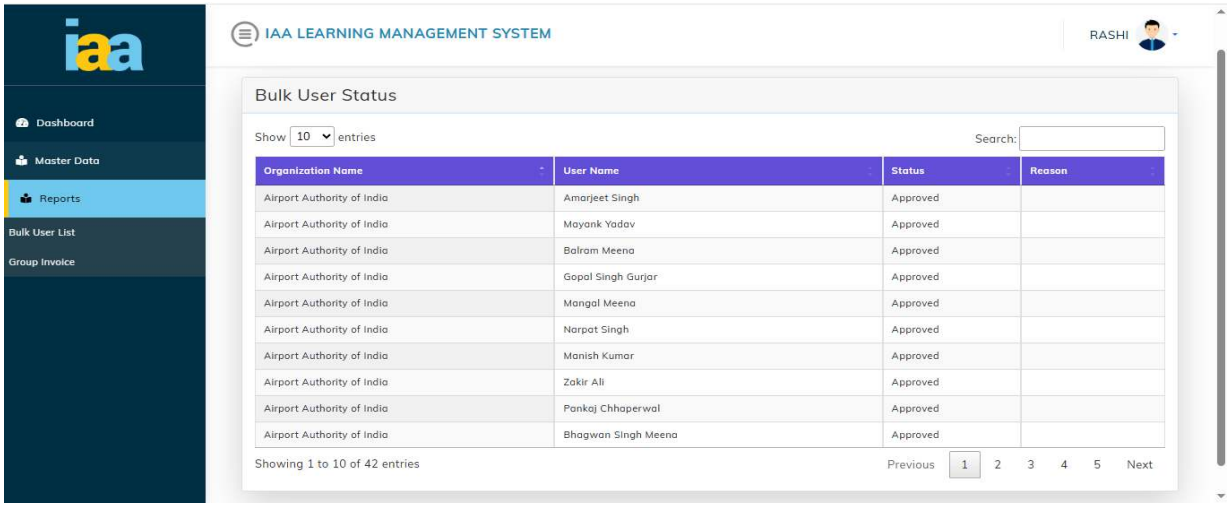




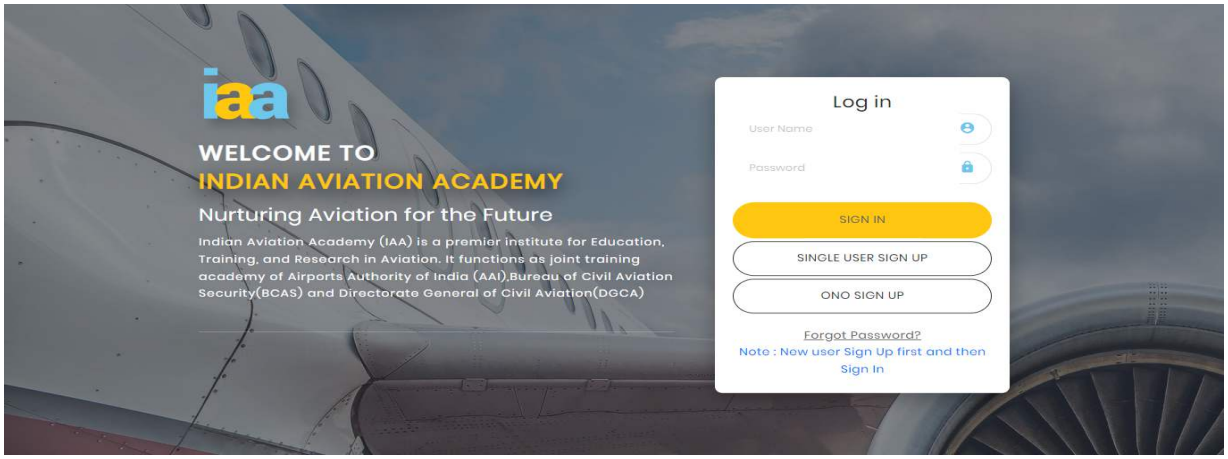
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Below is the Screenshot of IAA – ONO Interface for Bulk User Registration Module



Below is the Screenshot of IAA – Single User Dashboard for Course list, learning progress tracker, and certificate download section



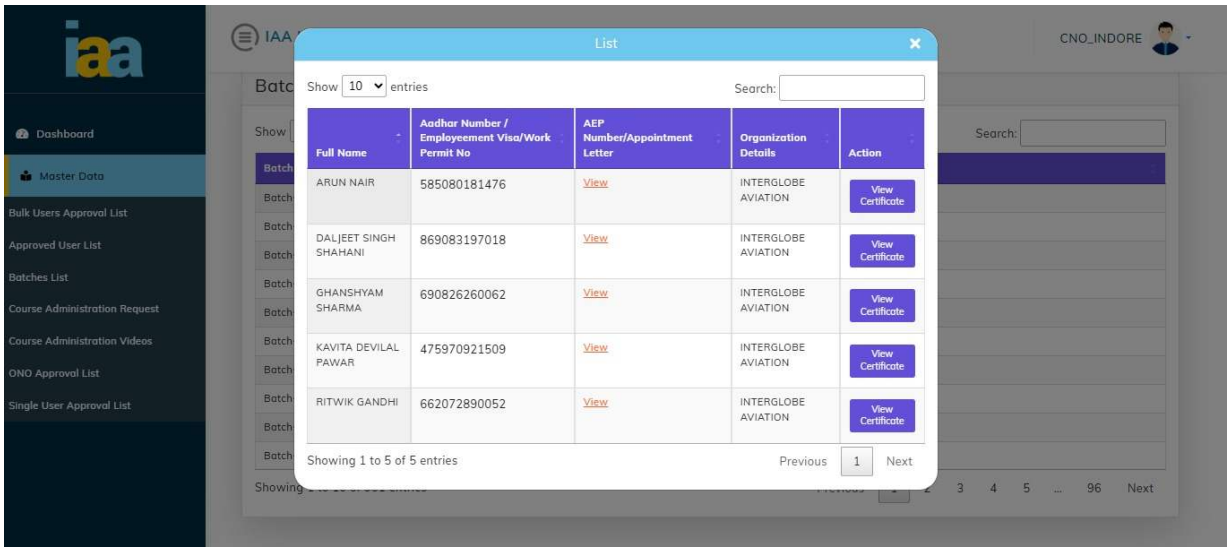
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Below is the Screenshot of IAA - SCORM Course Viewer for Content view with forward restriction, module timer, and progress bar



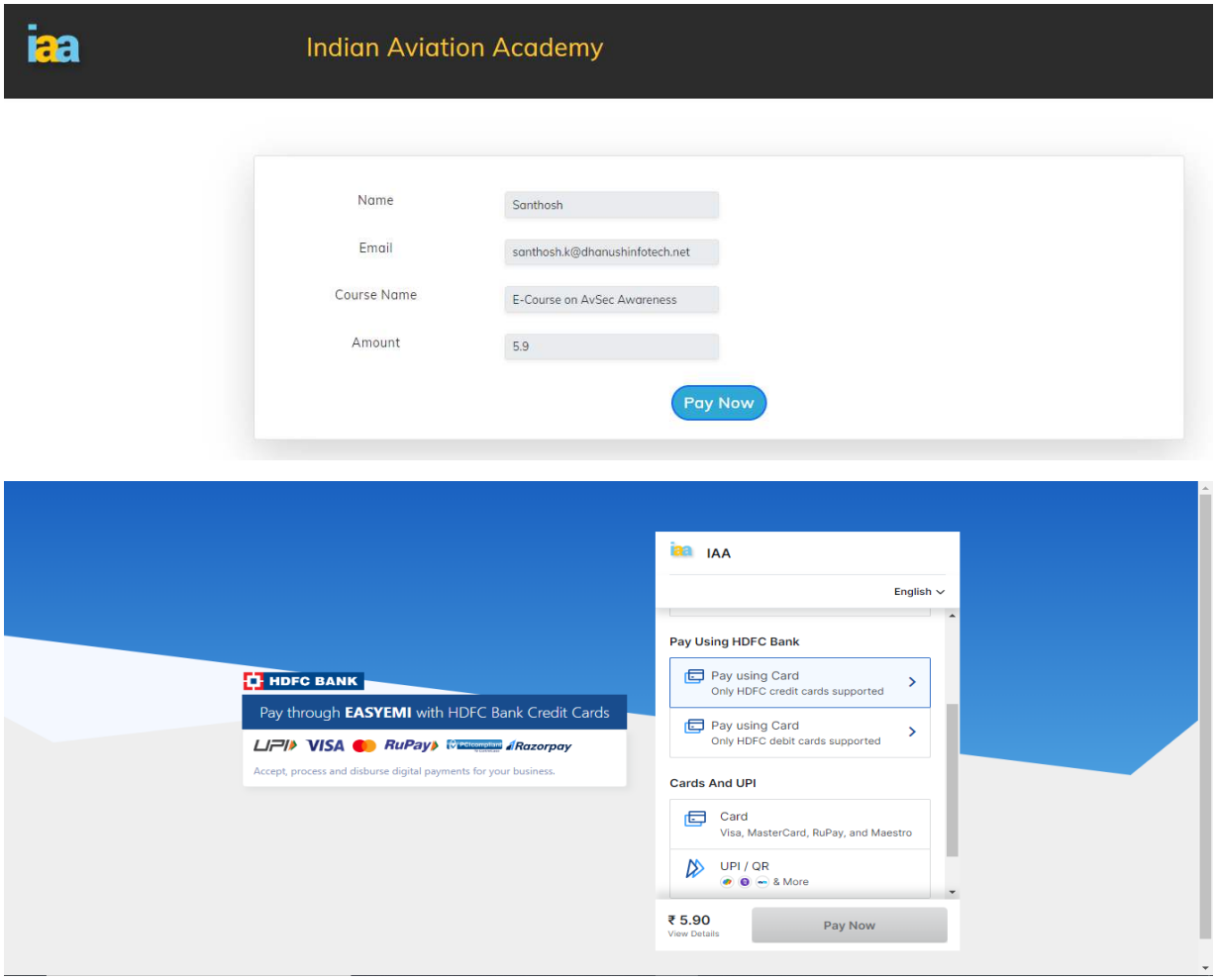
Below is the Screenshot of IAA - Certificate Generation Panel for Sample certificate and PDF download screen



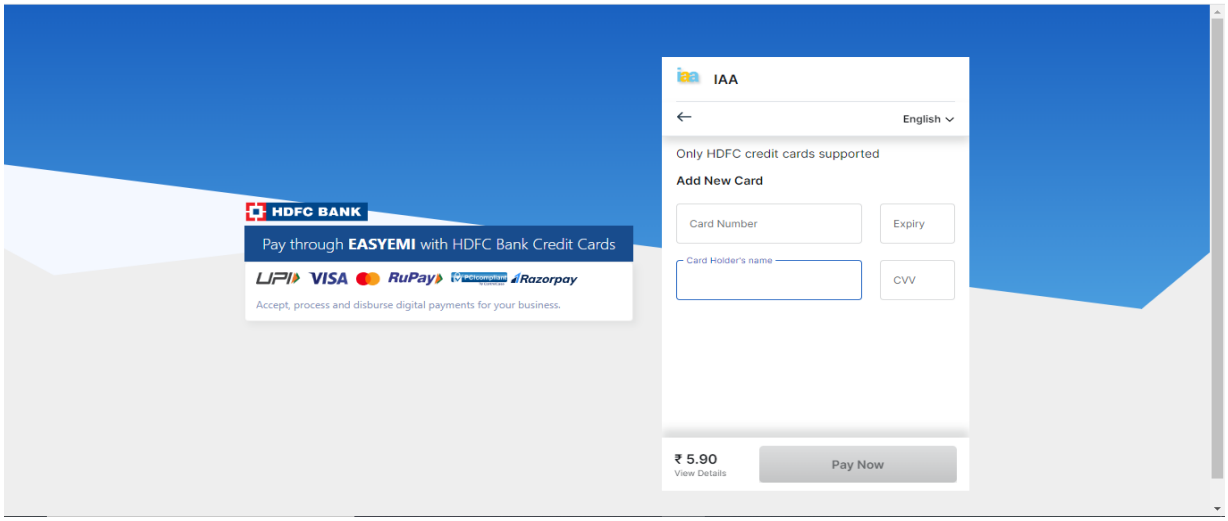
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Below is the Screenshot of IAA – Payment Gateway Interface for Secure transaction view and post payment confirmation



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Gst Number : 87654DFGHJ

Invoice NO.	Service Name	Dated
IAA002095	**Online E-course Training**	**Nov 23, 2022**

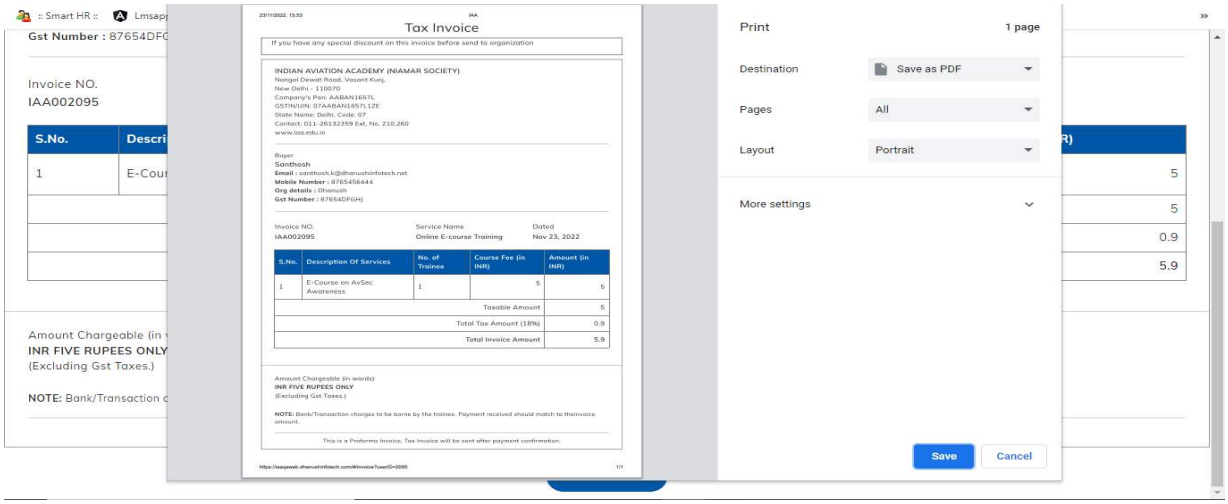
S.No.	Description Of Services	No. of Trainee	Course Fee (in INR)	Amount (in INR)
1	E-Course on AvSec Awareness	1	5	5
			Taxable Amount	5
			Total Tax Amount (18%)	0.9
			Total Invoice Amount	**5.9**

Amount Chargeable (in words)
INR FIVE RUPEES ONLY
(Excluding Gst Taxes.)

NOTE: Bank/Transaction charges to be borne by the trainee. Payment received should match to theinvoice amount.

This is a Proforma Invoice, Tax Invoice will be sent after payment confirmation.

Print



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Contract Agreement – Indian Aviation Academy



తెలంగాణ तेलंगाना TELANGANA

AS 399260

SL.NO. 19593 DATE: 04-07-2022
SOLD TO: SWARAJ,
S/O. NARAYANA, R/O. HYD
FOR WHOM: DHANUSH INFOTECH PRIVATE LIMITED

KONDA KAVITHA
Licenced Stamp Vendor
L No: 16-04-06/2016
RL.NO: 16-04-030/2022
H.No. 8-2-460/64, Road No.4
Sukdev Nagar, Banjara Hills, Hyderabad
Phone No:9248325639

AGREEMENT

CONTRACT AGREEMENT NO.: IAA/IT /Agreement/01/e-LMS/2022-25

This agreement is made and executed at Indian Aviation Academy NIAMAR Society, New Delhi on this 8th Day of July 2022 between IAA as a statutory corporation incorporated under Indian Aviation Academy at NIAMAR Society New Delhi- 110070 through its Director (IAA) (hereinafter referred to as "OWNER" or "IAA")

Which expression shall of the one part and **M/s Dhanush InfoTech Private Limited** (Currently Known as Dhanush Healthcare Systems Private Limited), #1-8-448, Lakshmi Building, 5th and 6th Floors, Begumpet, Hyderabad, Telangana, India Pin- 500003 referred to as **"CONTRACTOR"** which expression shall include its Administrators, Successors, Executors and permitted assigns of the other part.

Whereas, Indian Aviation Academy is desirous of getting the work of **"Development, Hosting and Maintenance of Learning Management System (LMS) at Indian Aviation Academy, New Delhi."** (Hereinafter called the "WORK") done and had invited tenders for this work as per tender documents sold for this purpose. And Whereas, **M/s Dhanush InfoTech Private Limited** (Currently Known as Dhanush Healthcare Systems Private Limited), has participated in the above referred bidding vide their tender and IAA has accepted their aforesaid proposal and awarded the work to **M/s Dhanush InfoTech Private Limited** (Currently Known as Dhanush Healthcare Systems Private Limited), as per terms and conditions, Award Letter Number: IAA/IT/e-LMS/Work Order/2022-23 dated **30.06.2022** documents referred to therein which have been accepted by **M/s Dhanush InfoTech Private Limited** (Currently Known as Dhanush Healthcare Systems Private Limited) resulting into a "CONTRACT".

8/7/2022
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NOW THEREFORE THIS DEED WITNESSETH AS UNDER: -

1. ARTICLE 1.0 - AWARD OF CONTRACT

Indian Aviation Academy has awarded the contract to **M/s Dhanush InfoTech Private Limited** (Currently Known as Dhanush Healthcare Systems Private Limited) for the work of **"Development, Hosting and Maintenance of Learning Management System (LMS) at Indian Aviation Academy, New Delhi."** with the terms and conditions Award letter No. IAA/IT/e-LMS/Work Order/2022-23 dated **30.06.2022** and the documents referred to therein. The award has taken with effect from 10.07.2022 i.e. the 10th day after the date of issue of aforesaid letter. The terms and expression used in this Agreement shall have the same meaning as are assigned to them in the "CONTRACT DOCUMENTS" referred to in the succeeding article.

2. ARTICLE 2.0 - CONTRACT DOCUMENTS

The Contract shall be performed strictly as per the terms and conditions stipulated herein and in the following documents attached herewith (hereinafter referred to as "CONTRACT DOCUMENTS")

Sl. No.	Particulars	Page No.
1.	Agreement	1-4
2.	Work Order	5-7
3.	**E-NIT (Cover Page)**	8
i.	Index	9
ii.	e-Tender Notice	10-15
4.	**General Conditions of Contract (GCC)**	16-24
5.	**Special Conditions of Contract (SCC)**	25-29
6.	**Scope of Work/ Qualitative Requirements**	30-39
7.	**Checklists and Annexures**	
i.	Checklist (Envelope I & II)	40-42
ii.	Un-conditional Acceptance Letter (Annexure-I)	43
iii.	Undertaking Regarding Blacklisting (Annexure-II)	44
iv.	Proforma of E-payment (Annexure-III)	45
v.	Undertaking (Annexure-IV)	46
vi.	Declaration of Net Worth Proforma (Annexure-VI)	47
vii.	Affidavit of Exit Management Plan (Annexure-VII)	48
viii.	Proforma for Bank Guarantee (Annexure-VIII)	49-50
ix.	Proforma for Applying Extension of Time (Annexure-IX)	51-53
8.	**Schedule of Quantities**	54
9.	**Agency submitted Eligibility Documents**	

All the aforesaid Contract Documents shall form an integral part of this Agreement, in so far as the same or any part thereof conform to the tender document and what has been specifically agreed by the owner in its letter of award. Any matter inconsistent therewith, contrary or repugnant to or any

Nilit 8/7/2022
AM (IT)

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deviation taken by the Contractor in its 'Proposal' not agreed to by the owner in its letter of award or any other letter which to have been withdrawn by the contractor, for the sake of brevity, this agreement along with its aforesaid contract document shall be referred to as the "AGREEMENT".

3. ARTICLE 3.0 - CONDITION OF CONVENANTS

3.1. The scope of contract, consideration, terms of payment, period of completion, defects liability period, price adjustment, taxes whichever applicable, insurance, liquidated damages and all other terms and conditions are contained in the aforesaid contract documents. The contract shall be duly performed by the Contractor strictly and faithfully in accordance with terms of the Agreement.

3.2. The Agreement constitutes full and complete understanding between the parties and terms of the presents. It shall supersede all prior correspondence to the extent of inconsistency or repugnancy to the terms and conditions contained in the Agreement. Any modification of the Agreement shall be effected only by a written instrument signed by the authorized representatives of both the parties.

4. ARTICLE 4.0

4.1. SETTLEMENT OF DISPUTES

It is specifically agreed by and between the parties that all the difference or disputes arising out of the Agreement of touching the subject matter of the Agreement shall be decided by process of settlement (Dispute Resolution Mechanism) and Arbitration, as specified in clause 17 and clause 18 (page 16-17) of the General Conditions of the Contract and the provision of Indian arbitration act, 1996 shall apply and Delhi court alone shall have exclusive jurisdiction over the same or decided by Director, Indian Aviation Academy.

4.2. NOTICE OF DEFAULT

Notice of default given by either party to the other party under the Agreement shall be in writing and shall be deemed to have duly and properly served upon the parties here to if delivered against acknowledgement due addressed to the signatories at the addresses mentioned here in above.

This contract Agreement is allotted the number AGREEMENT NO.: **IAA/IT /Agreement/01/e-LMS/2022-25**

IN WITNESS WHEREOF, the parties through their duly authorized representative have executed these present (execution whereof has been approved by the Competent Authority of both the parties) at the day, month and year first above mentioned at.

DANUSH WEDTECH PVT. LTD. INDIA HYDERABAD

Nishit AM(IT) 8/7/2022

SIGNED FOR AND ON BEHALF OF CONTRACTOR **SIGNED FOR AND ON BEHALF OF IAA**

WITNESS:

1. Bikash Chandra Singh 8/7/2022

2.

L.B.O.

भारतीय विमानन अकादमी
राष्ट्रीय विमानन प्रबंधन केन्द्र एवं अनुसंधान समिति
Indian Aviation Academy
National Institute of Aviation Management & Research Society
A joint venture of AAI, BCAS & DGCA, Govt. of India

TRAINAIR PLUS
ICAO FULL MEMBER

Ref. No. IAA/IT/e-LMS/Work Order/2022-23 **Date: 30.06.2022**

To,
M/S Dhanush Infotech Private Limited
#1-8-448, Lakshmi Building, 5th and 6th
Floors, Begumpet, Hyderabad, Telangana
India-500003

Subject: Work order of "Development, Hosting and Maintenance of Learning Management System (LMS) at Indian Aviation Academy, New Delhi".

Reference: - 1. Tender ID: - 2022_AAI_114305_1.
2. Financial Tender opened on 15.06.2022.

Sir(s),

1. This is with reference to your offer and other documents referred above, for "Development, Hosting and Maintenance of Learning Management System (LMS) at Indian Aviation Academy, New Delhi", Indian Aviation Academy is pleased to place a work order for the same.
2. Your offer as mentioned above for the "Development, Hosting and Maintenance of Learning Management System (LMS) at Indian Aviation Academy, New Delhi." and the items as per the financial details & bill of material to this letter has been accepted by Director, Indian Aviation Academy.

3. PRICE:
   3.1 The total cost of the work Rs.33,93,680/- (Rupees Thirty-Three Lakhs Ninety-Three Thousand Six Hundred Eighty Only) which is 34.36% below the estimated cost of Rs. 53,22,644/- which is inclusive of all other taxes/cess, levies and duties but exclusive of GST.

4. TIME SCHEDULE & PAYMENT TERMS:
   4.1 As per clause 6,7,8 and 11 of General Terms and Conditions of the tender document IAA/IT/e-LMS/2022-23.

5. PAYING AUTHORITY:
   5.1 The Executive Director (IAA), is the paying authority.

6. PROJECT MANAGEMENT
   6.1 AM(IT), shall act as the Project Manager to this Contract for Indian Aviation Academy.
   6.2 M/S Dhanush Infotech Private Limited. shall specify the name of its project officer(s) immediately on receipt of the Purchase Order.

Received from Chandra Singh
Dhanush Infotech Pvt. Ltd.
30/6/22

Nishit
AM(IT) 30/6/2022

वसंत कुंज, नई दिल्ली 110070
फोन : +91 11 26134313
ईमेल :edtraining.niamar@aai.aero

Vasant Kunj, New Delhi 110070
Phone: +91 11 26134313
Email: edtraining.niamar@aai.aero

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7. PERFORMANCE BANK GURANTEE

   To be submitted by the vendor as per clause 7 of Special Terms and Conditions of the tender document and Format as per Annexure-VII of tender document.

8. EXIT MANAGEMENT PLAN

   To be submitted by the vendor as per clause 12 of General Terms and Conditions of the tender document and Format as per Annexure-VI of tender document.

9. This letter of award of work shall form a part of the contract and all other terms & conditions as mentioned in the tender Document No. IAA/IT/e-LMS/2022-23 shall be a binding on both the parties i.e. IAA & M/s Dhanush Pvt. Ltd.

10. As part of acceptance of this order, M/S Dhanush Infotech Private Limited is required to enter into an agreement (to be signed in duplicate on a non-judicial Stamp paper (to be stamped in accordance with stamp Act) with Indian Aviation Academy within 10 days of issued of the letter. The format of the Agreement is enclosed as Annexure-I to this contract letter.

11. A duplicate copy of this award letter is enclosed herewith, which may be Returned duly signed in each page, to this office as a token of your acceptance with seven days.

12. Please acknowledge the receipt of this letter.

Your Sincerely

AM(IT) 30/6/2022

For INDIAN AVIATION ACADEMY

Received Brijendra Chandra Singh
Dhanush Infotech Pvt Ltd
Project Manager
30/6/22

वसंत कुंज, नई दिल्ली 110070
फोन + :9 1 11 26134313
ईमेल :edtraining.niamar@aai.aero

Vasant Kunj, New Delhi 110070
Phone: +91 11 26134313
Email: edtraining.niamar@aai.aero

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Operation and Maintenance of MP ANMOL Portal and Application

Assignment Name	Development, Operation and Maintenance of the MP ANMOL Portal and Application for National Health Mission, Madhya Pradesh
Name of Client	National Health Mission, Madhya Pradesh
Client Address	Link Road No. 03, in front of Patrakar Colony, Bhopal- 462003, Madhya Pradesh

About National Health Mission, Madhya Pradesh

The National Health Mission (NHM) – Madhya Pradesh is the state arm of India's flagship NHM program, initiated in 2005 by merging the National Rural and Urban Health Missions. It aims to deliver equitable, affordable, quality healthcare—especially in rural areas—through improving infrastructure (PHCs, CHCs, sub-centres), strengthening the health workforce (ASHAs, community health officers), and enhancing services in reproductive, maternal, newborn, child, adolescent, communicable, and non-communicable health.

Background of the Project

A broad spectrum of Reproductive, Maternal, Newborn, and Child Health (RMNCH) interventions has been implemented to reduce maternal and neonatal mortality rates. To enhance tracking and service delivery for women and children, the MP ANMOL Portal is being developed. This platform will enable early identification and monitoring of beneficiaries throughout the reproductive lifecycle while supporting the implementation, monitoring, and reporting of RMNCH programs. The state aims to customize and develop its own MP ANMOL application and portal to meet specific RMNCH program requirements effectively.

Objectives

- **Enhanced Tracking:** Develop a user-friendly platform to track pregnant women and infants across the continuum of care.
- **Integrated Payment System:** Facilitate payment gateways for conditional cash transfer schemes linked to the ANMOL portal/app.
- **Data Integration & Decision-Making:** Establish linkages with Central and State Government portals to integrate multiple datasets, enabling data-driven decision-making.
- **Decentralized Review Mechanism:** Create data action tools such as actionable dashboards and planning sheets for effective monitoring.
- **ASHA Incentive Management:** Automate **ASHA incentive** processing and report generation.
- **ABHA ID Generation:** Provide a module for generating **Ayushman Bharat Health Account (ABHA) IDs**.
- **Data Analytics & Insights:** Analyze field-collected data to identify trends and assist NHM-MP in implementing targeted interventions.
- **Improved Maternal & Newborn Health Outcomes:** Reduce maternal and newborn morbidity and mortality by tracking service utilization and ensuring timely referrals to higher healthcare facilities.
- **Enhanced Monitoring of MCH Indicators:** Strengthen monitoring mechanisms to improve **Maternal and Child Health (MCH)** indicators.
- **Stakeholder Access to Data:** Facilitate access to MCH-related data for analysis and monitoring by relevant departments and stakeholders.

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- **Antenatal & Postnatal Care Improvement:** Monitor antenatal and postnatal care processes to identify high-risk mothers and infants.
- **Scalable & Future-Ready Solutions:** Develop a highly scalable platform that can adapt to future project needs.

Scope of Services: RCH MP-ANMOL Web Portal & Mobile Application

The project involves comprehensive design, development, implementation, and management of the RCH MP-ANMOL Web Portal and Mobile Application with the following scope:

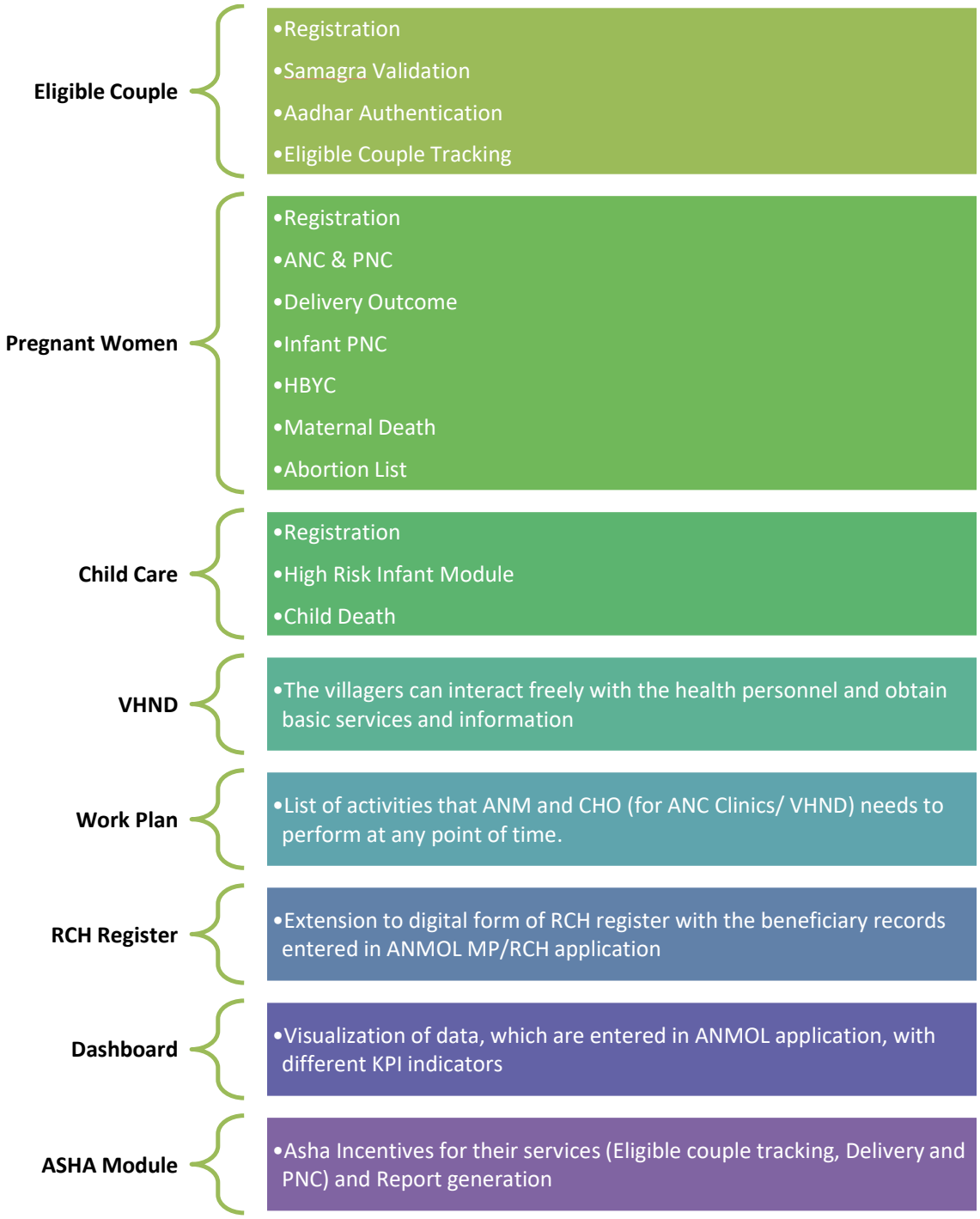
- **Application Development & Implementation**
  - Design, develop, and implement the RCH MP-ANMOL system as per the approved System Requirements Specification (SRS) and Functional Requirement Specification (FRS).
  - Ensure the system is fully functional, user-friendly, and compliant with healthcare service delivery protocols.
- **Functional Modules**
  - **Community Module**: Enables ANM and ASHA logins to facilitate tracking of eligible couples, antenatal and postnatal care, child care, VHND activities, maintenance of RCH register, and remote support functions.
  - **Facility Module**: Supports ANC tracking, delivery management, SUMAN module, referral generation, and provides dashboards for ANMOL users.
  - **Government Integrations**: Integration with ABHA ID, F-form (USG), MDCDSR, Obstetric ICU, Samagra, MPBOC, and payment-related systems.
  - **Additional Features**: Includes user management, administrative reporting, mapping modules, and integration with WhatsApp/SMS gateways for notifications.
- **System Integrations**
  - Seamless integration with multiple internal and third-party systems such as Samagra, Evitt, Sambal, and MPBOC for Health ID generation, POSHAN, RMNCH APIs using FHIR standards, facilitating real-time sharing of care contexts.
- **Manpower Deployment**
  - Deployment of a dedicated technical and functional team comprising Project Manager, MIS Experts, Java & Mobile Developers, Software Testers, Business Analysts, Database Administrators, and Helpdesk Support Team.
- **Operations & Customization**
  - Periodic customization and modification of the platform in accordance with evolving NHM-MP requirements.
  - Load management, system monitoring, and optimization to handle concurrent user access efficiently.
- **Data Entry & Volume Handling**
  - Data Entry Operators (DEOs) at PHC/CHC/DH levels capture daily maternal and child health data including pregnancy registrations, deliveries, lab results, immunizations, and interventions.
  - The system processes millions of records annually from all ANMs across the state.
- **Payment Services**

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- Integration of eKYC and DBT services to capture bank account details, Aadhaar, Samagra ID, and ABHA during beneficiary registration.
- Automated payment disbursal via PFMS and e Vittapravah (Evitt) platforms, using approved IFSC codes and bank validation mechanisms.

- **Target Beneficiaries for Disbursement**
  - Disbursements are processed for multiple beneficiary groups including pregnant women, high-risk pregnancies, institutional delivery cases, and newborns eligible under schemes like JSY and PSY.
- **Digital Wallet Handling**
  - While no separate digital wallet module is provisioned, beneficiary bank accounts function as virtual wallets for DBT credit transfers, thus serving the intended purpose.
- **Data Analytics & Reporting**
  - Real-time dashboards embedded in the facility portal, updated through mobile and web interfaces.
  - Provides multi-level analytics (block/district/state) including tracking of high-risk pregnancies, ANC visits, delivery outcomes, DBT claims, and duplicate case identification.
- **Reconciliation & Exception Management**
  - Management of exceptions such as duplicate beneficiaries, RCH ID conflicts, invalid registrations (due to missing Samagra or bank details), and failed payments due to IFSC mismatch or validation errors.
  - Resolutions include:
    - Backend deduplication and block-level mapping.
    - Alerts and dashboards highlighting failed transactions.
    - Facility-level manual override capabilities via DEO portal.
    - Inclusion of training modules and error logs in system updates.
- **Training & Capacity Building**
  - Development of interactive training modules embedded within the portal.
  - Conduct of online and offline training sessions for officials across state, district, and facility levels based on the NHM-MP calendar.
- **Documentation Support**
  - Preparation and submission of process documentation including system architecture, process flows, integration guides, user manuals, training materials (print, audio, video), and test scripts.
- **Maintenance & Helpdesk Support**
  - Continuous software maintenance including bug fixes, system optimization, and enhancements.
  - Helpdesk management and ticket-based user support system ensuring timely resolution of issues.

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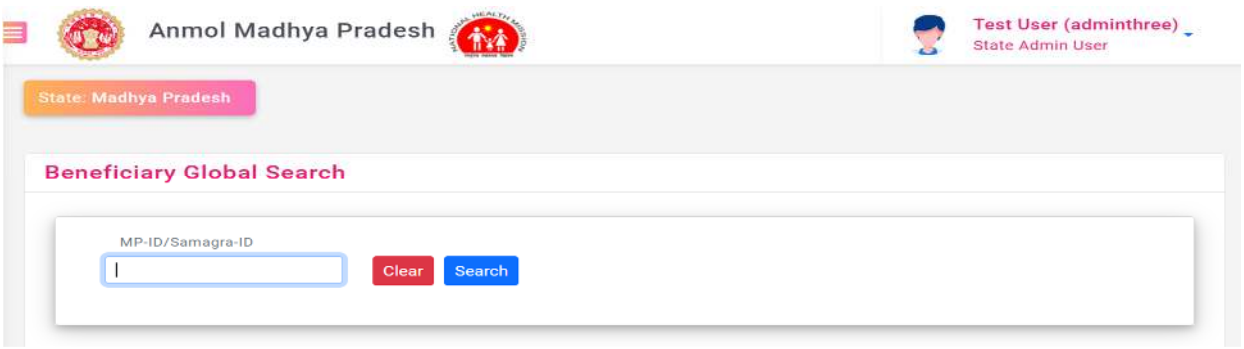

Eligible Couple
•Registration
•Samagra Validation
•Aadhar Authentication
•Eligible Couple Tracking
Pregnant Women
•Registration
•ANC & PNC
•Delivery Outcome
•Infant PNC
•HBYC
•Maternal Death
•Abortion List
Child Care
•Registration
•High Risk Infant Module
•Child Death
VHND
•The villagers can interact freely with the health personnel and obtain basic services and information
Work Plan
•List of activities that ANM and CHO (for ANC Clinics/ VHND) needs to perform at any point of time.
RCH Register
•Extension to digital form of RCH register with the beneficiary records entered in ANMOL MP/RCH application
Dashboard
•Visualization of data, which are entered in ANMOL application, with different KPI indicators
ASHA Module
•Asha Incentives for their services (Eligible couple tracking, Delivery and PNC) and Report generation

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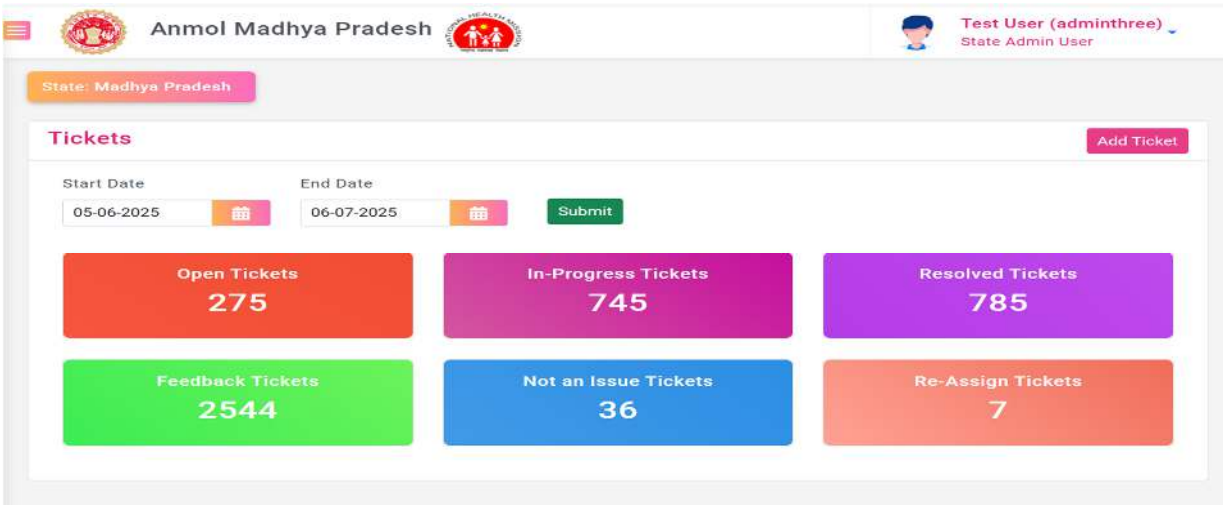
Below is the Screenshot of MP ANMOL - Dashboard:



Below is the Screenshot of MP ANMOL - Beneficiary Global Search:

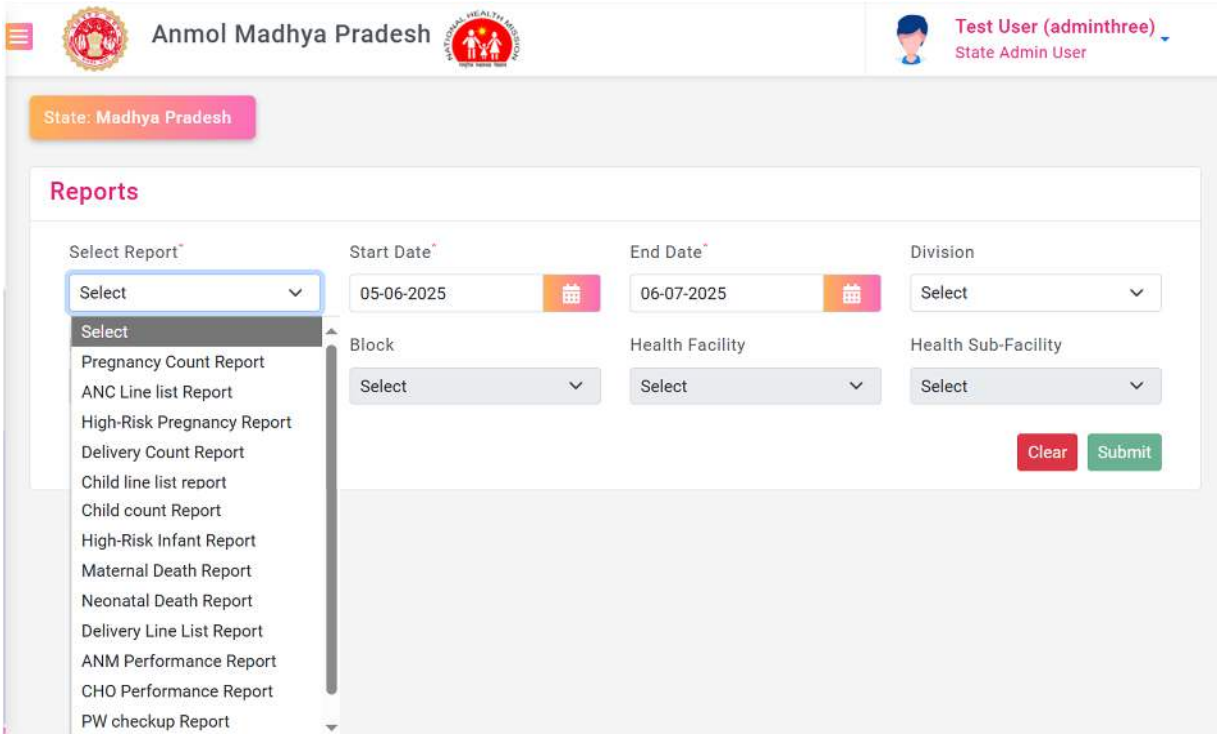


Below is the Screenshot of MP ANMOL - Helpdesk Ticket:

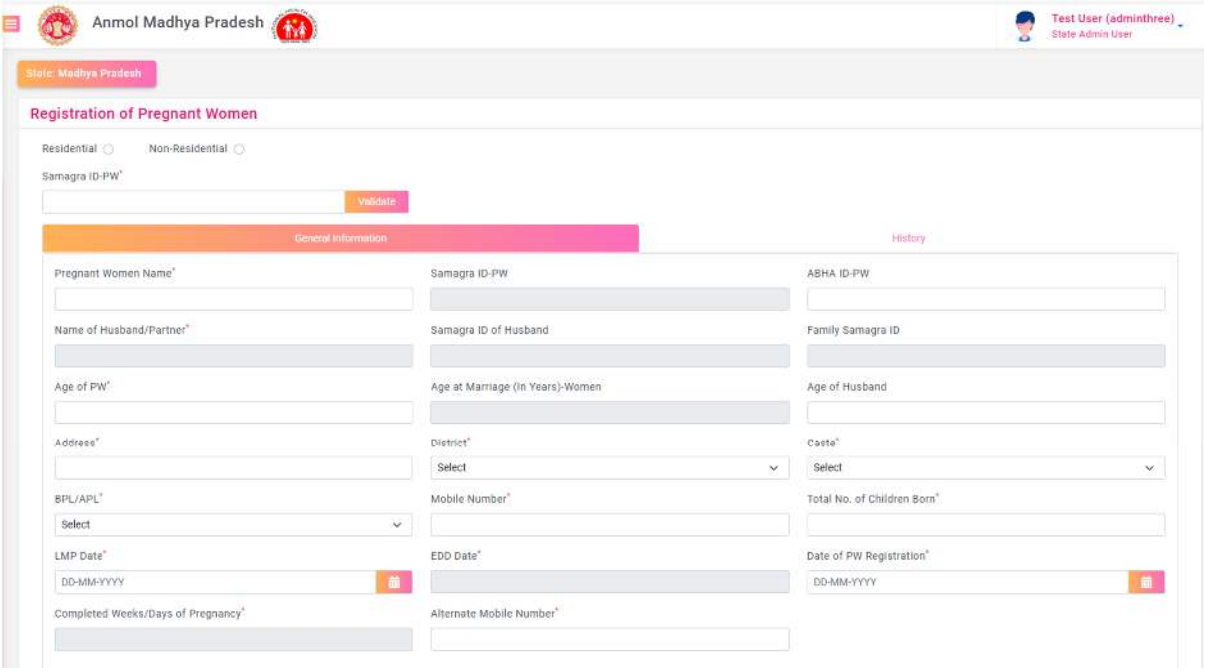


Below is the Screenshot of MP ANMOL - Reports:

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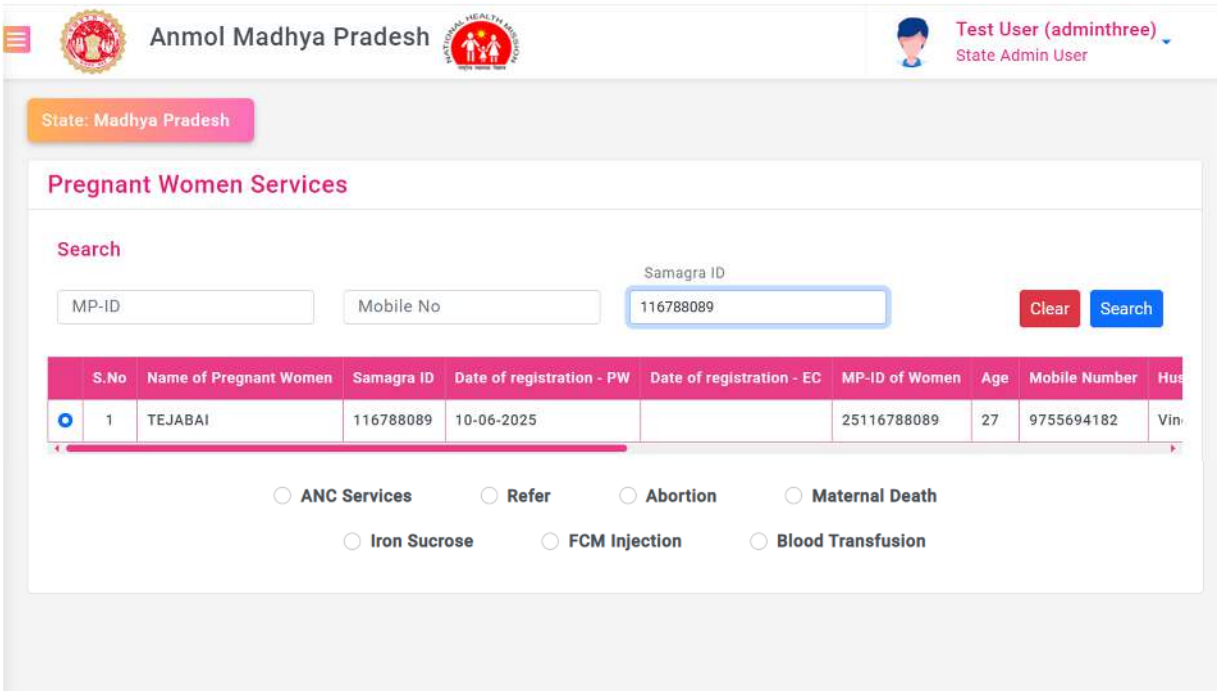


Below is the Screenshot of MP ANMOL - Pregnant Women Registration form:

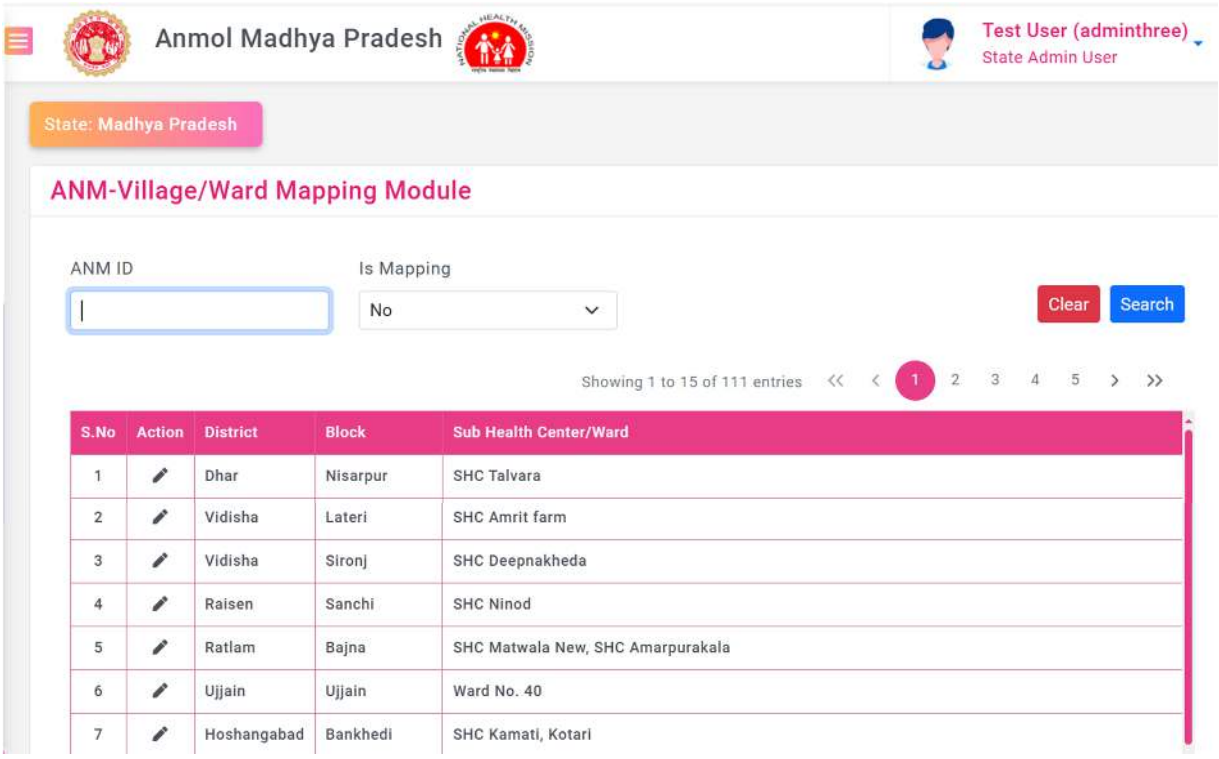


Below is the Screenshot of MP ANMOL - Pregnant Women Services:

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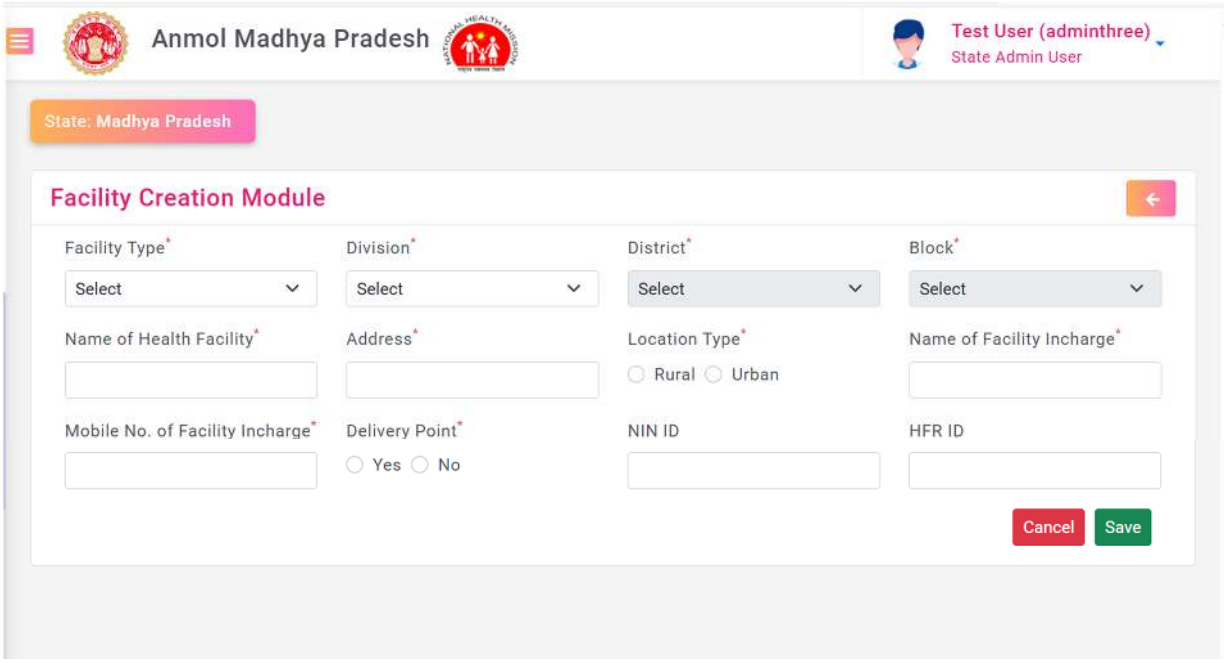


Below is the Screenshot of MP ANMOL - Mapping Module:

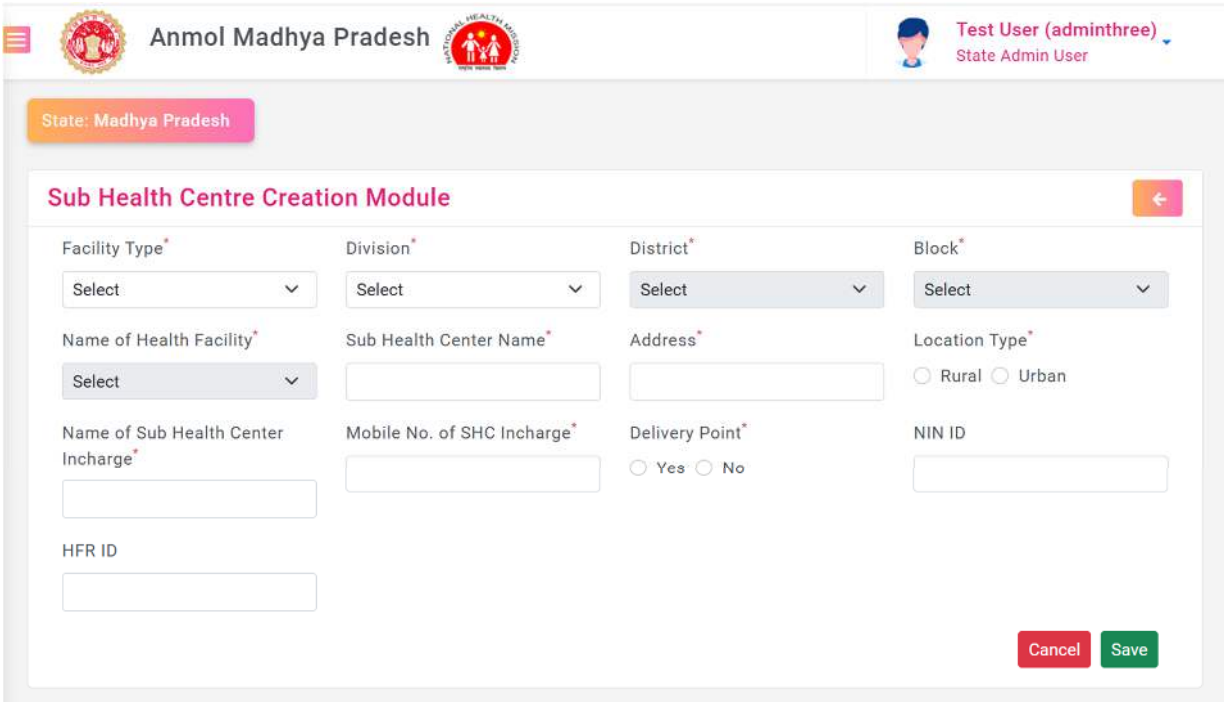


Below is the Screenshot of MP ANMOL - Facility Creation Module:

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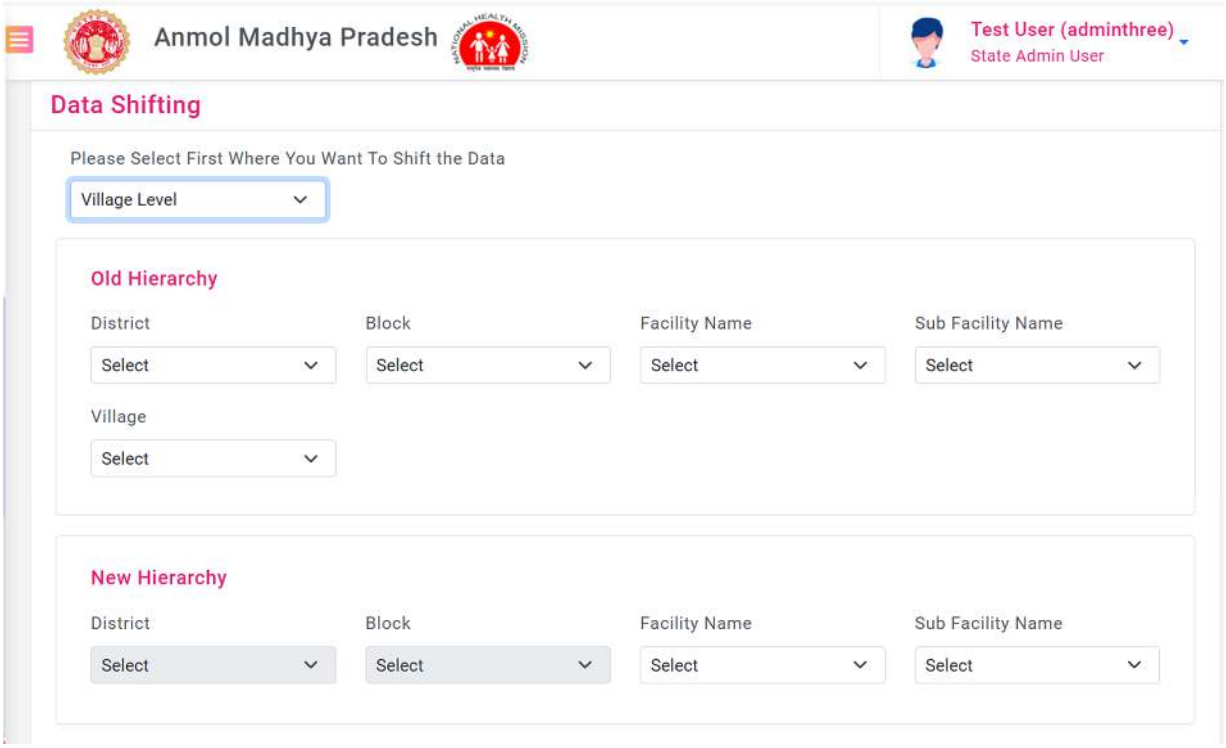


Below is the Screenshot of MP ANMOL - Sub-Health Facility Creation Module:

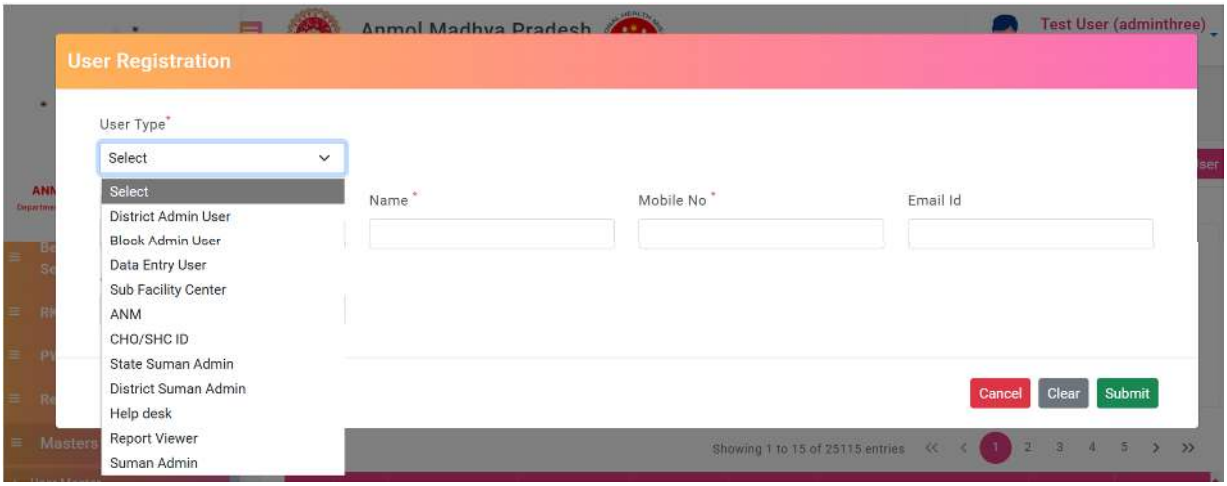


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Below is the Screenshot of MP ANMOL - Data Shifting Module:



Below is the Screenshot of MP ANMOL - User creation Module:



Work Order – MP ANMOL

राष्ट्रीय स्वास्थ्य मिशन
मध्यप्रदेश
लिंकरोड 03, पत्रकार कॉलोनी के सामने, भोपाल म.प्र.
Email:- tendersnhmmp@gmail.com

S. No./ N.H.M/ IT/ 2024/ 19350 **Bhopal, Dated** 07/06/**2024**

To,

K L Murthy,
Director,
Dhanush Healthcare Systems Private Limited,
#1-8-448, Lakshmi Building, 5th and 6th floors.
Begumpet Hyderabad - 500003,
Telangana, India

Sub: **Work Order for Selection of an Agency for Development, Operation, and Maintenance of the MP ANMOL portal and Application for National Health Mission, Madhya Pradesh**

The National Health Mission, an entity under the Department of Public Health and Family Welfare, Government of Madhya Pradesh, had released an e-tender with respect to **"Selection of an Agency for Development, Operation, and Maintenance of the MP ANMOL portal and Application for National Health Mission, Madhya Pradesh."** with **Reference No.: S. No./ N.H.M/ STORE/ 2023/ 16672 & Tender ID 2023_DHS_315415_1 dated 05/10/2023.**

With reference to the above, the Work Order for " Selection of an Agency for Development, Operation, and Maintenance of the MP ANMOL portal and Application for National Health Mission, Madhya Pradesh" is hereby awarded to M/s **Dhanush Healthcare Systems Private Limited** for a period of 05 (Five) years.

As per Section 3, clause 3.7 of the RFP, you are requested to provide acceptance for the same and need to return the signed duplicate copy of Work Order in acknowledgement thereof, within 07 (seven) working days of the receipt of this Work Order. In the event the duplicate copy of the Work Order duly signed by M/s **Dhanush Healthcare Systems Private Limited** is not received by the stipulated date, the NHM-MP may, unless it consents to extension of time for submission thereof, appropriate the Earnest Money Deposit of the agency.

Also, as mentioned in the Annexure-13 (master service agreement), clause 12 of the master service agreement of this RFP, **Dhanush Healthcare Systems Private Limited** will need to submit a Performance Security equivalent to 10% of the total contract value i.e. **INR 81,00,840 /- (Eighty One Lakh Eight Hundred Forty Only)** which shall be furnished from a Nationalized/ Scheduled Bank, before execution of the Contract, in form of a Bank Guarantee as per Annexure 14 of the RFP.

Moreover, as per section general terms of RFP, clause 5.12 of the RFP, M/s **Dhanush Healthcare Systems Private Limited** shall also need to execute the Contract with NHM-MP within 01 (one) month from the date of this Work Order and initiate working based on the defined Scope of Work.

(Priyanka Das)
Mission Director
National Health Mission,
Madhya Pradesh

No./ N.H.M/ IT/ 2024/ 19350 **Bhopal, Dated** 07/06/**2024**

Copy to:

1. Additional Chief Secretary, Govt. of MP, Department of Public Health and Family Welfare.
2. Commissioner Health, Madhya Pradesh
3. Director, NHM-MP
4. Director, Finance, NHM-MP
5. Deputy Director, Store & IT, NHM-MP

Mission Director
National Health Mission,
Madhya Pradesh

L.B.O.

Assignments on Financial Services Provided to the Ministry of Education (Capitation Management)

Open University of Kenya (OUK) – Development of Education ERP

Assignment Name	Design, Development, Installation, Operationalize and Commission of Enterprise Resource Planning (ERP) for the Proposed Open University of Kenya (OUK)
Name of Client	Open University of Kenya (OUK)
Client Address	The Cradle, Silicon Savanna, Konza Technopolis P. O. Box 2440 - 00606 Nairobi, Kenya

About Open University of Kenya (OUK)

The Open University of Kenya (OUK) is a pioneering, fully digital national institution established by the Government of Kenya to democratize access to higher education. Designed to meet the evolving needs of a dynamic and digitally connected society, OUK offers accessible, affordable, and flexible learning opportunities to students across the country and beyond. As a key pillar in Kenya's digital transformation and education reform agenda, the university delivers accredited, high-quality academic programs entirely online—encompassing lectures, assessments, and robust student support systems. OUK is committed to promoting lifelong learning, upskilling the workforce, and expanding educational reach to underserved communities, empowering learners to study anytime, anywhere, at their own pace.

Background of the Project

The OUK ERP system was developed as a comprehensive, integrated digital platform to support end-to-end academic, administrative, and financial processes for the university. The project supports over 20 academic programmes and 10–15 short courses and was designed to facilitate 100% online education, from student admission to graduation. The platform is integrated with payment gateways, third-party LMS and library systems, and also includes internal HR and finance modules. The ERP serves all students in Kenya, eliminating the need for physical presence at any stage.

Objectives

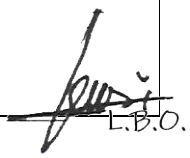
- To provide a national-level, fully digital education platform for Kenyan learners.
- To implement a centralized ERP covering academic, financial, and HR operations.
- To ensure smooth online admissions, classes, exams, and certification.
- To integrate various third-party systems like payment gateways, LMS, and library services.
- To support real-time analytics and data tracking for students, faculty, and administrators.

Scope of Work

Dhanush has design, development, implementation, and support of a comprehensive Enterprise Resource Planning (ERP) system tailored for the Open University of Kenya (OUK).

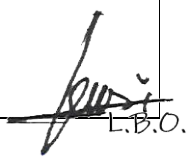
The solution aims to streamline academic, administrative, financial, and operational processes through a fully digital and integrated platform.

1. **ERP System Development and Implementation**
   - Design and deployment of a scalable, web-based ERP system aligned with OUK's digital-first strategy.



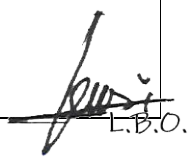
- Full automation of university operations with user-friendly interfaces for students, faculty, and administrators.

2. **Academic and Student Lifecycle Modules**
   - **Academic Management**: Management of programs, courses, faculties, and departments.
   - **Admissions & Registration**: Online application, merit-based selection, and student onboarding.
   - **Curriculum Management**: Program structure creation, course mapping, and revisions.
   - **Examinations & Assessment**: Online exam scheduling, results processing, and grading workflows.
   - **Credit Transfer & Exemptions**: Automated workflows for credit evaluation and approval.
   - **Reattempt & Supplementary Exams**: Module for tracking reattempt eligibility and scheduling.
   - **Cohort/Intake Management**: Batch-wise student grouping and tracking across intakes.
   - **Content Management**: Central repository for academic materials, announcements, and policies.
   - **Student eWallet**: Wallet-based transactions for fees, services, and refunds.
   - **Student Services**: Online modules for handling transfers, club memberships, societies, hostel allotment, canteen facilities, transport requests, and work-study assignments.
3. **Financial Management Modules**
   - **Budget Planning & Management**: Multi-departmental budgeting with real-time status tracking.
   - **Procurement & Bid Management**: eTendering, vendor registration, and bid evaluation processes.
   - **Purchase Orders & GRNs**: Automated generation and tracking of purchase orders and goods receipt notes.
   - **Invoicing & Billing**: Generation of student and vendor invoices, late fee calculations.
   - **Accounts Payable/Receivable**: End-to-end tracking of transactions, dues, and collections.
   - **Fixed Asset Management**: Asset registration, depreciation, and lifecycle tracking.
   - **Inventory Management**: Centralized control over university inventory and consumables.
   - **Income and Expenditure Tracking**: Real-time financial dashboards for oversight and planning.
4. **Human Resource Management**
   - **Recruitment & Onboarding**: Digital vacancy posting, candidate evaluation, and hiring workflows.
   - **Payroll Management**: Automated salary processing, deductions, and tax computations.
   - **Attendance Management**: Integration with biometric or digital attendance systems.
   - **Performance Appraisal**: Annual review cycles, goal-setting, and feedback loops.
   - **Loan & Advance Management**: Tracking and managing staff loans and advances.
   - **Part-Time Staff Management**: Contract creation, payment tracking, and assignment allocation.
5. **Student Lifecycle and Online Workflow**
   - Seamless online experience for students—from registration, course enrollment, fee payments, assessments, and progression to final certification.
   - Automated notifications and status updates at each stage of the academic journey.
6. **System Integrations**
   - **Payment Gateway Integration**: Real-time online fee payments, transaction tracking, and automated reconciliation.



- **Learning Management System (LMS)** Integration: For seamless access to courses, assignments, and academic content.
- **KOHA Library Integration**: Digital library access, book borrowing, and research tools.

7. **Additional Functional Capabilities**
   - **Multi-System Integrations**: Experience in integrating with internal university systems and external government/third-party platforms.
   - **Statewide Collections Handling**: Capability to manage collections from multiple state agencies and public universities.
   - **Multi-Channel Payment Services**: Provision of payment solutions tailored for diverse end-users (students, institutions, government bodies).
   - **Student Digital Wallet Management**: Secure digital wallet solution for managing student financial transactions, refunds, and grants.
   - **Disbursement Workflows**: Processing and tracking of payments to students and institutional partners.
   - **Reconciliation and Exception Management**: Real-time reconciliation of financial records, handling discrepancies and exception resolution.
   - **Data Analytics & Reporting**: Dashboards and BI tools for monitoring usage, academic performance, and administrative efficiency.
   - **Ministry of Education (MoE) Financial Services**: Specialized modules for Capitation Management, grant disbursement, and reporting to MoE.



IFMIS, Ministry of Finance – Republic of Kenya

Overview:

- IFMIS (Integrated Financials Management Information System) has been promoted as a core component of public financials reform to promote greater comprehensiveness and transparency of information across Government Institutions.
- The success factors for such a system to be implemented include clear commitment to financial reform objectives, ICT readiness, and a phased approach to implementation, project management capability, well trained personnel and a sound change management system.
- This training is based on learning and training sessions to increase knowledge, skills, competencies and capabilities that will guarantee long-term sustainability of reforms. The Government of Kenya (GoK) has invested substantial financial and technical resource in the operationalization of an IFMIS Academy

Objective of IFMIS

- Setting up of 'IFMIS ACADEMY' as a capacity building and enhancement firm, to develop and deliver class room based and online training programs for the Government Financial Officers who are IFMIS users both in National and County governments, Public Universities and Parastatals

Dhanush has developed and implemented of an in classroom and Virtual / Online Learning / Training Program of the IFMIS Academy.

Dhanush Contribution Towards Realizing the Objective of IFMIS

- As a part of the Scope of Engagement between Dhanush and Government of Kenya (GOK) IFMIS Reengineering training was conducted by Dhanush across the MDAs and County governments.
- More than 10000 Kenya Government officials have been trained for 5 Years in an classroom Instructor led training (ILT) as well as e-learning approach, on the following Oracle financials and reengineering components and Using Dhanush Learning management System
  - Re-Engineer for improved Business Results
  - Plan to Budget
  - Procure to Pay
  - Revenue to Cash
  - Record to Report
  - ICT to support
  - Communicate to Change





Dhanush Contribution towards IFMIS Training Academy

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- Build systems and models to train government employees to bring **change management and quality control measurements** to perform their role effectively. Successfully mobilized government employees for timely participation in the training program and **ensured 100% attendance** and timely completion of objectives of training for **10000 participants**
- Dhanush has effectively measured, monitored & **improved productivity** of the government staff over 5 years in their respective roles through utilization of effective classroom training mechanism and usage of highly automated Learning Management & Performance Improvement System

This engagement is executed in Four Phases:

- **Phase I: Training Need Assessment (TNA)**
  - Identification of potential IFMIS end users and conducting the Training Need Assessment. Overview of a clear and detailed study of Gap analysis was conducted. The purpose of the Training Need Assessment TNA component includes two basic elements
    1. To provide a comprehensive analysis of current capabilities of the staff
    2. Then to define and meet the training needs that have been identified during the study
- **Approaches Used for Training Need Assessment (TNA)**

1. **Workshops:**
   - In this method IFMIS Team interacted with concerned with ministries and IFMIS super users to understand the demonstration of the processes and also help in identification of roles, positions and relevant skills or competencies existing.
   - To formulate training responsibilities
   - To support development of comprehensive training programs to reach all the staff in the ministries with appropriate trainings to their job responsibilities

2. **Mapping the Skill Matrix**

   In this approach the following steps were adopted

   - To approach the Human resource departments in the identified ministries for the initial on the role /skill matrix and competencies
   - To gain the relevant information from the Head of the Departments on the current role/skill matrix and competencies for the selected users
   - Combining together the collected information in the skill matrix.ie., comparative analysis of Current competency level to Proposed Competency level of the selected users
   - The identified gap can be used to generate the Training Need Assessment
     1. Questionnaires and Observation method
     2. Questionnaires were developed within the framework of the scope. All respondents (IFMIS End Users) from 48 Ministries were given (Functional, Change Management, ICT Questionnaire) to be answered. In this approach all the relevant information from the target audience was obtained which gave a clear understanding of IFMIS application usages.
     3. We have studied the user involvement and observed what the users actually do during their usage of the application and analyzed their skills.

Asking	Observation
• Surveys/questionnaires • Check lists	• Observe employees at work • Work-flow

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• Open-ended questions • Focus group • Interviews	• Employee communications • Environment

- **Phase II : Content and Design and Development Approach**
  - Design and Development of the curriculum is followed by the Training Need Assessment Phase. During the TNA Phase a detailed TNA report is generated which is based on grouping of profiles to map the user base within GOK. Such grouping are classified as 4 levels.

Level 1 :	Novice : Employees doing only day to day transactions which are reversible
Level 2 :	Practitioner: Employees doing activities on the system which are not reversible or approving those transactions that Novice Users are doing
Level 3 :	Advanced: Employees who are doing set up of data needed for transactions and approving the work being done by Practitioners
Level 4 :	Specialists: Employees who are doing troubleshooting by giving work around, solving issues in set ups and generally assisting the work done by Advanced users.

The Content of the curriculum is designed keeping in view the current competencies of the IFMIS End Users there role definitions and Career paths

- The content was designed and developed for all the Four Levels from the seven business processes therefore 28 course curriculums are developed.

The Curriculum consist of
• **Business Process Overview**
○ Training Overview
○ Objective of the Training
○ Learning Outcomes
○ Course outline
○ Assessment pattern
○ Delivery Method
○ Duration
○ Timing
○ Venue

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- **Phase III: -Training Delivery Approach**

Academy would deliver the training programs in the following three ways:

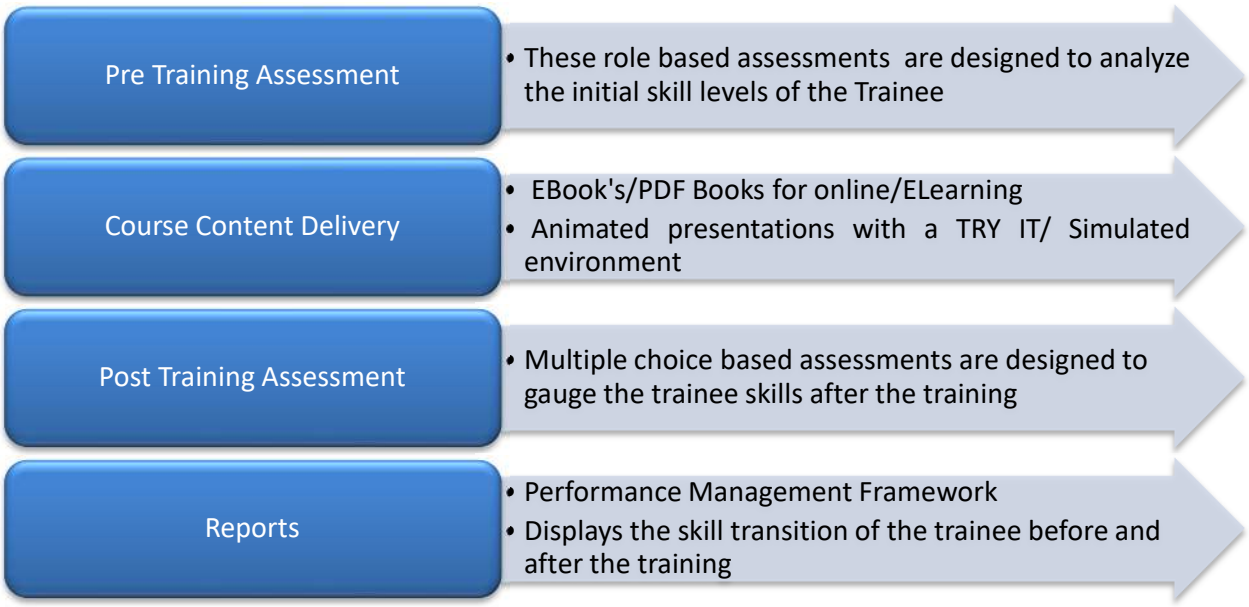
Delivery Model	Mode of delivery	Lab Practices	Assessments
Class room	• Lectures	• Each participant will be given instruction through exercises with screen shots and steps to follow. • Participants are expected to perform the same with their own user-id. • Lab exercises have to be accomplished on the same day as per the lecture delivered.	• Pre-assessment will be conducted before the commencement of the training. • After each module is completed the participant has to take the assessment. This assessment helps the participant to gain a clear and comprehensive understanding about the topic which has been taught
e-learning	• Via network, content for general reading and for reference PPT and PDF formats will be provided r simulation process will also be featured	• "TRY-NOW" is a facility to perform the lab exercises. Participants after they complete the course can use this facility to take the assessments.	• e-learning also supports the assessment process, the participant needs to take the pre- assessments and post – • assessment, which will help in evaluating his/her capability

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IFMIS E-Learning Application

- As a part of the scope of the engagement Dhanush also adapts a ELearning approach for delivering the training.
- E-learning comprises all forms of electronically supported learning and teaching.
- Essentially the objective is to provide the trainee, out-of-classroom and in-classroom educational experiences via technology.
- It facilitates the enhancement of student participation and managing the virtual classroom in a more effective manner.
- The approach adapts a computer and network based transfer of knowledge and skills.
- It can be self-paced or instructor-led and includes media in the form of text, image, animation, streaming video and audio.

High Level ELearning Process Flow



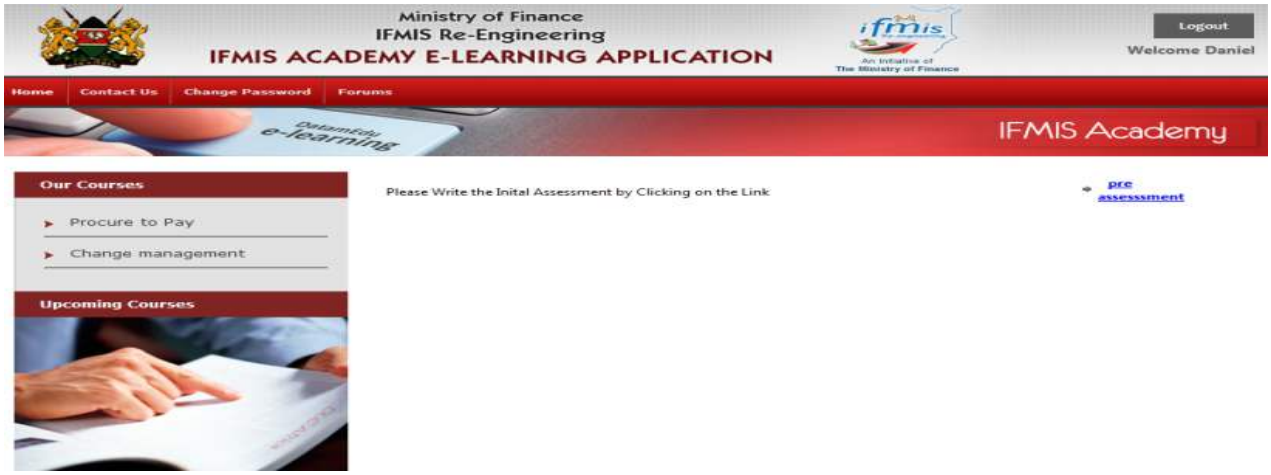
Pre training assessment

Assessment of the activities performed is crucial for the successful implementation of the program. Perceiving capacity of different trainees are different. Pre training assessment helps us in making the learning pattern more uniform.

These role based assessments are designed to analyze the initial skill level of the trainee.

When the trainee uses the E learning application for the first time the below screen appears to guide him to take the mandatory Pre training assessment

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Course content delivery

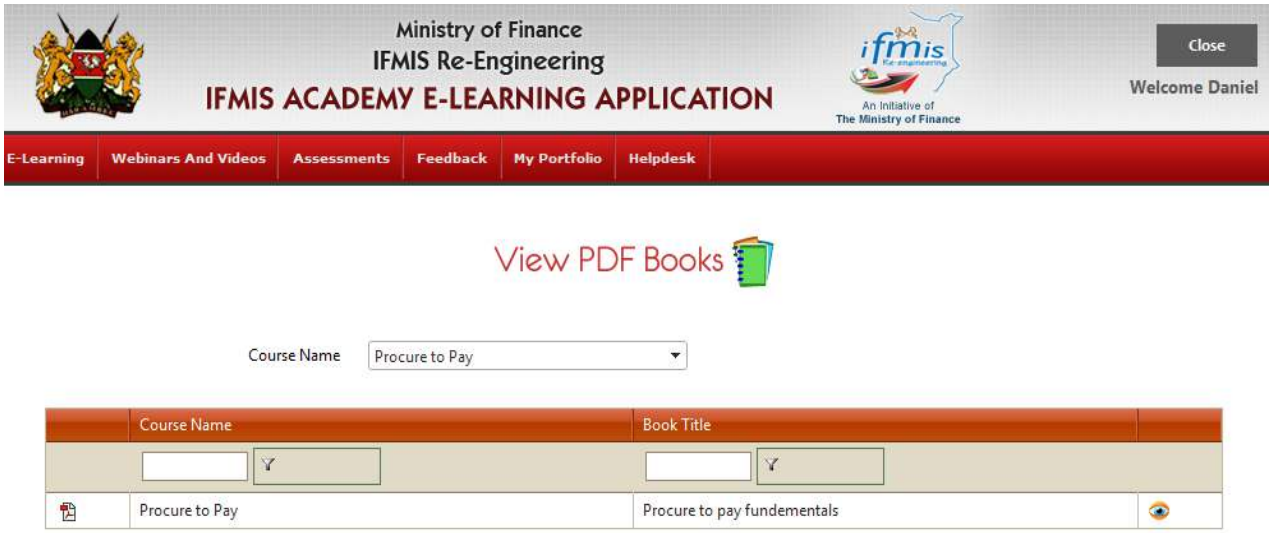
- The course content delivery is in three forms
  - E books meant for online learning are an electronic version of a traditional print book that can be read by using a computer or by using an eBook reader embedded in the application.
  - The application enables options similar to those of a paper book - readers can browse through the table of contents, bookmark pages etc.

Ex:



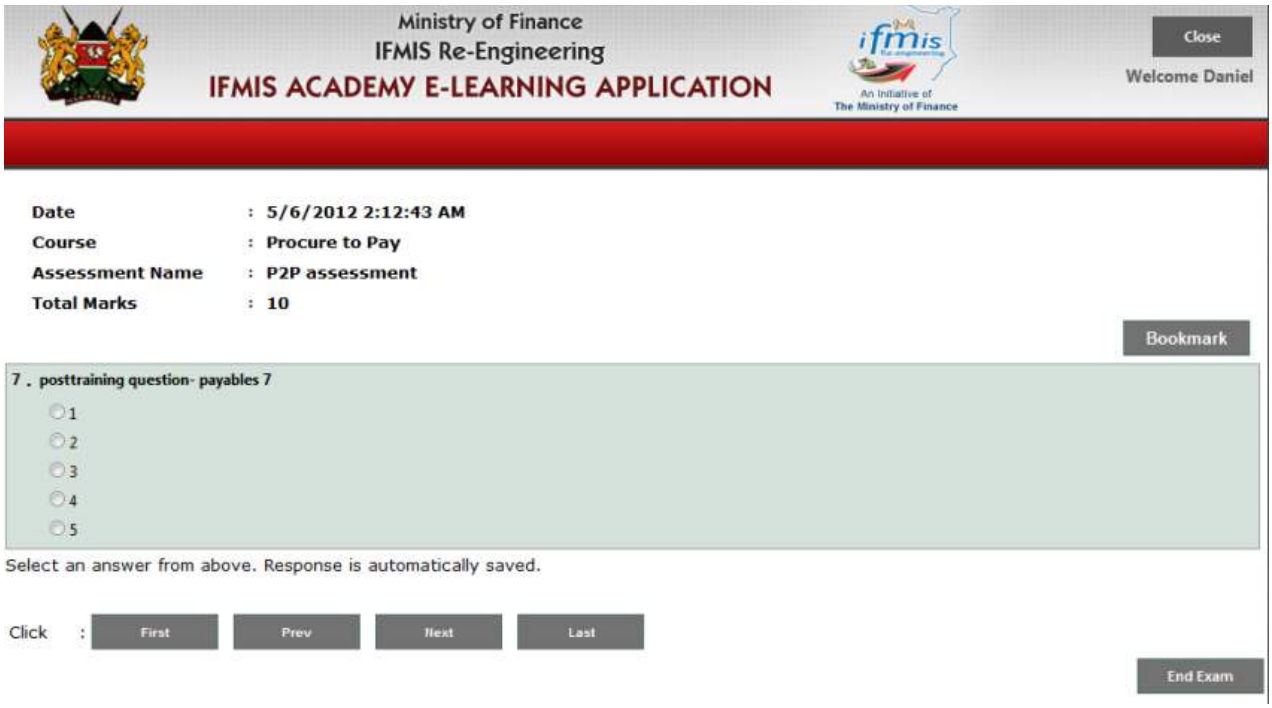
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PDF books are for offline learning and are a repository of the complete course content for the trainee. The PDF books encompass the view/download/print functionality for the trainee



Post training assessment

- Post training assessments are designed to gauge the skill level of the student after his training.
- The trainee's undertake online multiple choice based assessments as a part of their complete training.



Reports

- The E learning application monitors the performance transition of the trainee before and after the training. The approach helps the trainee/trainer to have a systematic evaluation of assessments over the tenure of the training
- Performance Management system focuses on constant improvement and creating value out of the training provided. This is achieved through assessing the employee from pre-training to the post training stage.
- This not only facilitates the Trainee's but also helps the IFMIS academy gauge the skill of their workforce through a logical approach.



Additional Functionalities

- Apart from the above mentioned features the application also features helpdesk, forums and feedback facility designed to bring a unique blend of independent news, information and interactivity among the end users
- It's scope covers both help desk for software and management issues, as well as specific discussion areas among the fellow trainees to have a fertile ground for the exchange of both ideas and information, ultimately beneficial to all end users.



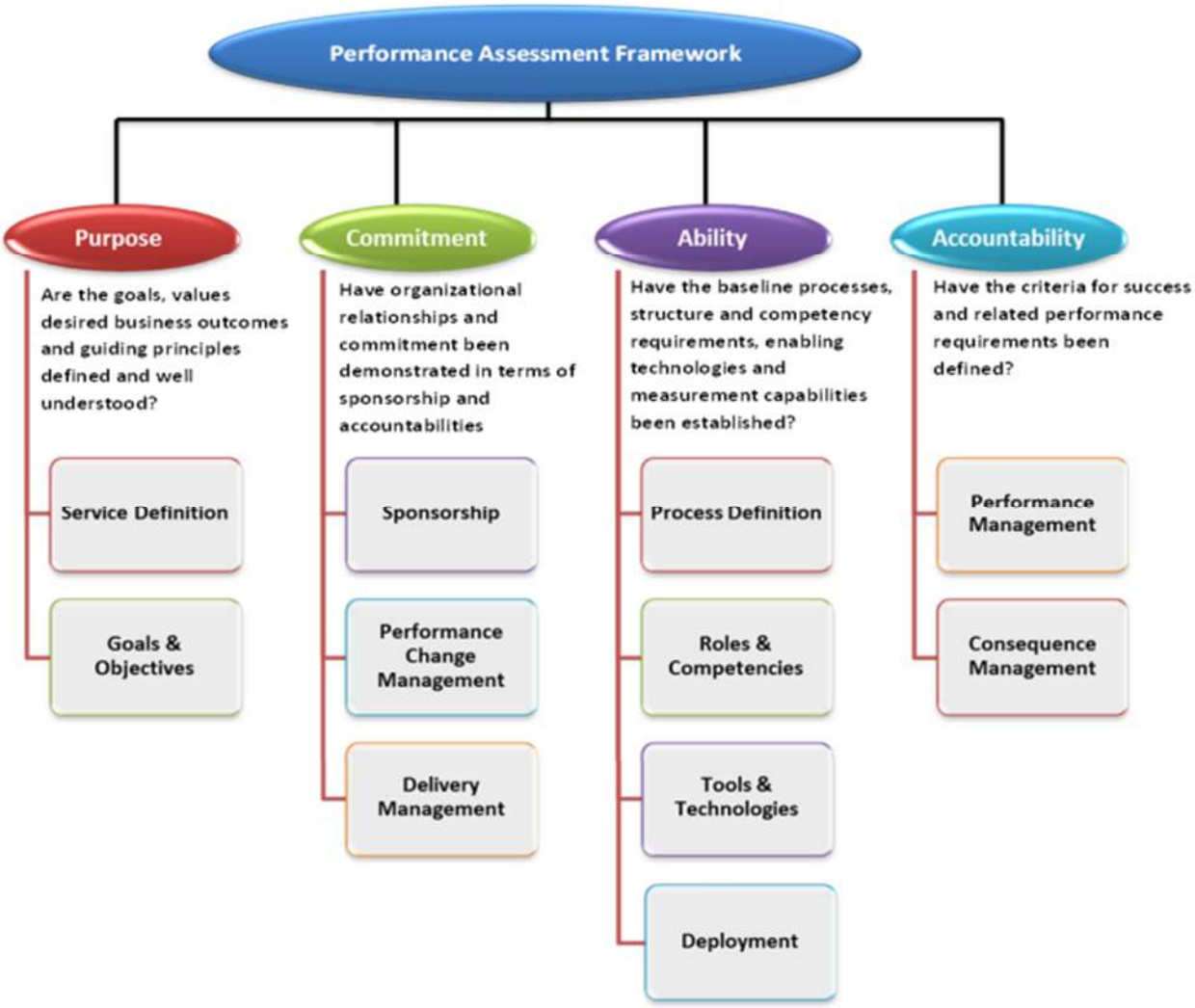
Project Execution Approach

Phase III: -Performance Assessment Approach

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- Dhanush ELearning Management System has developed a comprehensive performance management system based on Employee Assignment details, Training Programs and Competency & Performance Assessment which is tightly integrated with the LMS portal Dhanush ELearning Management System.

Performance Assessment Framework



The above diagram depicts:

- The performance management system is a tool to measure the employee's efficiency. It will focus on user's training performance. There is a three step method to performance management system consisting of a process where by
- The pre-test assessment will be conducted on the user, where by the along with the functional assessment his/her purpose, in internal goals, objectives and his present commitment levels will be evaluated. This process is called assessing on the Current Competency Level (CCL)
- The next step is training the end-user with the necessary requirements. Over here enabling the end-user to understand the benefits of the training and expanding the competencies required to perform the job.

- The post-test assessment is conducted to evaluate the efficiency and effectiveness of the end-user. His/her accountability to performance and excel are measured. This process is called Proposed Competency
  Level(PCL)
- Performance Management system focuses on continuous improvement and creates value, a process of learning and development perspective. This is achieved through assessing the employee pre-training and post training and the incremental productivity is gauged.
- Government of Kenya (GoK) can use these values (which come through the assessments) as a parameter in the Key Result Areas of the employees' personal development plans.

L.B.O.

IFMIS Training to 5,000 Officers in National Treasury – Republic of Kenya

REPUBLIC OF KENYA
THE NATIONAL TREASURY

Telegraphic Address: 315779
FINANCE - NAIROBI
Telephone: 2252299
When replying please quote

THE TREASURY
P. O. Box 30007
Nairobi
Kenya

Ref.No. MOF/IFMIS/1/13

July 18, 2014

TO WHOM IT MAY CONCERN

DHANUSH INFOTECH KENYA - LETTER OF RECOMMENDATION

This is to certify that Dhanush Infotech Kenya has been our principal solution provider Technology partner.

They have successfully offered the following services to the National Treasury over the last two years:

- **Training on Change Management;**
- **Training on Oracle EBS, modules like i-Procurement, Procure to Pay, Plan to Budget, Record to Report & Revenue to Cash;**
- **Training through best Learning Management System for collaborative learning;**
- **Procurement of Oracle Licenses.**

They have further trained more than five thousand (5000 No.) officers from National and County Government.

We take this opportunity to assure you that we are extremely satisfied with the methodology and approach taken by Dhanush InfoTech Limited for training our employees on Oracle EBS.

We would highly recommend them to you for training especially on Orable EBS and other technological services.

Jerome Ochieng
Ag. DIRECTOR, IFMIS

ISO 9001:2008
Certified.

L.B.O.

IFMIS Training to 5,000 Officers in National Treasury

REPUBLIC OF KENYA

THE NATIONAL TREASURY

Telegraphic Address: 315779
FINANCE - NAIROBI
Telephone: 2252299
When replying please quote

THE TREASURY
P. O. Box 30007
Nairobi
Kenya

Ref: MOF/IFMIS/1/13

26th January, 2015

TO WHOM IT MAY CONCERN

RE: DHANUSH INFOTECH KENYA – LETTER OF RECOMMENDATION

This is to notify you that Dhanush Infotech Kenya has been our Principal Solution Provider, Technology Partner for training

They have successfully offered the following services to the National Treasury over the last three years:-

i) Training on Change Management;
ii) Training through best Learning Management System for collaborative learning;
iii) Procurement of Oracle Licenses;
vi) Training on Oracle EBS, modules like:-
   a) i-Procurement,
   b) Procure to Pay,
   c) Plan to Budget,
   d) Record to Report and
   e) Revenue to Cash.

They have further trained more than five thousand (5,000) officers from National and County Government.

We take this opportunity to assure you that we are extremely satisfied with the methodology and approach taken by Dhanush InfoTech Limited for training our employees on Oracle EBS.

We would highly recommend them to you for training especially on Oracle EBS and other technological services.

JEROME OCHIENG
Ag. DIRECTOR, IFMIS

L.B.O.

SECTION:4

TECH-3: Comments and Suggestions

L.B.O.

FORM TECH-3: COMMENTS AND SUGGESTIONS

Form TECH-3: The Bidder should provide comments and suggestions on the Terms of Reference of the services to be provided by the bidder as per the Section 5 of this RFP document by Procuring Entity that could improve the quality/effectiveness of the assignment; and on requirements for the timely Development of KENYA EDUCATION MANAGEMENT INFORMATION SYSTEM (KEMIS), which are provided by the Procuring Entity, including: administrative support, office space, local transportation, equipment, data, etc.

A - On the Terms of Reference

i. Primary Bidder: The Konza Technopolis Development Authority already has an existing Expression of Interest Framework for the Konza National Data Center and shall in the interest of the RFP, enjoin the other partners into its IT Partnership ecosystem.

ii. Key Experts : During the Contract Key Experts listed in the proposal could separate from various entities , the Primary bidder shall upon separation of a key expert , or in requirement of a particular expertise shall notify in write to Moe, BE on the replacement as per the requirement of the proposal for inclusion or removal.

B - On Counterpart Facilities

i. Administrative Support"

a. The MoE to provide coordination and inclusion for data integrators within the Education Sector or other Ministries, Agencies, Counties and Departments such us Civil Registration, National Registration Bureau, Counties, MoH, National Council of persons with Disability, Office of the Auditor General, Financial Institutions, National Treasury, Development Partners, Officer of the Prime Cabinet Secretary among others.

b. Provide transport, airfare, conferencing cost and requisite subsistence allowance for any experts required in the requirements gathering, testing, acceptance, benchmarking, inception activities.

c. Provide Baseline Data or Reference Architecture Issue:

- Provide annexes with:
- Current EMIS/NEMIS architecture (or system gaps)
- Number of institutions by level and type
- Technical constraints (internet coverage, server locations)
- Sample datasets or dashboards for replication

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d. Other:

i. Office Space: Furnished Office Space of at least 20 staff
ii. Local Transportation: Provide adequate Vehicles during Project implementation
iii. Equipment: Projector and Video Conferencing in the Office facility provided.
iv. Data: Leaner database, Finance database, Institution database, Quality Assurance data, Workflows from each module, Internet Connectivity data, GPS coordinates, Assessment Data.
v. Background Reports: Report formats for all required modules and deliverables, all Educational Management Information Systems Reports, School Management System Reports, Documentation and formats for all NEMIS and EMIS systems.
vi. Counterpart Staff:

The MoE to provide lead users as counterparts for the implementation of the following deliverables

1. Development of KEMIS (ECD Education system, Basic Education - EFMIS, TVET Education – EFMIS, High Education – EFMIS, Teachers Web and Mobile Applications, Parents/Students/Alumni Web and Mobile Applications
2. Kenya Education & Financial Management Information System
3. Certificate Signing & Verification"
4. "KEMIS Core from ECD, Basic, TVET, Higher Education and Research and Innovation), AI, Data Warehousing, BI, Helpdesk & Contact Center Management System
5. Biometric, Data Layer (School Registry, Teacher Registry, Student Registry, Asset Registry. Shared Education Records)
6. Financial Resource Management & Reconciliation
7. Hosting Infrastructure (Servers, Storage, Virtualization, Monitoring, Installation, managed services etc)
8. End User Devices
9. Security
10. Internet connectivity

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SECTION:5

TECH-4: Description of Approach, Methodology, and Work plan

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TECH 4: Description of Approach, Methodology and Work plan

Scope of work is deduced from the requirements provided by KoTDA. The purpose of this proposal for Provision of Integrated Kenya Education Management Information System (KEMIS) for the Proposed Ministry of Education, State Department for Basic Education.

Scope Inclusions

Comprehensive Education and Financial Information Management ecosystem with the following core components:

- **Systems Analysis and Requirements**
  - Conduct a detailed needs assessment across all existing education information systems.
  - Identify functional strengths, weaknesses and gaps
  - Develop comprehensive Business Requirements Document (BRD) to guide the system development process.
- **Core System Development and Implementation**
  - Design and implement a robust, scalable, and secure KEMIS platform that supports
    - Learner registration and tracking across education levels
    - Teacher records and professional development tracking
    - School infrastructure and facilities database
    - Education financing and resource management
    - Curriculum delivery, assessment, and performance tracking
    - Integration with national identification systems (e.g., Huduma Namba)
    - Interoperability with existing and third-party systems (e.g., NEMIS)
  - Below are the list of Modules in Education ERP System covering Early Childhood Education, Basic Education, TVET, and Higher Education.

    1) Institution Management: Capture registration and physical details of institutions.

    a) **Institution Registration:** Register institutions with the Ministry and assign a unique institution code (IUC).

    b) **Utilities Tracking:** Capture utility details such as electricity, water, internet, and sanitation.

    c) **Co-Curricular Activities:** Record co-curricular activities, participation year, and achievement level.

    2) Academic Module:

    a) **Class & Schedule Management**

    - Manage class schedules, room assignments, and teacher allocations.
    - Generate and manage timetables for students and teachers.

    b) Student Enrolment & Class Rosters

    - Track student enrolment and generate class rosters.

    c) Course & Curriculum Management

    - Manage course offerings, including descriptions and prerequisites.

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- Maintain curriculum content and learning objectives.
- Support curriculum updates and revisions.

d) Assessment & Grading

- Manage assessments, including exam scheduling and grading.
- Track student performance and generate assessment reports.
- Maintain gradebooks for teachers.

e) Student Reporting: Generate report cards with grades and comments.

f) Certification: Issue and authenticate academic and extracurricular certificates.

3) Management Module:

a) **Monitoring:** Real time monitoring and reporting system based on school information and its historical data

b) **Tracking:** Geo tracking authentication for attendance and end to end tracking from ground reality on click basis.

c) **Customized Dashboard:** Digital dashboard can be customized as per institute basis which has controls from all the departments and can be monitored on real time basis.

4) Finance Module:

a) Fee Management:

- Dues Management, graphical representation of modes of payment. Month wise, day wise and term wise fee collection.
- Management of account payables and receivables.

5) Admin Module:

a) **Registration:** Role based access and all the users registered have their respective login profiles with personalized dashboards and their designated responsibilities

b) **Course Creation:** Number of courses can be created followed by the creation their respective batches and scheduling of the same based on the timetable.

c) Set up of users, courses, security & Access policies

6) School Feeding Module

a) **School Meals Monitoring:** Track and monitor food distribution and meal program implementation in public primary schools.

b) **HQ Approval & Procurement:** Simulate food quantity needs, manage budget approvals, capture bid awards, and handle supplier deliveries.

c) **Sub-County Distribution Management:** Record waybill details, receive food at sub-county level, allocate food by term, and manage distribution logistics.

d) **School Meals Management:** Track food receipt, calculate daily rations based on attendance, and manage food preparation logistics.

e) **Cash Disbursement Management:** Disburse funds based on learner enrollment and per-child rates.

f) **Reporting & Oversight:** Provide administrative and management reports for the school meals program.

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7) **Examination Module:**

a) **Online Examination:** Digital capturing of answer sheets that can be retrieved in multiple formats with the ability to conduct and report the examinations that maybe subjective or objective.

b) **Automatic Evaluations:** Ability to evaluate subjective and objective examinations automatically. These are time bound and scored with their reports being auto generated.

8) **HR Module:**

a) **Payroll:** All the details of the teachers, administration staff and personnel will be configured according to which their payroll processing will be done.

b) **Leave Management**: Different types of leaves can configured along with their allotment and their applications as per the norms of the institute. Holidays will also be mentioned for reference.

c) **Front Office**: Visitors, guests, parents and other reception related activities like early pick up or drop will be tracked through this function

9) **Learning Management System Module:**

a) **Virtual Classroom** – Student engagement with school, teacher and administration, virtually in one platform, hands free experience through online classes can be integrated with their recordings for future reference.

b) **Communication** – With LMS messaging function, users can easily communicate through various features such as text messages, forums, group discussion panels, audio/video messages as well as receive notifications of the same. In and out communication between student, parents and teachers

c) **Content** – Course content can be viewed and uploaded in multiple formats that can be time bound or viewable at all times.

d) **Timetable** – This module provides entire curriculum timetable scheduled for each class-section-period wise as decided by the management. Staff/Student attendance, daily diary and dropout students are also linked.

10) **Inventory Module**

a) **Vendor Management:** This feature allows to add vendor by mentioning PAN, contact and email with item wise lists, sales and supply of items towards the architecture of the school.

b) **Inventory Management:** Request for purchase, Purchase order, receiving of supplied items physical asset verification and reporting.

11) **Reports Module**

a) **MIS Reports**: All the student performance related reports and fee receipts can be generated through this module

b) **Course and Program Outcome:** Platform or institute configured CO, PO pattern reports can be generated.

c) **Attendance Reports**: Daily, monthly and annually attendance for students and staff can be auto generated and also attendance alerts will be provided to parents or guardians.

12) **Other Modules**

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a) **Library Management:** Bulk upload of all types books with barcode scan, inactive book record, editing of book details, generate new book additions to the platform.

b) **Transport Management:** Graphical representation of number of students availing transport with reports available like Class wise, route wise , vehicle information, drop and pick time slabs, vehicle trip attendance and driver information.

c) **Placement Cell**: Management of the entire placement process for students, that includes starting from registration to the final offer.

d) **Hostel Management:** Hostel admissions management, Mess management, Hostel Room Allocation and administration

e) **Cafeteria Management**: Allows the inflow of stock through integration with inventory module and selling along with receipt generation.

- **System Integration and Data Exchange**
  - Design and implement education data exchange protocols for:
    - Institutional ERPs and custom systems used by universities and polytechnics.
    - Government education agencies including KNEC, KUCCPS, KNQA, KEC, JKF, SEPU, TSC, KISE, and KEMI.
  - Develop a secure Data Bus (API Gateway) to support integration with diverse data formats (relational, NoSQL, flat files).
  - Deliver a developer portal for third-party system access to KEMIS services.
- **Digital Platforms and Applications**
  - Develop web and mobile applications for teachers, students, parents, and alumni to access and interact with education data and services.
- **Identity and Access Management**
  - Implement a national biometric-based identity management system for students and teachers.
  - Enable Single Sign-On (SSO) and Multi-Factor Authentication (MFA) across the ecosystem.
- **Business Intelligence and Reporting**
  - Develop data warehousing, reporting tools, dashboards, analytics, and AI-driven insights for evidence-based planning and decision-making.
- **Certification and eLearning Integration**
  - Provide a system for academic certificate signing and verification.
  - Integrate with KICD eLearning platforms and digital content management systems.
- **Financial Management System**
  - To deliver a comprehensive Financial Management System covering:
    - Account Management
    - Payables and receivables
    - Budgeting and expenditure tracking
    - Procurement and payroll
    - Capitation, scholarships, bursaries
    - Fund transfers and bank reconciliation

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        - Wallet and payment gateway integration
        - Reporting and exception handling
- **Education Administrative system**
    - Develop integrate modules for
        - Student information management
        - Parent notifications and reporting
        - Document and file management
        - User roles, permissions, and audit trails
        - Fee structure management
        - Payment processing
        - Regulatory compliance
- **Registries and Record Systems**
    - Develop registries for students, teachers, schools, assets, and biometric data as central sources of truth.
    - Maintain shared education records accessible across the ecosystem.
- **Infrastructure, Connectivity, and Devices**
    - Provide necessary infrastructure for hosting and operating KEMIS efficiently.
    - Ensure internet connectivity to all education institutions and ministry offices.
    - Supply end-user devices for institutions.
- **Security and Resilience**
    - Implement robust security mechanisms including:
        - Data backup, archiving, and cyber resiliency
        - Use of digital certificates, firewalls, WAF, DDoS protection
        - Endpoint security, monitoring (Security Operations Center - SOC)
        - Load balancing and overall system protection
- **Capacity Building and Training**
    - Train users at all levels, including technical teams/ system administrators and heads of institutions, for system adoption and sustainable use.
    - Include training on system usage, administration, and security practices.
- **Helpdesk**
    - To support users across institutions, KEMIS includes a centralized helpdesk system. It provides technical and operational assistance to administrators, educators, and learners, thereby improving user adoption and experience.
- **Application Support & Maintenance**
    - To ensures the ongoing performance, reliability, and security of deployed systems through regular monitoring, issue resolution, and updates. It includes bug fixes, minor enhancements, and user support, with a dedicated helpdesk to minimize downtime and ensure smooth operations.
- **Software Licenses**

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- Provision and manage all necessary software licenses, including third-party tools for analytics, certificate verification, and other essential system components.

Scope Exclusions

- Any changes/support, integration with any third party Applications
- Any Software license, hardware, installation, configuration and maintenance of hardware devices other than the ones mentioned in the scope
- Any request falling outside of the defined scope will be treated as an ad-hoc request and will be mutually agreed upon the effort involved
- Hardcopy of Training Manuals
- Any application installation/configuration/support/enhancements/maintenance, other than for the ones confined to the scope of this engagement

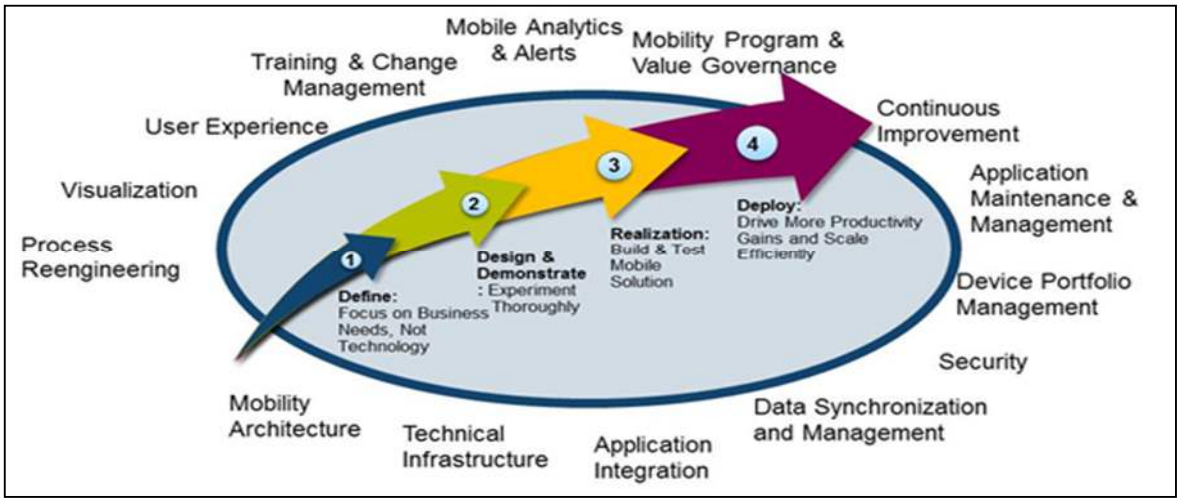
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Approach and Methodology

Dhanush uses its Customized Application Methodology as a foundation to deliver Web & Mobile Application. Approach addresses custom, object-oriented, and service-oriented development that will best provide incremental build and progress to address customer's concerns on the Application Scope and design. Approach enables Dhanush project teams to ensure application design in a well-defined and structured software engineering process that defines who is responsible for what, how things are done, and when to do them. This approach is an iterative process and has a well-defined set of objectives, which is producing a partial working implementation of the final system. Successive iterations build-on the work of preceding iterations.

Guiding Principles of Web & Mobile Application approach are:

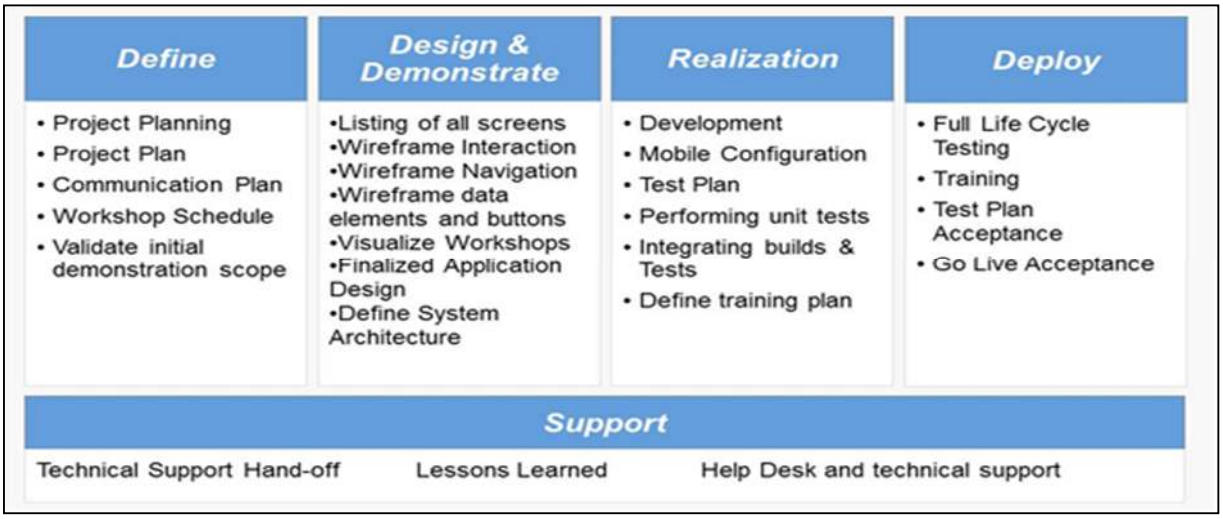
- Develop a Vision
- Managing to the Plan
- Mitigate Risks and Track Related Issues
- Examine the Use Case to obtain a true foundation
- Clearly understand what the system must do (in a delivery agnostic way)
- Create abstractions that support those delivery agnostic use cases
- Create a with system whose structure is based upon its intent and not on some framework
- Design a Component Architecture
- Incrementally building and testing of the final solution
- Regularly Assess Results
- Manage and Control Changes
- Deploy a Usable solution
- Adopt a Process that Fits customer's Project



The project approach will build momentum through Dhanush and customer's collaboration to quickly resolve trade-offs associated with schedule, cost, scope, and risk.

Dhanush will leverage the below Framework approach for KoTDA to support them during the engagement. Our key is open collaboration, which promotes healthy sharing of ideas, and fosters innovative thinking

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The below table depicts the phase-wise approach and Plan of Dhanush towards development of KoTDA desired Web development solution:

Phases	Task
Requirements Gathering and Analysis Phase	1. Business Requirements Analysis 2. Technology Stack and Technical Solutions & Approach 3. System Requirements documents 4. UI, UX and High Level
Design Phase	1. Business process flows and simulation 2. System architecture and Data Architecture 3. Interface architecture and initial design 4. Coding and Unit Testing
Build and Deploy/development Phase	1. Application development as per Business requirements 2. Best Practices followed and documented 3. Code Transition to KoTDA's IT Team. 4. Deploy the applications for UAT
UAT Phase	1. User Acceptance confirmation & Project closure

Phased Technical Deliverables

- Requirements gathering and Analysis Phase
  - Business Requirement Analysis
  - System Requirement documents
  - UI and UX and High Level Design Document
  - Data Modeling and design
  - System Test Plan
  - Revised Cost Estimate
- Design Phase
  - Technical Design Phase
    - ✓ Technical Approach Document signed and agreed by KoTDA's IT Team

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- ✓ Coding and Design Guideline
- ✓ Deployment Environment identification and Setup

  - Functional Design Phase
  - UI Mock-ups (Across all Modules) signed and agreed by KoTDA's Business Users
  - Business Process flow document signed and agreed by KoTDA's Business Users

- Build and Deploy/development Phase
  - Coding – Each User Interface, use case and associated workflow
  - Unit Testing
- UAT Phase
  - System Testing
  - Bugs / Issue identification and resolution
  - UAT- User Acceptance Testing
  - Release

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Standard Operating Process for Each Phase of the Project Cycle

Development Projects

The below table describes the different phases with the detailed process. The phases can be tailored/modified as per the project needs. All the development projects will follow milestone based development methodologies with below mentioned milestones. Redmine tool will be used to track all the phases of the development lifecycle.

As part of the process, for timely completion of the deliverables and project, the timelines for all the below phases / process will be agreed during the Project Planning phase by Dhanush and the customer.

Process	Prerequisite	Detailed Process	Deliverables from Dhanush	Approval Mechanism
Elaboration	Signed Contract/ SOW from the customer	• Customer will share the detailed requirements document to Dhanush • Dhanush will analyze the requirements and discuss / clarify with the customer • Details of the discussion should be captured in a document and shared with all the stakeholders after each meeting. • Requirements Document shall be prepared by Dhanush based on the Inputs (Written, verbal, Documents) given by customer. • Requirements document shall be reviewed and signed off by the Customer within 3 (three) working days of submission by Dhanush. • Signed off Requirements will be known as Baselined Requirements Document, which will form the basis for the Project execution • Any changes to the requirements will have an impact on timelines and	• MOM of each meeting • Detailed requirement document	• Approval from the customer on the requirements which will be captured in the BRD

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		attracts the Change management Process		
BRD Phase	Elaboration completed and all detailed requirements captured	• Dhanush will prepare the BRD in the agreed format and share with the customer for review • If there is any review comments/changes, Dhanush will incorporate the same and send it for approval	• BRD	• BRD Approval from the customer in physical or electronic format
Project Planning Phase	Signed off BRD	• If milestone timelines are not captured in the contract document, Dhanush will publish the Project Plan covering all phases of the development lifecycle • The development will start once the BRD and Project Plan are approved and signed off by the customer • Any changes in the requirements (BRD) or timelines after sign off will go through a normal Change Request (CR) process	• Project Plan	• Project plan approval from the customer
Development Phase	Signed off BRD and Project Plan	• Dhanush will set up the development servers as per the contract and start the development process • There will be daily /weekly/ monthly calls with all the stakeholders as agreed by Dhanush and the customer to discuss on the progress and resolve any dependencies or issues • Dhanush will show the demo on the development progress to the customer in a periodic manner	The following will be delivered as applicable • Test Scripts • Test Reports • Technical Manual • Design Document	• Approval from the customer for test scripts and test report • Approval on the final demo and movement to the Pre-Prod environment to start the UAT

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		• Weekly status report will be shared by Dhanush at the end of every week		
UAT Phase	Customer Approval for UAT Movement	• Once the development is completed and QA testing passed and approved by the customer, Dhanush will move the build to Pro-Prod server to start the UAT by the customer • Any help required during the UAT will be provided by Dhanush • Any issue(s) reported in UAT after the Sign off will be handled by the support contract as agreed in the current signed TOR/Contract	• Test Scripts, as applicable	• UAT Sign off the by the customer for Production Movement
Milestone Sign Off	Application deployed in Production	• Once the UAT has been signed-off the deliverables can be moved to Production server • After the deliverables are moved to production server, the customer will check and sign off the production movement / Milestone • Any issue(s) reported in Production after the Delivery Sign off will be handled by the support contract as agreed in the current signed TOR/Contract	• As per the contract, Dhanush will provide all the deliverable documents such as BRD, Test Scripts , source code etc., to the customer	• Delivery Sign off by the customer
Invoicing	Delivery Milestone Sign Off by the customer	• Once all the deliverables are signed off by the customer, Dhanush will initiate the Invoice for the completed milestone(s) • In case there is a delay in Production Movement from the customer side, Dhanush can raise the invoice after	• Delivery Sign off OR UAT sign off (as applicable)	• Invoice Sign off for Payment processing by the customer

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		UAT sign off with all the required deliverable documents		
Change Request (CR) Process	CR document from the customer	• During the development phase, any requirement changes will be considered as a CR which are not indicated in the BRD • Customer will share the changes in the CR format to Dhanush for analysis • Effort estimation long with a BRD for the changes will be shared with the customer for approval • Based on approval, the changes will be taken up by Dhanush • The contract value might be revised based on the effort required for the CR. In that case customer will need to send a revised sign off contract to Dhanush to start the CR implementation	• BRD for the CR	• Signed off BRD from the customer • Revised contract

Note : Any Documents , Clarifications, Test Cases, Test Results or any Project Artefacts submitted for approval, details or clarifications from Customer, shall be responded within 3 (Three) Working days, if not, it will be deemed to be accepted or approved. In case of clarification sought, if there is no response from customer within 3 (Three) workings days, it is assumed that, there is no clarification to be provided by the customer.

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Support Projects

The below table describes the different process to be followed while executing any support & maintenance project. The phases can be tailored/modified as per the project needs.

- For tracking any issue raised by the customer, Redmine tool will be used
- For tracking the attendance of each team member, Dhanush in-house product “Smart Presence” will be used

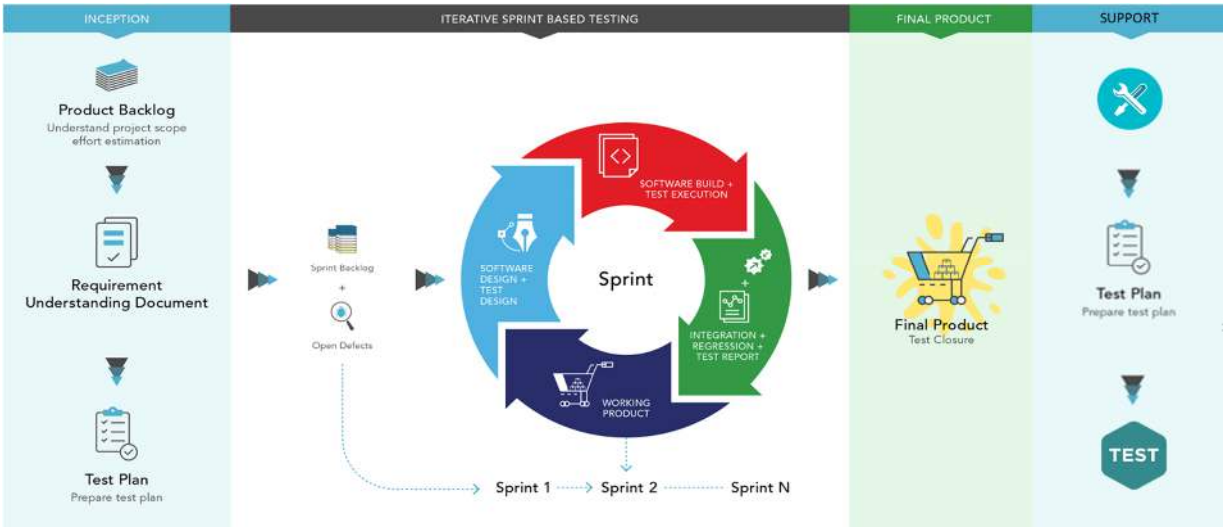
As part of the process, the below process needs to be agreed during the contract sign-off phase. It is assumed that all the support and maintenance projects will follow the T&M model.

Process	Responsibility	Remarks / Detailed Process
Issue reporting	Customer	• All the issues will be reported by the following mechanism a. Creating a ticket in Redmine b. Sending an email to the support email id • The issues reported will be on the current functionalities. Any enhancements requested will be out of scope for the support team.
First Response	Dhanush	• After receiving the issues in Redmine or support email, Dhanush will respond / acknowledge the same. • The response will be sent in email or by updating the ticket in Redmine • If required, a discussion might happen between Dhanush and the customer to discuss the issue in details
Service Level Agreement (SLA)	Dhanush	• If there is an SLA defined in the contract, Dhanush will respond and resolve the issue as per the SLA
Final Resolution of the issue	Dhanush	• Dhanush will update the ticket based on the workflow defined in Redmine • All stages of the ticket will be updated in Redmine • Once the issues is resolved, the same will be updated to the customer in e-mail or Redmine ticket update
Invoicing	Dhanush / Customer	• Dhanush will raise the invoice in the first week of the subsequent month for the work done in the current month • The calculation of the invoice amount with be based on the attendance of the team in Smart Presence • The customer should validate and clear the invoice as per the payment terms

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Software Quality Assurance

Dhanush defines Software Quality Assurance (SQA) as a planned and systematic pattern of all actions necessary to provide adequate confidence that the product or service conforms and adheres to established business/user requirements. Dhanush ensures that stringent quality measures are adopted and measured on a consistent basis throughout the engagement.



Testing and UAT Process

Dhanush shall adopt following Testing process during development of Web/Mobile based Application.

- Functional Testing
- Load / Performance Testing
- Automated / Regression Testing
- Integration Testing
- System Testing
- User Interface Testing
- Security Testing
- Compatibility Testing
- Accesibility & Compliance Testing

Functional Testing

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Functional testing is a quality assurance (QA) process and a type of black box testing that bases its test cases on the specifications of the software component under test. Functions are tested by feeding them input and examining the output, and internal program structure is rarely considered. Functional Testing usually describes what the system does.

Functional testing differs from system testing in that functional testing verifies a program by checking it against design document or specification, while system testing validates a program by checking it against the published user or system requirements"

Functional testing typically involves five steps

- The identification of functions that the software is expected to perform
- The creation of input data based on the function's specifications
- The determination of output based on the function's specifications
- The execution of the test case
- The comparison of actual and expected outputs

Load / Performance Testing

Load testing is the simplest form of performance testing. A load test is usually conducted to understand the behavior of the system under a specific expected load. This load can be the expected concurrent number of users on the application performing a specific number of transactions within the set duration. This test will give out the response times of all the important business critical transactions. If the database, application server, etc. are also monitored, then this simple test can itself point towards any bottlenecks in the application software

Performance Testing

Performance testing is in general testing performed to determine how a system performs in terms of responsiveness and stability under a particular workload. It can also serve to investigate measure, validate or verify other quality attributes of the system, such as scalability, reliability and resource usage. Performance testing is a subset of performance engineering, an emerging computer science practice which strives to build performance into the implementation, design and architecture of a system.

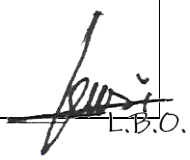
Regression Testing

Regression testing is any type of software testing that seeks to uncover new software bugs, or regressions, in existing functional and non-functional areas of a system after changes, such as enhancements, patches or configuration changes, have been made to them.

The intent of regression testing is to ensure that a change such as those mentioned above has not introduced new faults. One of the main reasons for regression testing is to determine whether a change in one part of the software affects other parts of the software.

Integration Testing

Integration testing (sometimes called Integration and Testing, abbreviated "I&T") is the phase in software testing in which individual software modules are combined and tested as a group. It occurs after unit testing and before validation testing. Integration testing takes as its input modules that have been unit tested, groups them in larger aggregates, applies tests defined in an integration test plan to those aggregates, and delivers as its output the integrated system ready for system testing.



System Testing

System testing of software or hardware is testing conducted on a complete, integrated system to evaluate the system's compliance with its specified requirements. System testing falls within the scope of black box testing, and as such, should require no knowledge of the inner design of the code or logic.

As a rule, system testing takes, as its input, all of the "integrated" software components that have passed integration testing and also the software system itself integrated with any applicable hardware system(s). The purpose of integration testing is to detect any inconsistencies between the software units that are integrated together (called assemblages) or between any of the assemblages and the hardware. System testing is a more limited type of testing; it seeks to detect defects both within the "inter-assemblages" and also within the system as a whole.

User Interface Testing

User interface testing is the process of testing a product's graphical user interface to ensure it meets its written specifications. This is normally done through the use of a variety of test cases.

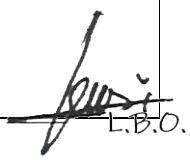
Security Testing

Security testing is a process to determine that an information system protects data and maintains functionality as intended.

The six basic security concepts that need to be covered by security testing are: confidentiality, integrity, authentication, availability, authorization and non-repudiation. Security testing as a term has a number of different meanings and can be completed in a number of different ways. As such a Security Taxonomy helps us to understand these different approaches and meanings by providing a base level to work from.

Compatibility Testing

Compatibility testing, part of software non-functional tests, is testing conducted on the application to evaluate the application's compatibility with the computing environment. Computing environment may contain some or all of the below mentioned elements



Training Methodology and Knowledge Transfer

Dhanush Training Methodology

Dhanush has developed a highly effective and proven training methodology that not only allows the users to become proficient in application nuances but also equips them with skills in mapping application business flows to business process flows.



Training Approach

Dhanush practices 'Train the Trainer' concept to train the key business users. The emphasis of this phase would be on getting the business users acquainted in application nuances and its usage.

KoTDA key users subsequently go and train the end users in their respective functional areas. This approach ensures that key users (who are already familiar with the application usage) train their peers in the medium which is conversant and easy to comprehend in alignment with the business convention. As part of change management process, key user's training helps foster expertise and ownership of the new system.

Dhanush imparts training to key users in following ways:

Training by working as a team

Throughout the project support phases, there is a lot of emphasis on teamwork with both Dhanush and KoTDA key users working together. Dhanush encourages key users to participate in all solution discussions, configurations and setups which results in better understanding of the application portfolio.

Formal Class Room Training

The training approach is based on 'Train-the-Trainer' concept. Dhanush team trains KoTDA key users on application usage and functionality during this phase.

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Application Usage Training

Application usage training is conducted using 'Train the Trainer' concept. All the key users will train the concluding users with Dhanush consultants backing-up the whole process. Dhanush will also extensively utilize other knowledge sources to impart training through the support engagement.

Value Addition from Dhanush

Dhanush would provide soft copies of training material, wherever applicable, during the course of the training.

Dhanush would also develop user manuals for end users on a need basis

Strategies for training and knowledge skills transfer

Provide details on how training will be conducted. Provide the course outline (in case formal training will be used), how assessment of both trainers and trainees will be carried out, duration of module(s) and prerequisites for that course.

Dhanush Knowledge Transfer Strategy

Dhanush uses **SmartPM (Dhanush Project Management/ Ticketing Tool / Document Management)** for Knowledge Management. Dhanush Support team will maintain Knowledge repository which will have all the pertinent project artifacts, intellectual knowledge and documentation which can be utilized and refined over a period of time. These can be broadly classified as:

- Project documentation
- Product/technology (in-scope) data sheets
- Training Manuals
- Incident/Problem logs along with resolution details
- Common Do's & Don'ts
- Best Practices repository
- Common errors repository per process
- Change/Release management notes
- Enhancements deployment notes
- Application patch notes



Dhanush support team will identify, extract and maintain knowledge from various knowledge touch points and phases during the tenure of the engagement using SmartPM. This knowledge will be distributed across various stake holders with emphasis on continuous service improvement.

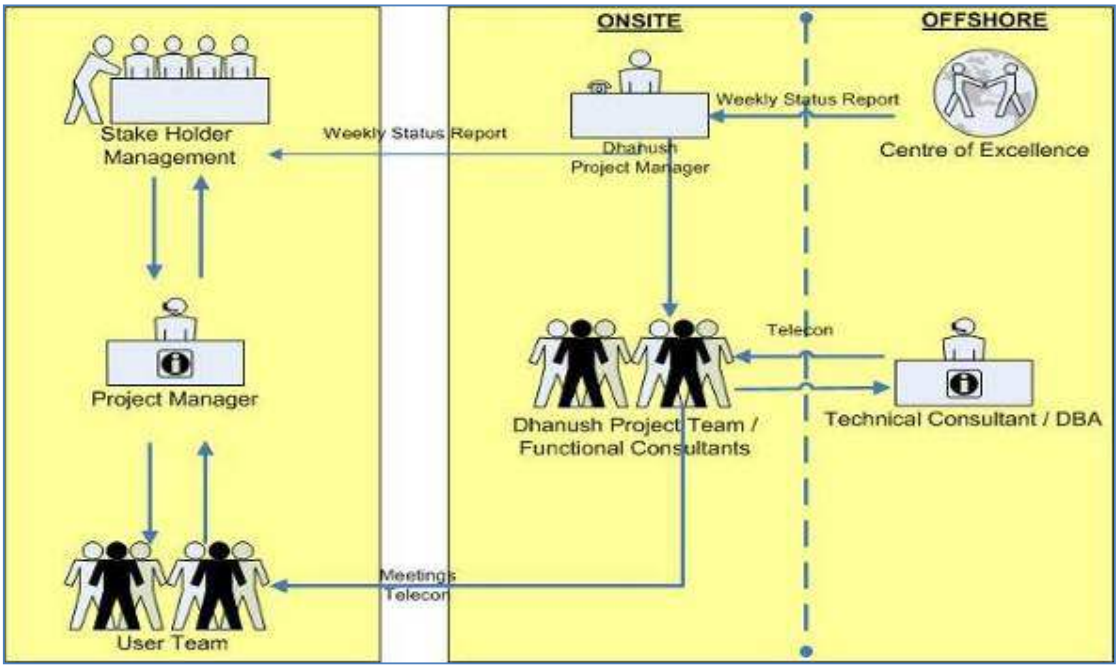
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Project Management Methodology

Project Goverance

Dhanush proposes following project Organization structure for this engagement, which will be finalized during project initiation. The structure is designed to handle right level of governance, quick issue resolution and escalation handling.

- Joint Program Management Office
- Dhanush Project Manager is responsible for the Delivery of the Whole Program along with KoTDA Program Manager
- Dhanush Project Manager will be the “Go- to” person for KoTDA
- Dhanush Offshore Delivery Manager will be responsible for all offshore deliverables
- Escalation points for KoTDA is the Dhanush Project Manager/Program lead



Any enhancements or changes to the approved specification at the end of the analysis phase would be outside the scope of this project. Dhanush would estimate enhancements as Project Change Requests to be reviewed, accepted, and prioritized for execution either during the project or as a separate phase after final project acceptance.

Communication Strategy

There are frequent pre-schedule meetings between the KoTDA IT team and the implementation team for constant feedback and identifying any concern areas and fix them at root. These include

- **Steering Committee Meetings:** The Steering Committee shall meet about once every month. The Project Managers of Dhanush and KoTDA shall jointly prepare and present the status reports to the Steering Committee. These may include reports on the summary of tasks completed, milestones achieved, unresolved issues, changes affecting the project, deliverables status etc.

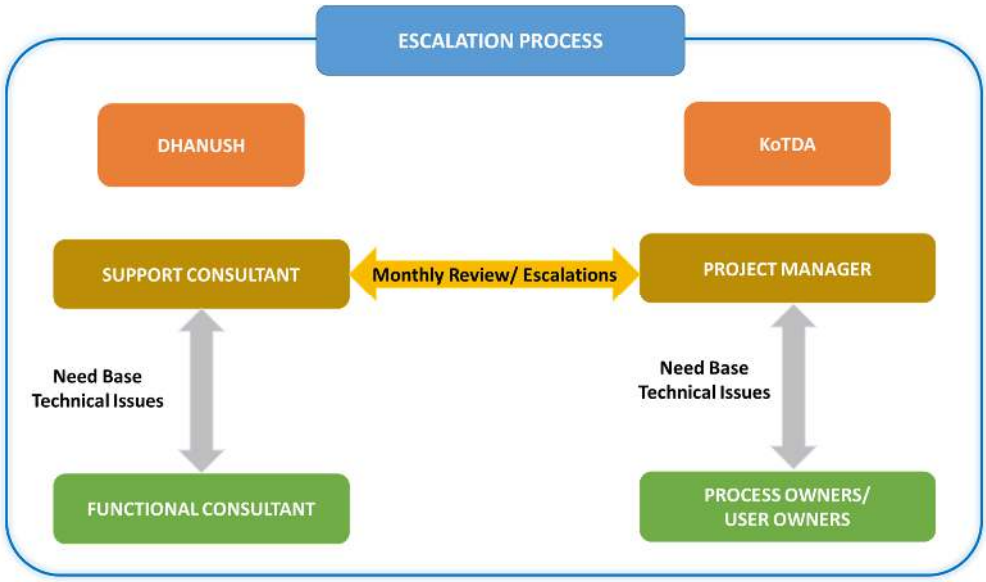
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- **Review Meetings:** Design and Document review meetings will be held as and when needed. Dhanush proposes to use WebEx/ Skype to conduct these review meetings. The participation of end users and process owners in KoTDA is crucial for the effectiveness of these meetings. Meeting minutes along with action items will be published by the Dhanush technical lead or onsite coordinator and sent to all the stakeholders.
- **Weekly Status Meeting:** Dhanush proposes to conduct a project status meeting every week. This meeting will primarily concentrate on the progress achieved in the past week, the plan for the current/next week, any issues that need resolution and other open items. The day of the week and the time can be agreed upon during the Final project plan stage. We encourage our customers to actively participate in these meetings / teleconference calls regularly. Meeting minutes will be published by the Dhanush project manager or onsite coordinator and sent to all the stakeholders.

Type	Schedule	Mode	Initiated By	Objective
Weekly Status Meetings	Weekly	Face-to-Face onsite and Telephonic Offshore	Dhanush PM	Standard status meeting with predefined agenda.
Design Review Meeting	Will be fixed during Project Initiation stage	WebEx/ Skype	Dhanush PM	For Design Discussions
Steering Committee meeting	Monthly	Teleconferencing/ Face to Face	Dhanush PD	To inform project team on CR's and other items

Escalation Matrix

All issues related to the project should be discussed and resolved between the Dhanush and KoTDA project managers. In situations where issues need to be escalated, KoTDA can contact Dhanush Project Manager for a quick resolution.



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Quality Management

On a periodic basis, Dhanush QA team will evaluate projects quality process with the objective of deciding whether the projects work products/tasks are meeting the implied or stated needs of the engagement. They will also assure KoTDA PMO that the solution is producing appropriate and acceptable work products and that the sum will equal "KoTDA" project objectives.

During this task Dhanush QA team will document the quality activities and any ongoing process that will be used during the Perform Quality Assurance task in the Quality Assurance Process component of the Quality Management Plan.

Quality Management Procedures

Dhanush will monitor specific project results throughout the engagement to determine quality standards compliance and ways to eliminate causes of unsatisfactory results. Dhanush will develop and document Quality Control and Reporting Process with details on quality process and tools which will be used for this engagement

Dhanush QA consultants ensure that the below mentioned quality factors are implemented, administered and maintained:

Quality Factor	QA Consultant Responsibility
Correctness	• Information/data accuracy, Up to date applications • Data Availability
Reliability	• Data Consistency
Efficiency	• Tools, resources needed to perform service tasks
Integrity	• Application/data security, User Access privileges
Usability	• Ensure that application/products perform as intended
Maintainability	• Incident and problem management
Flexibility	• Application/product adaptability enablement
Testability	• Application testing (Change and release management) • Maintenance of test cases, logs, diagnostics
Portability	• Ensuring system/application adaptability to other environments (hardware, software)
Reusability	• Application/product component reusability
Interoperability	• Ensuring application integration with other components/systems

Issue Management

Every project has issues that hinder progress. It is important that these issues are identified and resolved quickly by the right person. The first step in effectively dealing with these issues is to make the entire team aware of the importance of identifying issues and getting proper resolution. We will use the following procedure to track the identified issues:

- **Identify issues:** When the project begins, Dhanush and KoTDA will start identifying any issues that could hinder the ability to meet the objectives of the project. Issues can be identified by anyone involved with the project

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- **Assign responsibility for resolving issues:** The Dhanush and KoTDA management team will determine the appropriate individual who will be responsible for resolving each issue. The responsible person must be an individual who has the knowledge and authority to make decisions regarding the issue. The management team will also assign a priority to the issue
- **Monitor and control progress:** All issues will be tracked on an issues log that will be maintained to formally track the status and resolution of the issues. The issue log will assign a unique number to each issue and will record description, date entered, entered by, work track/project team affected, assigned to, priority, status, required resolution date, data closed, and resolution/action taken
- **Report progress on issue resolution:** As mentioned earlier, the issues log will be a part of the weekly status report and discussed in the weekly status meeting
- **Communicate issue resolution**: The issues log and documented resolutions of issues will be made available to all team members.

In the event that an issue cannot be resolved in a reasonable time frame, to the mutual satisfaction of Dhanush and KoTDA, we will determine a mutually acceptable approach to escalating it to the next level of management.

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Risk Assessment and Management Framework

Project risks are uncertainties, liabilities, or vulnerabilities that may cause the project to deviate from the defined plan. Every information technology project carries some element of risk; it is probable that progress will deviate from the plan at some point in the project life cycle. The objective of a risk management process is to minimize the impact of unplanned incidents on the project by identifying and addressing potential risks before significant negative consequences occur.

Risk management incorporates the identification, analysis, and management of project risk. After potential risks are identified, the purpose of risk analysis is to determine the time and cost relative to the project's exposure to risk. Risk management is therefore concerned with not only identifying risks, but also reducing risks to an acceptable level.

Risk Management Framework

Risk Management Plan

The organization-mandated risk management framework is reviewed and tailored to define the project risk management plan when the project is initiated. The risk management plan includes these definitions and guidelines:

- List of possible risk sources and categories
- Impact and probability matrix
- Risk reduction and action plan
- Contingency plan
- Risk threshold and metrics

Risk Identification

Risks are to be identified and dealt with as early as possible in the project. Risk identification is done throughout the project life cycle, with special emphasis during the key milestones.

Risk identification is one of the key topics in the regular project status and reporting meetings. Some risks may be readily apparent to the project team—known risks; others will take more rigor to uncover, but are still predictable.

The following tools and guidelines are used to identify risks in a structured and disciplined way, which ensures that no significant potential risk is overlooked.

- **Risk Sources**

Risk Sources	Description
Risk Repository	The risk repository is the history data containing the list of risks identified for completed projects. The risk repository can be used to arrive at a list of potential risks for the projects. This risk repository can also be filtered based on risk resources, categories and projects.
Checklist Analysis	The risk identification checklist is a questionnaire that helps identify gaps and potential risks. It is developed based on experience and project type.

Expert judgement	Risk identification is also done by brainstorming with or interviewing experienced projects participants, stakeholders and subject matter experts.
Project status	The project status includes project status meeting reports, status reports, progress reports and quality reports. These reports provide the current project reports, issues faced, and threshold violations. These projects insight into the status of the project and the potential new risks.

- **Risk Category**

Risk category provides a list of areas that are prone to risk events. The organization recommends high-level, standard categories, which have to be extended based on the project type.

Risk Category	Extended Categories
Technical	Requirements, Technology, Interfaces, Performance, Quality etc.
External	Customer, Contract, market, Supplier etc.
1Organizational	Project Dependencies, logistics, Resource, Budget, etc.
Project management	Planning, Schedule, Estimation, Controlling, Communication, etc.

Risk Analysis

Risk analysis involves examining how project outcomes and objectives might change due to the impact of the risk event.

Once the risks are identified, they are analyzed to identify the qualitative and quantitative impact of the risk on the project so that appropriate steps can be taken to mitigate them. The following guidelines are used to analyses risks.

- **Probability of Risk Occurrence**
  - High probability – (80 % ≤ x ≤ 100%)
  - Medium-high probability – (60 % ≤ x < 80%)
  - Medium-Low probability – (30 % ≤ x < 60%)
  - Low probability (0 % < x < 30%)

Risk Impact

- ✓ High – Catastrophic (Rating A – 100)
- ✓ Medium – Critical (Rating B – 50)
- ✓ Low – Marginal (Rating C – 10)

As a guideline for Impact Classification the following matrix is used:

Project Objective	C Rating 10	B Rating 50	A Rating 100
Schedule	Overall project schedule delay > 0days	Overall project schedule delay > 1 week	Overall project schedule delay > 2 week

Scope	Scope decrease barely noticeable	Minor areas of scope are affected	Major areas of scope are affected; scope reduction unacceptable to the client.
Quality	Quality reduction barely noticeable	Quality reduction does not affect vital functionality	Quality reduction requires client approval

- **Risk Exposure**

Risk Exposure or Risk Score is the value determined by multiplying the Impact Rating with Risk Probability

		Probability			
		1 = high (60%≤ x ≤ 100%)	2 = medium high (60%≤ x < 80%)	3 = medium low (30%≤ x < 60%)	4 = Low (0%< x < 30%)
Impact	A=high (Rating 100)	**(Exposure - very high) (Score 100)**	**(Exposure - very high) (Score 80)**	**(Exposure - high) (Score 60)**	**(Exposure - Moderate) (Score 30)**
	B=Medium (Rating 50)	**(Exposure - High) (Score 50)**	**(Exposure - moderate) (Score 40)**	**(Exposure - moderate) (Score 30)**	**(Exposure - Low) (Score 15)**
	C=Low (Rating 10)	**Exposure - Low (Score 10)**	**Exposure - Low (Score 8)**	**Exposure - Low (Score 6)**	**Exposure - Low (Score 3)**

The colors represent the urgency of risk response planning and determine reporting levels.

- **Risk Occurrence Timeframe**

The timeframe in which this risk will have an impact is identified. This is classified into one of the following:

Timeframe	Description
Near	Now - until one month
Mid	Next 2-6 months
Far	>6 months

In addition to classifying risks according to the above guidelines, it is also necessary to describe the impact on cost, schedule, scope, and quality in as much detail as possible based on the nature of the risk.

Following are some of the key Risks that typically occur in DURING Development of Websites along with possible Risk Mitigation options.

#	Risk	Description	Risk Mitigation
1	Scope creep	Any lack of clarity in the scope or undocumented additions to scope will lead to unplanned increase in effort, cost and timelines.	• Scope of the project will be clearly documented • Any change in scope will be handled through an established change management procedure

2	Scheduled network/application outages	In case of inadequate communication of such activities with Project team members, idle time may occur.	• Proper Communication Protocol will be established to ensure timely communication to all the concerned players in the project.
3	Network connectivity issues	Network connectivity issues might impact offshore access to applications	• Maintenance of optimum internet bandwidth to ensure a high level of connectivity • Maintenance of simulated environment at offshore to reduce impact on project deliverables/ timelines due to any unforeseen connectivity issues due to external factors
4	Factors that could have possible impact on project	Unplanned/external factors may sometimes impact project deliverables/timelines	• Constant identification of possible factors that might impact the project • Well laid out escalation mechanism to ensure appropriate management intervention
5	Uneven Traffic	Sudden Spurts of High Volume Transaction	• Planning for Maximum Load and Designing the capacity accordingly
6	Need for frequent training	Frequent change in the software need system training	• Online Training Facilitation
7	Inter System Dependencies	Augmentation or changes in portal / program	• Effective Release Management • Validation changes will be done at Server level until new version is released
8	Entry Issues (Data Quality)	Data entered is of poor quality	• Ensure data validations • Adhere to MDDS Standards
9	Loss of data	Data entered by stakeholders/Field Officer is lost before it is uploaded	• Application will be designed to hold up loaded data locally • System will not allow uninstall of the application when there are records pending to be uploaded

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Mobile-First and Offline Capability

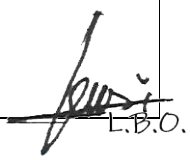
- **Mobile-Responsive Design**
  - Optimized for Android/IOS and entry-level smartphones.
  - UI designed for low-bandwidth performance and localized screen navigation.
- **Offline Capability**
  - Smart caching and local storage for key operations: registration, attendance, assessment, data validation.
  - Queued auto-sync mechanism when internet is available.
  - Field agents equipped with sync dashboards to track pending data packets.

Monitoring & Evaluation (M&E) Framework

- **KPIs Across Domains**
  - System Usage: Percentage of institutions/learners registered, login frequency, data completeness.
  - Operational Efficiency: Average time to process capitation, placement, or registration.
  - User Support: Ticket resolution time, satisfaction scores.
  - Security & Compliance: Audit pass rate, incident closure time.
- **Baseline-Midline-Endline Structure**
  - Baseline: Captured before system activation (e.g., manual process duration, dropout stats).
  - Midline: 3–6 months post go-live; performance review and course correction.
  - Endline: 12 months+; comprehensive impact study.
- **Impact Reviews**
  - Scheduled quarterly and annually.
  - Include user feedback, system data analytics, and policy team assessments.

Data Privacy & Protection Compliance

- **Kenya's Data Protection Act (DPA) 2019 Adherence**
  - Data Protection Officer appointed for the project and clearly defined in the governance structure.
  - Role-based data access models; no unauthorized exposure to personal or sensitive information.
- **Data Retention & Deletion Policies**
  - Learner data retained per policy (e.g., 5 years post-graduation).
  - Auto-archival and deletion mechanisms for stale or expired records.
- **Consent Management**
  - Parent/guardian consent for minors.
  - Consent audit trails and opt-out workflows.
  - Privacy policies visible in all registration forms and data entry points.



User Experience (UX) Testing

- **Multiple Testing Rounds**
  - Focus groups including students, teachers, administrators.
  - Properly defined and planned feedback sessions and post-UAT follow-ups.
- **Iterative Improvement**
  - Feedback prioritized in agile sprints.
  - Public changelogs and UI/UX updates with stakeholder walkthroughs.

Sustainability & Handover Plan

- **Capacity Building**
  - Comprehensive ToT (Training of Trainer/ Champions) model.
  - Role-based certification for trainers, IT leads, and admin users.
  - Integrated Learning Management System (LMS) with refresher modules.
- **Knowledge Transfer**
  - Documentation: SOPs, system manuals, maintenance guides.
  - Live handover workshops with operational simulations.
- **Post-Implementation Support**
  - SLA covering L1, L2, and L3 support for 12–24 months.
  - Bug fixes, module tweaks, and hotline access.

Interoperability Compliance Standards

- **OpenAPI 3.0 for seamless integration with:**
  - NRB, KNEC, IFMIS, GHRIS, TSC, Immigration, Labour, etc.
- **HL7/FHIR Standards:**
  - Inter-sectoral data sharing readiness (e.g., health status, birth registry).
- **Learning Tools Interoperability (LTI):**
  - Plug-and-play integration with LMS, digital textbooks, assessment platforms.

Business Continuity Planning (BCP)

- **Continuity Framework**
  - Disaster recovery zones with auto-failover in cloud.
  - Local backup syncs for mission-critical records.
- **Crisis Protocols**
  - Escalation trees, stakeholder alerts, and operational SOPs for outages.
  - Emergency communication templates and system status portal.

Digital Inclusion Strategy

To ensure equitable access for all users, regardless of ability, device, or location, the KEMIS platform incorporates both international accessibility standards and low-tech communication channels. This guarantees that the system is inclusive, user-friendly, and responsive to the diverse realities across Kenya's education landscape.

WCAG 2.1 Compliance

- The platform is being designed and tested in alignment with the Web Content Accessibility Guidelines (WCAG) 2.1, particularly targeting Level AA conformance, which balances accessibility with usability for the majority of users.

Key Accessibility Features:

- **Screen Reader Compatibility**: All system interfaces are tagged with ARIA labels, semantic HTML structures, and keyboard-navigable elements to enable seamless interaction with screen readers used by visually impaired users.
- **High Contrast & Color-Blind Friendly Themes:** The interface supports high-contrast modes and carefully selected color palettes that maintain readability for users with color vision deficiencies.
- **Keyboard-Only Navigation:** The system can be fully navigated using only a keyboard, ensuring access for users who cannot operate a mouse or touch screen.
- **Resizable Text & Font Controls:** Users can adjust font sizes, spacing, and layout density to accommodate individual visual needs without breaking interface structure.
- **Error Identification & Hints:** Forms provide clear error descriptions, contextual help, and real-time validation feedback to reduce entry barriers for users with cognitive or learning difficulties.
- **Skip Navigation & Landmark Tags:** Users can skip repetitive elements (like headers or menus) and navigate directly to main content areas using keyboard shortcuts or screen reader commands.

Low-Tech Support & Offline Reach

Recognizing the digital divide in rural and underserved areas, KEMIS will extend its reach through telecom-based fallback options that do not require smartphones or internet connectivity.

Key Features:

- **SMS-Based Alerts & Confirmations**
  - **Registration:** Learners and guardians receive SMS confirmations upon successful registration or updates.
  - **Placement:** Notifications sent to parents/guardians on school placement outcomes.
  - **Reminders:** Deadlines for subject combination, validation periods, or inspection visits can be communicated via SMS.
  - **Multi-language support** for messages (e.g., English/Kiswahili), using plain, action-oriented language.

- **USSD Menu-Based Services (Under Consideration):** A USSD-based system (e.g., *123#) would provide:
  - Learner status checks (e.g., “Has my child been placed?”)
  - School information lookup
  - Capitation disbursement alerts
  - Attendance reporting by headteachers
  - Feedback or incident reporting from field officers

  These services would work on basic feature phones without requiring internet or app installation.
- **Why This Matters for KEMIS:**
  - Ensures compliance with Kenya’s ICT Accessibility Standards and the Persons with Disabilities Act.
  - Enables equal access for differently-abled users, rural learners, and underserved communities.
  - Aligns with MoE’s digital equity goals and Konza’s national digital transformation agenda.

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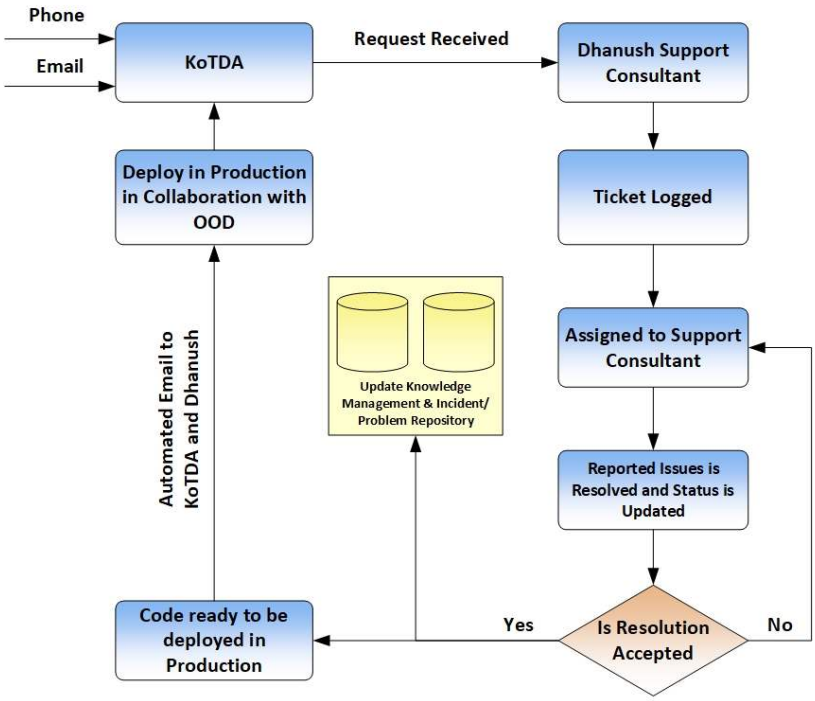
Support Approach & Methodology

Dhanush will follow the following processes as part of the regular support, which consists of

Incident Management Process flow

Dhanush uses its in-house web based helpdesk software SmartPM / Redmine & OS Ticketing Tool for effective incident management.

This tool is cogent in handling service requests for incidents logged by end users and enables accurate incident status tracking, e-mail notifications for updates, analytic dashboards and reports that make it a value add to the overall AMS portfolio.



Dhanush shall submit a problem management procedure clearly describing how all problems will be addressed from the time a problem report is received by Dhanush until the problem is resolved. Dhanush shall provide a suitable mechanism to log all problems. Dhanush shall provide a weekly report to KoTDA on all open and new issues. The information to be logged shall include, but not be limited to:

a. Date/Time of problem reported
b. Type/Category of problem
c. Severity of problem
d. Problem description
e. Root cause analysis
f. Corrective actions taken
g. Preventive actions taken
h. Details of problem resolution, i.e. corrective and preventive actions

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i. Date/Time of response

j. Date/Time of problem resolutions

Support Services Methodology

- All the service requests (SR) communicated by the KoTDA through e-mails or telephonic conversation(s) will be logged by Dhanush offshore consultant in SmartPM/ Redmine & OS Ticketing Tool.
- Once the incident is logged, a support consultant will be assigned to the same who'll be responsible for the SR till its closure.
- The assigned Support Consultant will estimate the effort required for closure of the Incident and will update the Ticket in the Incident management tool and also will update the Requestor (from KoTDA) about the effort required to resolve the issue.
- KoTDA is expected to approve the Effort estimate submitted by Dhanush.
- If KoTDA is not approving the effort estimate required for Incident resolution within 48 hours, it is deemed to be approved.
- Service consultant will ensure timely updating of the SR status in SmartPM/ Redmine & OS Ticketing Tool so that it can be monitored by all the stakeholders involved.
- Once a solution is identified for the related SR, the service consultant will update the status as "Completed" in the application, subsequently followed by the KoTDA's acceptance of the same.
- The SR is updated with a status as "Closed" and an automated response (e-mail) is sent to all the stakeholders with the relevant information on the SR.



Change Management Plan

- **Structured Change Framework:** Based on the ADKAR model, the plan moves users through:
  - **Awareness:** Early sensitization at all stakeholder levels.
  - **Desire:** Engagements showcasing benefits to encourage buy-in.
  - **Knowledge:** Role-based training plans and policy documentation.
  - **Ability:** Job aids, system manuals, and helpdesk support.

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- **Reinforcement:** Recognition mechanisms, monitoring usage KPIs, and targeted refresher training.

- **Stakeholder Engagement Approach**
  - Stakeholders segmented into cohorts: School leaders, learners, county/sub-county officials, education planners, data clerks, etc.
  - Engagement tools include stakeholder clinics, webinars, feedback sessions, policy roundtables, and monthly engagement dashboards.
- **Communication Strategy Across Lifecycle**
  - Initiation Phase: Awareness campaigns, executive briefings, and mobilization at national and county levels.
  - Development Phase: Regular updates via newsletters, email reports, and WhatsApp groups.
  - Rollout & Go-Live Phase: Push alerts, usage guides, countdown timers, and daily check-ins.
  - Post-Go-Live: Feedback collection, user stories, and success highlights to sustain momentum.
- **Transition and Adoption Support Plans**
  - Pre-Go-Live Sandboxes: Live test environments for institutions and field users to familiarize and practice.
  - Bootcamps & Clinics: Region-based hands-on sessions organized through the MoE.
  - Real-Time Support: Helpdesk, toll-free lines, dedicated field support officers.
  - Adoption Tracking: Reports generated weekly on login frequency, task completions, and data submissions.
- **Resistance Management Techniques**
  - Early identification of resistance hotspots via stakeholder analysis.
  - Custom support paths (1-on-1 sessions, peer mentoring).
  - Public recognition and incentives for early adopters and high performers.
  - Anonymous feedback and grievance channels.

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Implementation Methodology & Rollout Strategy

Implementation Approach Overview

The implementation of the Kenya Education Management Information System (KEMIS) will follow a phased and modular approach to ensure efficient delivery, risk mitigation, and stakeholder involvement. The strategy blends agile and waterfall methods for rapid prototyping, incremental deployment, and final full-scale rollout.

Key principles:

- **User-Centric Design:** Engagement with end-users at each phase to ensure needs-based development.
- **Modular Implementation:** Core modules implemented first, followed by specialized components.
- **Iterative Refinement:** Continuous feedback loops with stakeholders to improve the system.
- **Sustainability:** Focus on building internal capacity and knowledge transfer for long-term support.

Implementation Phases and Deliverables

Phase	Activities	Key Deliverables
Phase 1: Inception	Project kickoff, stakeholder workshops, detailed requirement gathering	Inception Report, Stakeholder Analysis, BRD
Phase 2: System Design	Functional design, architecture blueprint, UI/UX prototyping	HLD/LLD Documents, UI/UX Mockups, Security Framework
Phase 3: Development	Configuration, development of core and extended modules	Configured Modules, Integration Components, Test Scripts
Phase 4: Testing & Validation	Unit, integration, UAT with selected users	UAT Report, Test Cases, Bug Reports
Phase 5: Pilot Deployment	Rollout to pilot schools/regions, live testing, feedback collection	Pilot Go-Live Report, Revised User Manual
Phase 6: National Rollout	Gradual nationwide deployment, monitored by regional coordinators	Rollout Plan, Rollout Reports, User Feedback Logs
Phase 7: Post-Go-Live Support	Helpdesk setup, issue resolution, patch management	Support SOPs, SLA Metrics, Performance Dashboards

Data Migration Process

To ensure integrity and continuity of educational records, a robust Data Migration Framework will be employed:

- **Assessment & Planning**: Review of legacy systems and data inventory.
- **Data Mapping & Cleansing**: Mapping legacy data to new system fields, deduplication, validation.
- **Extraction & Transformation**: Structured extraction of data, transformation per the new schema.

- **Migration & Verification**: Secure data import, validation against control totals.
- **User Acceptance Testing (UAT)**: Data sampling, cross-verification, correction loops.

All data handling will comply with Kenya's data protection laws and ISO 27001 standards.

Training and Onboarding

A comprehensive training and onboarding program will be conducted targeting all user groups:

5.2.1.2 Target Groups

- Ministry Officials
- School Administrators
- Teachers
- Data Entry Operators
- ICT Support Teams

5.2.1.3 Training Methodology

- **Train-the-Trainer Model:** Master trainers will train institutional trainers who will cascade the knowledge.
- **Hands-on Workshops:** Role-based simulations on the live or sandbox system.
- **Self-Paced Modules:** eLearning resources including videos, manuals, and quizzes.

5.2.1.4 Training Deliverables

- Training Calendar
- Role-based Training Manuals
- Video Tutorials
- Attendance & Feedback Reports
- Certification of Completion

Helpdesk and Call Centre

To ensure continued support and rapid issue resolution, a **3-tier Help Desk & Call Centre** will be established:

Tier 1: Frontline Support

- Handles general queries, login issues, navigation help
- Available via toll-free number, chat, and email
- Multilingual support (English, Kiswahili)

Tier 2: Functional Experts

- Handles module-specific issues (e.g., student records, analytics)
- Ticket-based escalation from Tier 1
- Interaction with development team for bug fixes

Tier 3: Technical Support

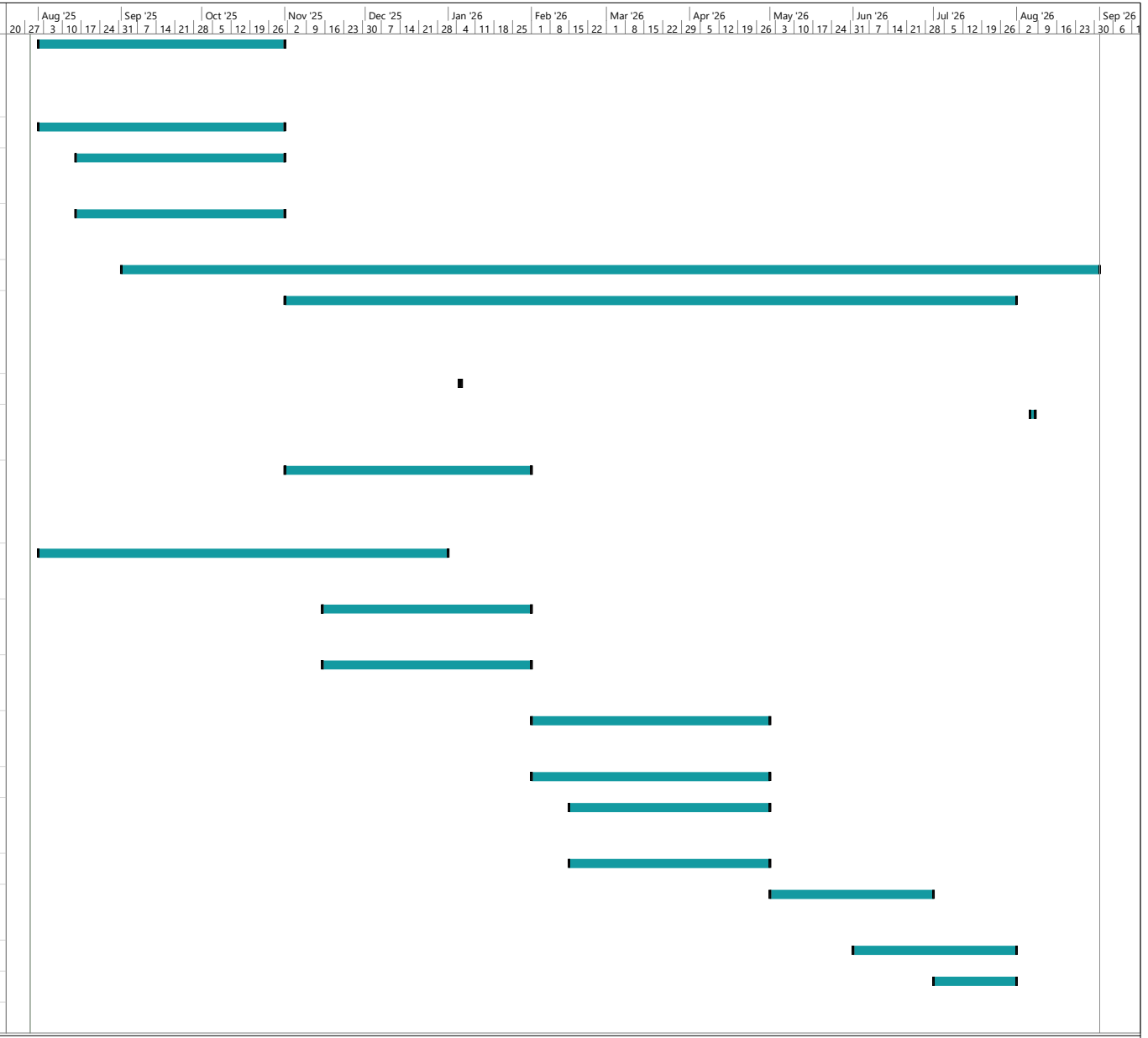
- Addresses system outages, server issues, integrations
- Liaises with hosting and infrastructure teams
- Ensures compliance with SLA and uptime guarantees

Support Tools

- Helpdesk Ticketing System
- Knowledge Base / FAQs
- SLA Monitoring Dashboard
- Call Logs & Resolution Reports

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ID	Task Mode	Task Name	Start	Finish	Predecessors
1		Hosting Infrastructure (Servers, Storage, Virtualization, Monitoring, Installation, Managed Services)	Fri 8/1/25	Fri 10/31/25	
2		SOC Setup	Fri 8/1/25	Fri 10/31/25	
3		Data Security (Backup/Archiving, Cyber-Resilience)	Fri 8/15/25	Fri 10/31/25	
4		Firewalls, WAF, Anti-DDOS, Endpoint Security	Fri 8/15/25	Fri 10/31/25	
5		Internet Connectivity Deployment	Mon 9/1/25	Mon 8/31/26	
6		Development of KEMIS Core (ECD, Basic, TVET, Higher Education, Research & Innovation)	Sat 11/1/25	Fri 7/31/26	
7		System Go live Basic Education	Mon 1/5/26	Mon 1/5/26	
8		System Go live ECD, TVET, Higher Education, Research & Innovation	Thu 8/6/26	Fri 8/7/26	
9		Data Layer (School Registry, Teacher Registry, Student Registry, Asset Registry, Shared Records)	Sat 11/1/25	Sat 1/31/26	
10		Financial Resource Management & Reconciliation	Fri 8/1/25	Wed 12/31/25	
11		Teachers Web and Mobile Applications	Sat 11/15/25	Sat 1/31/26	
12		Parents/Students/Alumni Web and Mobile Applications	Sat 11/15/25	Sat 1/31/26	
13		AI Development (Predictive Analytics, Performance Analysis)	Sun 2/1/26	Thu 4/30/26	
14		Data Warehousing and BI Dashboar	Sun 2/1/26	Thu 4/30/26	
15		Helpdesk & Contact Center Management System	Sun 2/15/26	Thu 4/30/26	
16		Biometric Integration	Sun 2/15/26	Thu 4/30/26	
17		Pilot Implementation (Selected Counties)	Fri 5/1/26	Tue 6/30/26	
18		Training & Capacity Building	Mon 6/1/26	Fri 7/31/26	
19		Overall National Rollout & Go-Live	Wed 7/1/26	Fri 7/31/26	
20		8 Years System Support	15/8/26	14/8/32	



Project: Project1
Date: Tue 7/29/25

Task	Inactive Task	Manual Summary Rollup	External Milestone		Progress
Split	Inactive Milestone	Manual Summary	Deadline		Manual Progress
Milestone	Inactive Summary	Start-only	Path Driving Predecessor Milestone Task		
Summary	Manual Task	Finish-only	Path Driving Predecessor Summary Task		
Project Summary	Duration-only	External Tasks	Path Driving Predecessor Normal Task		

L.B.O.

458

SECTION:6

TECH-5: Work Schedule and Planning for Deliverables

TECH 5: Work Schedule and Planning for Deliverables

Dhanush proposes following indicative timelines for proposed engagement. Dhanush project manager would liaise with KoTDA's Project Manager in the first week to discuss the tasks and dependencies and finalize the project plan with time required. The goal of the project plan finalization would result in high-level milestones as depicted below.

No.	Delivarables (D..)	MONTHS																							Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
D-1	Project Mobilization & Planning	1	1																							2
D-2	Requirement Gathering & Finalization	1	1	1	1	1																				5
D-3	System Design & Architecture					1	1	1	1	1	1															6
D-4	UI/UX Prototyping & Approval							1	1	1	1															4
D-5	Core Module Development								1	1	1	1	1	1	1	1	1									9
D-6	Integration of Subsystems											1	1	1	1	1	1	1								7
D-7	Testing (Unit, Functional, Security)													1	1	1	1	1	1							6
D-8	UAT & Bug Fixing																	1	1	1	1					4
D-9	User Training & Documentation																			1	1	1	1			4
D-10	Go-Live Planning and Final Deployment																					1	1	1	1	4
D-11	Handover & Signoff																							1	1	2

SECTION:7

TECH-6: - Team Composition, Assignment and Key Personnel

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TECH 6: Team Composition, Assignment, and Key Personnel

Tech 6A: Key Experts Inputs

No.	Expert's input (in person/month) per each Deliverable (listed in TECH-5)													Total Time -Input (in Months)		
	Position		D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8	D-9	D-10	D-11	Home	Field	Total
KEY EXPERTS																
K-1	Project Manager	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-2	Project Manager	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-3	Program Manager	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-4	Solution Architect	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-5	Solution Architect	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-6	Security Architect	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-7	Security Architect	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-8	Security Architect	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-9	Network Architect	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-10	Network Architect	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-11	Cloud Architect	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-12	Computer Infrastructure Architect	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-13	Visualization & Containerization Architect	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-14	Service Delivery Manager	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-15	Business Analyst	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	

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No.	Position		Expert's input (in person/month) per each Deliverable (listed in TECH-5)											Total Time -Input (in Months)		
			D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8	D-9	D-10	D-11	Home	Field	Total
KEY EXPERTS																
K-16	Business Analyst	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-17	Business Analyst	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-18	Data Migration Expert	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-19	Developer	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-20	Developer	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-21	Developer	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-22	Developer	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-23	Developer	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-24	Developer	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-25	Developer	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-26	Developer	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-27	Developer	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-28	Developer	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-29	Database Administrator	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-30	Database Administrator	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	

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No.	Position		Expert's input (in person/month) per each Deliverable (listed in TECH-5)											Total Time -Input (in Months)		
			D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8	D-9	D-10	D-11	Home	Field	Total
KEY EXPERTS																
K-31	Data Engineer	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-32	Data Engineer	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-33	Scrum Master - Senior	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-34	Scrum Master - Senior	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-36	Scrum Master - Senior	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-37	Scrum Master - Senior	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-38	Scrum Master - Senior	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-39	Project Manager - Delivery (Senior)	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-40	Project Manager - Delivery (Senior)	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-41	Project Manager - Delivery (Senior)	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-42	Project Manager - Delivery (Senior)	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-43	Project Manager - Delivery (Senior)	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-44	Project Managers - Per Region rollout	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-45	Project Managers - Per Region rollout	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-46	Project Managers - Per Region rollout	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-47	Project Managers - Per Region rollout	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-48	Project Managers - Per Region rollout	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-49	Project Managers - Per Region rollout	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-50	Software Engineers - Back End	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	

L.B.O.

No.	Expert's input (in person/month) per each Deliverable (listed in TECH-5)													Total Time -Input (in Months)		
	Position		D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8	D-9	D-10	D-11	Home	Field	Total
KEY EXPERTS																
K-51	Software Engineers - Back End	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-52	Software Engineers - Back End	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-53	Software Engineers - Back End	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-54	Software Engineers - Front End	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-55	Software Engineers - Front End	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-56	Software Engineers - Front End	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-57	Software Engineers - Front End	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-58	Software Engineers - Front End	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-59	Software Engineers - Front End	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-60	Software Engineers - Front End	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-61	Software Engineers - Front End	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-62	Software Engineers - Front End	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-63	Software Engineers - Front End	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-64	Software Integration Engineers	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-65	Software Integration Engineers	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-66	Software Integration Engineers	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-67	Software Integration Engineers	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-68	Software Integration Engineers	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-69	Software Integration Engineers	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-70	Software Integration Engineers	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	

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No.	Expert's input (in person/month) per each Deliverable (listed in TECH-5)													Total Time -Input (in Months)		
	Position		D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8	D-9	D-10	D-11	Home	Field	Total
KEY EXPERTS																
K-71	Software Integration Engineers	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-72	Software Integration Engineers	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-73	Software Integration Engineers	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-74	Application Engineers	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-75	Application Engineers	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-76	Application Engineers	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-77	Application Engineers	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-78	Application Engineers	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-79	Application Engineers	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-80	Solution Architect	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-81	UI/UX Engineer	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-82	UI/UX Engineer	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-83	UI/UX Engineer	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-84	UI/UX Engineer	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-85	Analysts	Home	1.0	1.0	2.0	6.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-86	Analysts	Home	1.0	1.0	2.0	6.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-87	Analysts	Home	2.0	2.0	2.0	8.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-88	Analysts	Home	1.0	1.0	2.0	6.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
K-89	Quality Assurance	Home	1.0	1.0	2.0	7.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-	-	-	-	-		-	
															Subtotal	**2,112.0**

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Tech 6A: Non-Key Experts Inputs

No.	Position		Expert's input (in person/month) per each Deliverable (listed in TECH-5)											Total Time -Input (in Months)		
			D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8	D-9	D-10	D-11	Home	Field	Total
NON-KEY EXPERTS																
N-1	Senior Project Coordinator	Home	2.0	2.0	2.0	6.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-						-	
N-2	Project Coordinator	Home	2.0	2.0	2.0	6.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0	24.0		24.0
		Field	-	-	-	-	-	-	-						-	
N-3	Admin & Facility Manager	Home	2.0	2.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	17.0		17.0
		Field	-	-	-	-	-	-	-						-	
N-4	Network & Security Administrator	Home	2.0	1.0	1.0	6.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	17.0		17.0
		Field	-	-	-	-	-	-	-						-	
N-5	Senior System Administrator	Home	1.0	1.0	1.0	8.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	18.0		18.0
		Field	-	-	-	-	-	-	-						-	
N-6	Senior HR Manager	Home	1.0	1.0	1.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	14.0		14.0
		Field	-	-	-	-	-	-	-						-	
N-7	HR Executive	Home	1.0	1.0	1.0	8.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	18.0		18.0
		Field	-	-	-	-	-	-	-						-	
N-8	HR Executive	Home	1.0	1.0	1.0	8.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	18.0		18.0
		Field	-	-	-	-	-	-	-						-	
N-9	Finance Manager	Home	1.0	1.0	1.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	14.0		14.0
		Field	-	-	-	-	-	-	-						-	
N-10	Finance Executive	Home	1.0	1.0	1.0	8.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	18.0		18.0
		Field	-	-	-	-	-	-	-						-	
N-11	IT Support Executive	Home	1.0	1.0	1.0	8.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	18.0		18.0
		Field	-	-	-	-	-	-	-						-	
N-12	IT Support Executive	Home	1.0	1.0	1.0	8.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	18.0		18.0
		Field	-	-	-	-	-	-	-						-	
									Subtotal							218.0
									TOTAL							**2,330.0**

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Tech 6B: Curriculum Vitae (CV's)

5.2.2 CV 1: Project Manager

Position Title and No.	K-1, Project Manager
Name of the Expert	Erick Omondi
Date of Birth	16 April 1984
Country of Citizenship	Kenyan

Educational Qualification

Institution	Dates Attended	Degree/ Diploma Obtained
St. Pauls University, Limuru	2023	Bachelor of Arts in Leadership and Management
Maseno university, Kisumu	2019	Diploma in Strategic planning
Minitech Computer College	2009	Diploma in computer studies

Employment record relevant to the assignment

S No	Organization	Role	Duration
1	Dhanush Softech Pvt Ltd	Project Manager	May 2025 to till date
2	Nairobi Women's Hospital	Corporate Learning Administrator	Aug 2015 – July 2024
3	Nairobi Women's Hospital	Network Support Supervisor	April 2011 – Aug 2015
4	Nairobi Women's Hospital	Volunteer, Network Support / Technical Assistant	Nov 2010 – April 2011
5	Torch Africa	Junior Consultant/Program and Projects Officer	Jan 2009 – Nov 2010
6	Nyangulu Millennium Computer Training College	Head of the Computer Department	Feb 2010 - Aug 2010
7	Nyangulu Primary School	Untrained Teacher	Feb 2010 - Aug 2010

Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
May 2025 to till date	**Company Name:** Dhanush Softech private limited **Designation:** Corporate Learning Administrator	Kenya	**Summary:** • Over 15+ years of experience in IT project delivery, healthcare information systems,

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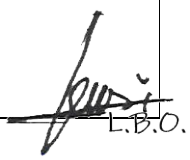
	Contact Info for References: HR **Email Id**: hr@dhanushinfotech.com		technical support, and organizational learning. • Currently leading digital health initiatives at Dhanush, focusing on ERP implementation and cross-team coordination. • Proven track record of managing cross-functional teams and delivering enterprise systems across corporate and public sectors. • Previously held strategic and technical roles at Nairobi Women's Hospital, overseeing health information systems, training programs, network infrastructure, and user support. • Strong skills in stakeholder engagement, strategic planning, and capacity building. • Demonstrated leadership in implementing innovative healthcare solutions to enhance service delivery and operations. • Proficient in project tools like Jira, Microsoft Project, and Visio. • Expert in project lifecycle management, change management, and staff development. • Bilingual in English and Swahili, with professional experience in East Africa and India. **Roles and Responsibilities** • Implement Health Information Systems, systems procedures and processes, focusing on staff capacity building and development to optimize Information Systems utilization. • Develop an Information System training curriculum, work plans, and conduct staff training sessions. • Monitor IS system performance and utilization, generating reports to facilitate paperless operations. • Oversee performance metrics, managing parameters for efficient query responses to front-end users.

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			• Evaluate back-end data organization and front-end accessibility to ensure operational efficiency. • Maintain data standards, ensuring compliance with Data Protection Policies and Procedures • Develop, manage, and test backup and disaster recovery plans, ensuring proper functionality of storage, archiving, and recovery procedures • Regularly communicate with technical, applications, and operational staff to ensure database integrity and security. • Collaborate with end users to promptly resolve issues and enhance system usability and relevance • Commission and install new applications, customize existing applications for optimal functionality • Configure and maintain Microsoft Dynamics AX modules, including Financials, CRM, and Inventory, ensuring comprehensive utilization. • Manage Windows Servers configuration and maintenance • Lead and manage communications projects • Provide superior customer care and experience. • Manage and assist the developer in in-house SQL DB management. • Maintain backup and disaster recovery plans for the hospital systems.
April 2011 - August 2015	Nairobi Women's Hospital, Nairobi	Kenya	**Responsibilities** • Provide technical support to users, including configuring email, setting up internet access, and installing ERP software on computers • Perform hardware maintenance, including routers, switches, PBX systems, and telephone extensions

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			• Install, upgrade, and maintain software applications • Manage hardware distribution and maintain inventory • Oversee in-house networking, monitor and maintain LAN infrastructure, serving as the point of contact for the ISP at the Ongata Rongai Branch • Aligned day-to-day activities with targets set by upper management. • Developed professional relations with company employees of organisation to enhance trust and reliability. • Displayed proactive problem-solving and query-resolution skills to provide superior customer service • Monitored compliance with workplace policies and safety objectives. • Monitor, record, and report network statistics • Configure, manage, and maintain MyPbx and IP telephony systems including installing communication equipment • Manage and maintain print, scan, and management systems • Provide end-user support and training on new technologies and software applications
November 2010 - April 2011	**Nairobi Women's Hospital | Nairobi, Kenya** **Designation:** Network Support /Technical assistant	Kenya	• Install, upgrade, and maintain software applications • Manage hardware distribution and maintain inventory • Oversee in-house networking, monitor and maintain LAN infrastructure, serving as the point of contact for the ISP at the Ongata Rongai Branch • Aligned day-to-day activities with targets set by upper management.
January 2009 -	**Torch Africa**	Kenya	• Stakeholder meetings, workshops, and seminars



November 2010	**Designation:** Junior Consultant/Program and Projects Officer -		• Strategic planning for constituencies and firms with assistance from the director – Dr. Nyukuri.
February 2010 - August 2010	**Nyangulu Millennium Computer Training College** **Designation:** Head of the Computer Department -	Kenya	• Delivering lectures to students on Computer Application Packages and Fundamentals of Information Technology • Performing maintenance tasks for computer hardware and software.
September 2009 - January 2010	**Lawlentech Computers** **Designation:** Trainer	Kenya	• Basic hardware maintenance, repair, upgrade, and sales • Software sales and installation • Documents creation • Graphic design using Corel draw, Adobe PageMaker, and Print artist

Membership in Professional Associations and Publications:

Language Skills (indicate only languages in which you can work):	**Language**	**Speaking**	**Reading**	**Writing**
	English	Yes	Yes	Yes
	Swahili	Yes	Yes	Yes

Detailed Tasks Assigned on Bidder's Team of Experts

- Continual monitoring, tracking and reporting of project progress.
- Engage proactively with stakeholders on issues, show stoppers, risks
- Communicate and get acceptance on Risk Mitigation Strategies from key stakeholders
- Implement Risk Mitigation strategies and track their efficacy.
- Use standard templates, tools and visualizations such as Project Plans, Gantt Charts and Dashboards to keep key stakeholders abreast of the progress.
- Follow up with the KoTDA strictly adhering to methodology for the application development
- Proactively identify conflict, provide Issue resolutions and get acceptance from all stakeholders to close issues amicably in a time bound manner.

Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks

D-1, D-2, D-3, D-4, D-5, D-6, D-7, D-8, D-9, D-10, D-11

Experts contact information:	**E-mail:** hr@dhanushsoftech.com	**Phone**: +9140 49135000

Certification

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I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA**.**		
Name of the Expert: Erick Omandi	**Signature of the Expert**	**Date:** 08th July 2025
Name of authorized Representative of the Bidder: Karan Christie	**Signature of the Expert** K.R. christie	**Date:** 08th July 2025

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5.2.3 CV 2: Project Manager

Position Title	K-2, IT Technical Manager
Name of the Expert	Raghavendra Kumar Bonthala
Date of Birth	25-Apr-1983
Country of Citizenship	India

Educational Qualification

Institution	Dates Attended	Degree/ Diploma Obtained
V.R.S CET (Anna University)	08/2001 to 04/2005	Bachelor of Engineering in Electronic Communications Engineering

Employment record relevant to the assignment

S No	Organization	Role	Duration
1	Dhanush Softech Private Limited	IT Technical Manager	May 2025 – till date
2	Nisum Consulting Private Limited	Technical Lead	Jan 2018 – Dec 2019
3	Viya Solutions	Technical Lead	July 2017 – Dec 2017
4	People Tech Group	Consultant	Jan 2017 – Apr 2017
5	Makeurcareer LLC (People Tech Group - USA)	Programmer Analyst	Jan 2016 – Dec 2016
6	People Tech Group	Technical Lead	Apr 2015 – Jan 2016
7	Walking Tree Consultancy Services Private Limited	Technical Consultant	Dec 2014 – Mar 2015
8	S&P Capital IQ (INDIA) Private Limited (Ness)	Senior Software Engineer	Jan 2013 – Nov 2014
9	Ness Technologies	Senior Software Engineer	Oct 2010 – Dec 2012
10	Zeta Interactive Systems India Pvt. Ltd	Software Engineer	Dec 2009 – Oct 2010
11	SoftSol	Software Engineer	May 2007 – Dec 2009
12	Institute for Electronic Governance	IT Associate	Feb 2007 – May 2007

Period	Employing organization and your title/position.	Country	Summary of activities performed relevant to the Assignment

	Contact information for references		
19/05/2025 to till date	**Company Name:** Dhanush Softech Private Limited **Designation:** IT Technical Manager **Contact Info for References: HR** **Email Id**: hr@dhanushsoftech.com	India	**Project #1:** Implementation of Education ERP **Client:** Open University of Kenya (OUK) **Description**: **OUK** is a scalable, open-source data management solution for the education sector, covering institutions from ECDE to universities. It manages learner, staff, and institutional data, supports online school audits, feeding programs, and council memberships. The platform includes a secure data exchange portal, digital locker, and dashboards for policy decisions. It provides IT infrastructure, integrates with educational bodies, and supports financial prudency, efficient procurement, and resource allocation. Through its promotes transparency, performance tracking, and data-driven decision-making to enhance education quality and accessibility. **Responsibilities**: • Product implementation part working • Coordinating between Offshore and onshore
22/01/2018 to 11/12/2019	**Company Name: Nisum Consulting Private Limited** **Designation:** Technical Lead	India	**Project:** Operational Email System (OES) **Description**: The Operational Email System (OES) manages fulfilment-related communications—such as order confirmations, shipping updates, and delivery notifications—via Email, SMS, and Push. It processes event data from source systems, generates appropriate messages, and delivers them to customers. OES supports HTML and text email formats and ensures push notifications with deep links are sent to all opted-in users, regardless of their order platform. **Responsibilities**: • Working on the migration of IBM/Tibco MQ's to Kafka POC's • Worked on dockerization of the application • Requirement gathering / analysis, documentation, Technical review of and Team Management • Onshore/Offshore Team Coordination on deliverables • Providing Technical Solutions to the team

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			• Code Review and Performance analysis using different tools • Build and release management **Project 2#** **Title: MOC-UPOS** **Description**: Macys.com is most attractive retails website in worldwide, shopping on online, stores with user-friendly applications and quick deliveries product supplying. MOC is project where all API's has changed from legacy to better performance. UPOS is project at stores it is available to order the product as site, which products not available at stores. **Responsibilities**: • Leading the team to ensure deliverables • Requirement gathering / analysis, Documentation, Technical review of and Team Management • Build Fulfilment, Address enterprise services to find item related availability, to verify the address, respectively for the orders placed on Macys.com. • These services are deployed in self-service cloud-based infrastructure • Onshore/Offshore Team Coordination on deliverables • Build and release management
21/07/2017 to 31/12/2017	**Company Name: Viya Solutions Designation:** Technical Lead	India	**Project**: **IFL** **Description**: CEVA IFL serves the In factory logistics operations with comprise of different modules. **Responsibilities**: • Leading the team to ensure deliverables • Requirement gathering, Documentation, Technical review of and Team Management • Delivery management of the developer release with Onshore/Offshore Team Coordination • Providing Technical Solutions to the team • Code Review and Performance analysis using different tools

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			• Involved in the Database Design, Create Triggers, Stored Procedures and Functions. • Written JDBC classes to call stored procedures and run SQL • Build and release management
18/01/2017 to 12/01/2016	**Company Name: People Tech IT Consultancy Private Limited (People Tech Group)** **Designation:** Consultant	India/ USA	**Project: Passport** **Description**: TriNet Passport is an HR solution tailored for fast-growing, entrepreneurial companies across sectors like consulting, finance, life sciences, non-profits, and tech. It offers a four-tiered HR team to support hiring, policy setup, payroll, benefits, and compliance. The platform provides secure payroll processing, a wide range of benefits, and expert legal guidance. The legacy application, originally built in SEEKER, is now being rewritten using modern technologies for improved performance and scalability. **Responsibilities**: • Leading the team to ensure deliverables • Requirement gathering, Documentation, Technical review of and Team Management • Delivery management of the developer release with Onshore/Offshore Team Coordination • Providing Technical Solutions to the team • Code Review and Performance analysis using different tools • Involved in the Database Design, Create Triggers, Stored Procedures and Functions. • Written JDBC classes to call stored procedures and run SQL • Build and release management
01/12/2014 to 12/03/2015	**Company Name: Walking Tree Consultancy Services Private Limited** **Designation:** Technical Consultant	India	**Project: Global Transact** **Description**: Global Transact is the project developed for Citi Private Bank, which includes the different module functionalities of account maintenance, fund transfer and deposits for bank customers. This project module(s) implemented for different regions with different functionalities like profile changes, external and internal fund transfers and different deposits for customers. **Responsibilities**:

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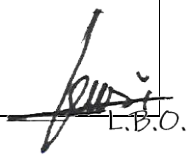
			• Interacted with the client to get the business requirements for enhancing the customer look • Developed various Ext JS pages for the presentation layer • Unit Test cases writing • Deploying the builds using CI tools • Leading the team on project deliverables
07/01/2013 to 28/11/2014	**Company Name: S&P Capital IQ (INDIA) Private Limited** **Designation:** Senior Software Engineer	India	**Project 1#** **Project: CSIT** **Description**: Applications send and log monitored events as JSON objects, enabling flexible event data for use by the rule manager and Kibana. These events must be predefined for effective rule application and monitoring. The system also periodically pulls client data from source systems to update a consolidated customer database, with a web front end that allows users to view and update customer information. **Responsibilities**: • Participated in requirements gathering • Defect Fixing and enhancement implementation • Generic frame work developed for monitoring system • Configure and made setup of all required tools • Client side Interaction to publish and solve issues **Project 2#** **Project: Market Scope Advisor** **Description**: Market Scope Advisor is an online platform that offers financial professionals comprehensive market commentary, independent investment analysis, and real-time data across various asset classes, including stocks, mutual funds, bonds, ETFs, annuities, and options. Its proprietary multi-asset class rankings combine qualitative and quantitative factors to support high-quality investment advice. **Responsibilities**: • Participated in development using GUI – Angular JS and backend components (Micro- Services) **Project 3#** **Project: SPSE**

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			Description: The S&P Capital IQ Global Valuations Portal is a web-based workflow solution providing comprehensive financial intelligence for the fixed income markets. It offers access to SPSE's global fixed income pricing and terms data, covering over three million securities. Key features include advanced search, historical valuations, a price challenge tool, and enhanced transparency for structured finance pricing. **Responsibilities**: • Participated in identifying, clarifying, and refining requirements • Participated in development using Java and J2EE and other technologies as required. • Including GUI (i.e. Ext JS) and backend components
25/10/2010 to 31/12/2012	**Company Name: Ness Technologies** **Designation:** Senior Software Engineer	India	**Project 1#** **Project: Price Challenge** **Description**: The Price Challenge process enables clients to submit pricing disputes through various methods—manually via GUI, bulk uploads, or email—with options to attach supporting documents and track challenge status. Clients can escalate unresolved issues to analysts, and requests are categorized by type for prioritized handling. The system also supports generating detailed metrics by client or user, ensuring transparency and efficiency while maintaining high-quality standards. **Responsibilities**: • Participated in identifying, clarifying, and refining requirements • Participated in development using Java and J2EE and other technologies as required. • Including GUI and backend components • Conducted unit tests and system/integration tests • Code refactoring with PMD • Analysis, Coding, Debugging & Automation of real-time works • Written stored procedures using Oracle • Shell scripts modifications **Project 2#** **Project: Unit Investment Trust**

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			Description: The Unit Investment Trust application evaluates bonds daily based on institutional bid prices after the initial offering period. It includes modules like Admin, Query, Feeds, and Pricing for managing trust creation and related tasks. Trust data is automatically pulled through the UI's Feeds module, and the system manages investor bond and holdings information. It is also integrated with GPS and IES applications. **Responsibilities**: • Managing resolution of technical issues for application. Clients are internal and external users of the application • Prioritizing numerous issues of varying severity, and effectively manages the resolution of all issues within accepted service levels • On time Issues resolving following agile methodology Attending Scrum Meetings Automation of real-time works • Change Request implementation and Production issue resolution
21/12/2009 to 20/10/2010	**Company Name: Zeta Interactive Systems India Pvt. Ltd** **Designation:** Software Engineer	India	**Project: Knowledge Center** **Description**: The Knowledge Center streamlines campaign management for marketers by allowing them to create lists, schedule publish times, and submit campaigns for approval. Used primarily by Live Nation marketers across the U.S., and corporate users for review and approval, it provides administrators with a unified view of all campaign statuses across regions. **Responsibilities**: • Design and Requirements analysis, • Coding and Debugging, • Shell scripting, • Automation of real-time works • Written JDBC classes and stored procedures in Oracle
14/05/2007 to 16/12/2009	**Company Name: Softsol** **Designation:** Software Engineer	India	**Project: Automated Data Input (ADI)** **Description**: The County of Alameda developed the Automated Data Input (ADI) web application using a Java environment to streamline data processing for Mainframe systems. ADI prepares and structures data



			through modules like Assessor Jobs, TD Jobs, Auditor Jobs, and Inventory. It integrates around 150 forms and 100 reports, with user access controlled by defined roles and permissions. The system ensures compatibility with Mainframe requirements while maintaining strict security and access protocols. **Responsibilities**: • Worked on Agile ITP Tool • Involved in designing and writing the Programs using Oracle and executed using the batch statement concept. • Developed GUI and Server side applications • Involved in Integrating the code between Client and Server **Project 2#** **Project:** Decision Support and Operations Management Information System (DOMAIN) **Description**: DOMAIN is an integrated case-management and decision-support system used by the Superior Court of California, County of Alameda, for managing civil case types like General Civil, Small Claims, Family Law, Probate, Adoptions, and Mental Health. It standardizes court procedures, maintains electronic case records, streamlines workflows, and supports data reporting for judicial and administrative needs. The system offers detailed data collection, role-based security levels, and visibility controls for each case or action, ensuring both comprehensive access and confidentiality. **Responsibilities**: • Analysis, Coding and Debugging, shell scripting, Automation of real-time works **Project 3#** **Project:** ALAMEDA SUPERIOR COURT APPLICATION SYSTEM **Description**: The Alameda Superior Court is migrating its applications from Sun Microsystems' Forté UDS platform to Java 2 Enterprise Edition (J2EE) to enhance functionality and scalability. The system comprises five core applications: Restraining and Protective Orders

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			(RPO), which serves as a centralized database for all Criminal and Civil protective orders with image integration; DOMAIN, a robust case-management and decision-support system for handling various civil case types; an Accounting module for managing financial records across DOMAIN and JCMS; the Juvenile Case Management System (JCMS), which captures comprehensive case data for judges and administrators; and Domain Web, a web-based interface that provides users access to case details stored within the DOMAIN system. **Responsibilities**: • Worked on Agile ITP Tool • Developed GUI and Server side applications • Involved in Integrating the code between Client and Server
01/02/2007 to 10/05/2007	**Company Name: Institute for Electronic Governance** **Designation:** IT Associate	India	**Project:** GISCADS (GIS Based Cantonment Administrative Development System) **Description**: GISCADS is a specialized software solution developed for the Secunderabad Cantonment Board under the Ministry of Defense to automate government services for citizens. It integrates modules such as Accounts, Tax, Sanitation, Water, Employee Management, and Inventory. The project also involves developing a GIS database down to the parcel level, enabling seamless integration with departmental modules and providing easy data access to the general public. **Responsibilities**: • Worked on configuration and deployment process of Web Applications • Oracle is used as Database, to support Relational Database access from the User Interface • Involved in Writing SQL statements to interact with the Oracle Database

Membership in Professional Associations and Publications:

	Language	Speaking	Reading	Writing
	English	Yes	Yes	Yes

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Language Skills (indicate only languages in which you can work):	Telugu	Yes	Yes	Yes

Detailed Tasks Assigned on Bidder's Team of Experts

- Define project goals, scope, and deliverables in alignment with business objectives.
- Create and manage detailed project plans, schedules, and budgets.
- Coordinate cross-functional teams to ensure project milestones are met.
- Monitor project progress and adjust plans as needed to stay on track.
- Identify, assess, and mitigate project risks and issues.
- Allocate resources effectively to optimize team productivity.
- Communicate project status and updates to stakeholders regularly.
- Facilitate team meetings and encourage collaboration and accountability.
- Manage vendor relationships and ensure third-party deliverables.
- Oversee project documentation, reporting, and compliance requirements.
- Foster a culture of continuous improvement within the project team.
- Maintain stakeholder satisfaction through proactive communication and delivery.

Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks

D1, D2, D3, D4, D5, D6, D7, D8, D9, D10

Experts contact information :	**E-mail:** hr@dhanushsoftech.com	**Phone:** +91 4049135000

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA**.**

Name of the Expert: Raghavendra Kumar Bonthala	Raghavendra K B **Signature of the Expert**	**Date:** 06/07/2025
Name of authorized Representative of the Bidder: Karan Christie	K. R. Christie **Signature of the Expert**	**Date:** 06/07/2025

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5.2.4 CV 3: Program Manager

Position Title	K-3, Program Manager
Name of the Expert	Karan Christie
Date of Birth	14th December 1989
Country of Citizenship	Kenyan

Educational Qualification

Institution	Dates Attended	Degree/ Diploma Obtained
Daystar University	Jan 2025 – Nov 2027	PhD in Business Administration - Strategic Management & Innovation
Daystar University	Jan 2018- Nov 2020	MBA in Project Management
Daystar University	Jan 2009- Dec 2012	BSc in Applied Computer Science

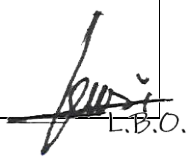
Employment record relevant to the assignment

S No	Organization	Role	Duration
1	Dhanush Softech Pvt. Ltd.	Program Manager	Jan 2018 – till date
2	Dhanush Softech Pvt. Ltd.	Delivery Manager	Jan 2019- Dec 2020
3	Dhanush Softech Pvt. Ltd.	Project Manager	Jan 2016 – Dec 2018
4	Dhanush Softech Pvt. Ltd.	Project Implementer	Jan 2014 – Dec 2017

Period	Employing organization and your title/ position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
Jan 2018- Present	Dhanush Softech Pvt. Ltd. **Designation:** Program Manager **Contact Info for References:** HR Department Email Id: info@dhanushsoftech.com	Kenya	• Oversaw end-to-end delivery of large-scale, multi-sector ERP programs (Education, HR and Healthcare) at the National level. • Provided strategic direction across multiple projects ensuring alignment with client expectations and policy requirements. • Ensured quality assurance and governance in project execution across domains. • Liaised with government and institutional stakeholders to ensure compliance and continuity.

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			• Monitored risk, performance indicators, and impact for all ongoing programs. • Promoted innovation and change management within implementation teams.
Jan 2019-Dec 2020	Dhanush Softech Pvt. Ltd. **Designation:** Delivery Manager **Contact Info for References:** HR Department Email Id: info@dhanushsoftech.com	Kenya	• Led and coordinated the delivery of ERP solutions across different domains. • Managed technical and functional teams to ensure timely delivery and quality outputs. • Facilitated client communication, satisfaction, and issue resolution. • Designed and optimized project workflows to enhance delivery efficiency. • Implemented continuous improvement methodologies and reporting mechanisms.
Jan 2016 – Dec 2018	Dhanush Softech Pvt. Ltd. **Designation:** Project Manager **Contact Info for References:** HR Department info@dhanushsoftech.com	Kenya, Ghana	• Managed Hospital Management Information System (HMIS) projects for institutions like • Nairobi Women's Hospital. • Executed cross-country implementations, including C&J Medicare Hospital (Ghana) and HRMS for Kenya National Assembly. • Oversaw budgeting, resource allocation, stakeholder engagement, and timelines. • Led implementation of an e- ticketing system for Easy Coach, ensuring digital transformation in transport industry. • Supervising user training and ensured handover and support post-deployment.



Jan 2014 – Dec 2017	Dhanush Softech Pvt. Ltd. **Designation:** Project Implementer **Contact Info for References:** HR Department info@dhanushsoftech.co	Kenya, South Africa	• Implemented ERP modules in healthcare, HR, and transport sectors. • Deployed telemedicine and mobile health solutions across Kenya and South Africa. • Coordinated system configuration, testing, and go-live support. • Provided presales support and system demonstrations to prospective clients. • Set up, supervised a Telehealth Call Center, and trained operational staff. • Supported user adoption and performed first-line troubleshooting during rollout.

Membership in Professional Associations and Publications:

- Project Management Institute (PMI-USA)
- Publications: Effects of Stakeholder Involvement on Performance of Telemedicine Project in Nairobi County: A Case of Access Afya DOI: 10.13140/RG.2.2.16770.40641

Language Skills (indicate only languages in which you can work):	**Language**	**Speaking**	**Reading**	**Writing**
	English	Fluent	Fluent	Fluent
	Kiswahili	Fluent	Fluent	Fluent
	Gujarati	Fluent	Fluent	Fluent
	Hindi	Fluent	Fluent	Fluent

Detailed Tasks Assigned on Bidder's Team of Experts

- Oversee the design and delivery of national-level ERP systems in healthcare and education
- Lead cross-functional teams to ensure timely implementation and user training
- Engage stakeholders to ensure needs assessment and satisfaction
- Mentor staff and align project execution with strategic goals

Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks

- Education ERP Project - Open University of Kenya, Kenya
- Human Resource ERP Project - Kenya National Assembly, Kenya
- Integration HMIS Implementation - Nairobi Women's Hospital, Kenya and C&J Hospital, Ghana
- Telemedicine Project - Tunza Clinics, Kenya

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• Mobile Health Project - Rhiza International, South Africa		
Experts contact information:	**E-mail:** info@dhanushsoftech.com	**Phone:** +9140 49135000
Certification		
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA**.**		
Name of the Expert: Karan Christie	K.R. Christie **Signature of the Expert**	**Date:** 08th July 2025
Name of authorized Representative of the Bidder: Karan Christie	K.R. Christie **Signature of the Expert**	**Date:** 08th July 2025

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5.2.5 CV 4: Solution Architect

Position Title	K-4, Solution Architect
Name of the Expert	Shridhar Satyanarayan Kurra
Date of Birth	11-01-1975
Country of Citizenship	Indian

Educational Qualification

Institution	Dates Attended	Degree/ Diploma Obtained
Nagarjuna University, Guntur, Andhra Pradesh	1998	B. Tech in Oils, Soaps and Detergent from YRS & YRN College of Technology

Employment record relevant to the assignment

S No	Organization	Role	Duration
1	Dhanush Softech Pvt. Ltd.	Senior Database Architect	Jul 2019 - till date
2	Eli Research India Pvt. Ltd.	Database Architect	Mar 2015 – Jun 2019
3	ICREA InfoTech Pvt. Ltd.	Senior Database Administrator	Jun 2012 – Feb 2015
4	GE Healthcare	Implementation Specialist	Sep 2011 – Feb 2012
5	ICREA InfoTech Pvt. Ltd.	Lead Database Analyst	Jun 2004 – Sep 2011

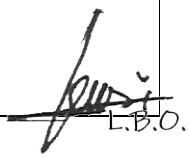
Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
Jul 2019 - till date	**Company Name: Dhanush Softech private limited** **Designation:** Solution Architect **Contact Info for References: HR** **Email Id:** hr@dhanushsoftech.com	Indian	**Organization Name**: Dhanush Healthcare Private Limited **SUMMARY** • Over 20 years of experience in Database Development, Architecture Design, and Administration. • Proven expertise in Database Performance Tuning with strong technical acumen. • Provide strategic technical leadership and mentorship for digital technology initiatives. • Design and architect scalable, secure, and high-performing technology solutions aligned with business needs.

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			• Lead and manage application security assessments by identifying vulnerabilities, evaluating risks, and recommending appropriate mitigation strategies. • Responsible for the configuration and maintenance of SQL Jobs. • Perform in-depth analysis and optimization of SQL queries. • Specialized in cross-platform Data Migration. • Skilled in client communication, documentation, and maintaining comprehensive release notes. • Implement and manage RDBMS Replication. • Configure and manage MongoDB sharding for scalability. • Proficient with tools such as SQL Server Profiler, Performance Monitoring tools, and Explain Plan analysis. • Develop and execute Cyber Security strategies and frameworks aligned with organizational objectives and industry standards. • Evaluate and manage risks associated with digital projects, system architectures, and application security. **WORK EXPERIENCE** **Project 1#** **Title**: ANMOL **Client**: UNICEF, India **Description**: ANMOL is an android-based application, developed to facilitate seamless work of ANMs as well as ensuring collection of good quality data and its digitization at its source. This is developed for the Ministry of Health and Family welfare and is synchronized with web based RCH portal. This works offline and can also be synchronized with the AIS architecture as automatically when connected with internet and also on user request and AIS well connect Portal.

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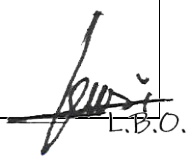
			Roles and Responsibilities: • Design, develop, and optimize scalable, high-performance database architectures. • Ensure database solutions align with business requirements and best practices. • Conduct database performance analysis and optimize query execution • Design and implement data pipelines, ETL processes, and data migration strategies. **Project 2#** **Title**: Rashtriya Bal Swasthya Karyakram (RBSK) **Client**: Government of Andhra Pradesh **Description**: Rashtriya Bal Swasthya Karyakram (RBSK AP Admin) where field level concerns, critical alerts, issues and tracking system is incorporated. This application is also used for track Attendance, Field visits, Alerts, Performance of the individual and MHTs across districts. The above details captures LAT/LONG details, Institution image, Employee information/Confirmations and also new employee. RBSK works offline so dependency on the internet connectivity is very limited and ANMs need not worry about the network and power/electricity connectivity. **Region/ International:** Andhra Pradesh - India **Responsibilities:** • Design, develop, and optimize scalable, high-performance database architectures. • Define database structures, data models, and schema designs for efficient storage and retrieval. • Conduct database performance analysis and optimize query execution • Implement indexing, partitioning, and caching strategies for improved performance. • Work with application developers to integrate databases with backend systems. • Ensure business continuity by minimizing downtime and data loss risks.



			Project # 3 **Title**: VMed **Client:** Uttarakhand Health and Family Welfare Society (UKHFWS) **Description**: This is a teleconference product for Online Video based Doctor Consultation. This is launched in Covid19 lock down period. VMed offers video consultations with doctors, online medicine ordering, and lab test booking, insurance plans, and multiple role-based user capabilities. This integration provides a holistic and user-friendly healthcare experience. **Region/ International:** Uttarakhand – India **Responsibilities:** • Design, develop, and optimize scalable, high-performance database architectures. • Define database structures, data models, and schema designs for efficient storage and retrieval. • Conduct database performance analysis and optimize query execution • Implement indexing, partitioning, and caching strategies for improved performance. • Work with application developers to integrate databases with backend systems. • Ensure business continuity by minimizing downtime and data loss risks. **Project # 4** **Project Name:** eVIN (Electronic Vaccine Intelligence Network) **Client:** Ministry of Health and Family Welfare, Government of India, UNDP **Description:** Electronic Vaccine Intelligence Network (eVIN) is an innovative technological solution aimed at strengthening vaccine supply chain systems across the country **Region/ International:** New Delhi – India **Responsibilities:**

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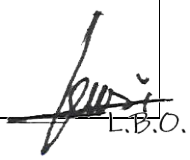
			• Design, develop, and optimize scalable, high-performance database architectures. • Ensure database solutions align with business requirements and best practices. • Conduct database performance analysis and optimize query execution • Design and implement data pipelines, ETL processes, and data migration strategies. **Project # 5** **Project Name:** UDSP (Unified Disease Surveillance Platform) **Client:** India Health Action Trust (IHAT) **Description:** To improve effective health coverage, IHAT aims to enhance availability, quality and utilization of health services, across the continuum of care, for women and children. It builds on global best practices using program learnings to design innovative and comprehensive solutions to address critical barriers across three main platforms – health facilities, communities and health systems. **Region/ International:** Lucknow – India **Responsibilities:** • Design database schema and database layout topology based on business logic • Work with Business Analyst to understand the business requirements. • Work with technical teams to define the methodology, understand the constraints and timelines of the projects • Migrate data from one database platform to another database platform. • Work on the query logic used to generate Dashboard reports to maintain performance • Track development activity and build scripts.
March 2015 to June 2019	Database Architect	Indian	**Organization Name**: Eli Research India Pvt. Ltd., Hyderabad, India **Project 1#** **Name:** Medflow Cloud 2.0



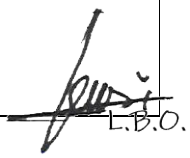
			Description: This is an Ophthalmology Cloud EMR for doctors and hospitals in US. **Project 2#** **Name:** Medflow International **Title:** Sr. Database Administrator **Description**: This is an Ophthalmology Cloud EMR for doctors and hospitals in UK, France, Spain, Portugal and Middle East. **Project 3#** **Name:** Medflow Patient Portal **Title:** Sr. Database Administrator **Description:** This is web URL where patient's login and interact with their physicians. **Project 4#** **Name:** Regulatory Compliance Platform **Title:** Database Architect **Description:** This is a Cloud-based modular solution designed to integrate with other certified Health IT modules (PMS, EHR and patient portal) and third-party service providers (HISP and quality registry) to assist clinicians participating in Merit-Based Incentive Payment System (MIPS). **Project 5#** **Name:** MyCare Analytics **Title:** Database Architect **Description:** This is a cloud-based application designed to analyze the business growth of hospitals **Responsibilities:** • Interact with Business Analysts to analyze requirements and understand business need. • Monitor and troubleshooting database performance • Coordinate with development team and QA team to train on database schema changes as per the business need • Maintain SQL consolidated script as part of build deployment

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			• Interact with development team to help them writing complex SQL queries • Server migrations • Data migration from SQL Server to PostgreSQL • Define the logic of ETL workflow of data from EMR to Analytics database • Maintain the performance of ETL jobs
June 2012 to Feb 2015	Database Administrator	Indian	**Organization Name:** Icrea Infotech Pvt. Ltd. Hyderabad, India **Project 1#** **Name:** Medflow 8.1 **Title:** Database Administrator **Description:** This is Ophthalmology and Optometry based EMR on Client – Server architecture. **Project 2#** **Name:** MedflowSUS **Title:** Database Administrator **Description:** This is Client Environment Monitor Tool that runs at 450+ sites every night to get the performance statistics from all the sites to the central server **Responsibilities:** • Implement and Configuring SQL Jobs like Index Rebuild, Archiving old records, DB Backups. • Monitor and Troubleshoot DB Performance using "MedflowSUS" on daily basis • Debug SQL Queries that affect the performance • Maintain the "Client Environment Performance" reports on daily basis • Interact with Business Analysts for the changes in the database schema as per the business logic • Trace Deadlocks • Maintain Indexes



June 2004 to Aug 2012	Implementation Specialist	Indian	**Organization Name:** GE Healthcare Hyderabad, India **Project 1#** **Name:** GE Centricity Advance (SaaS Application) **Title:** Implementation Specialist **Description:** This is an integrated suite of Electronic Health Records (EHR) and Practice Management (PM). The client application is hosted at the customer machine which connects to the database server over internet hosted by GE **Responsibilities:** • Configuring application for new clients • Importing and exporting patient records from one environment to another • Monitor database servers and application servers • Participate in conference with onsite project leads in prioritizing the tasks as well as the updates **Project 2#** **Name:** Medics DocAssistant 6.0 (SaaS Application) **Title:** Lead Database Analyst **Description:** This is Electronic Medical Records (EMR) application hosted at the customer machine which connects to the database server over internet hosted by Advanced Data Systems Corporation (ADSC). **Project 3#** **Name:** Medics DocAssistant 4.0 (Desktop Application) **Title:** Lead Database Analyst **Description:** This application is designed for all type of hospitals and based on Client –Server architecture **Project 4#** **Name:** Medics Rx (Compact Application) **Title:** Lead Database Analyst **Description:** Its very compact application which is used only for sending Prescriptions and based on Client – Server architecture.



			Project 5# **Name:** DocAssistant Global Services **Title:** Lead Database Analyst **Description:** This is a service used to configure web applications like Patient Questionnaire as well as Patient-Provider Communication. **Responsibilities:** • Installed and configured EMR applications • Installed SQL Server and configured database backup plans • Prepared and maintained check list for Implementation and Updation • Designed and implemented an internal process of application updation for all clients • Interacted with onsite managers, sales representatives and trainers regarding application enhancement and bug fixing • Fixed bugs related to SQL queries and XML • Maintained databases with dummy records for demo purpose.

Membership in Professional Associations and Publications:

	Language	Speaking	Reading	Writing
Language Skills (indicate only languages in which you can work):	English	Yes	Yes	Yes
	Telugu	Yes	Yes	Yes

Detailed Tasks Assigned on Bidder's Team of Experts

- Designing the overall system architecture and security framework.
- Ensuring system scalability, interoperability, and efficiency.
- Providing technical guidance for development and integration.

Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks

D1, D2, D3, D4, D5, D6, D7, D8

Experts contact information :	**E-mail:** hr@dhanushsoftech.com	**Phone:** 040+49135000

Certification

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award.

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I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA**.**		
Name of the Expert: Shridhar Satyanarayana Kurra	**Signature of the Expert**	**Date:** 08th July 2025
Name of authorized Representative of the Bidder:	**Signature of the Expert** K.R. Shridhar	**Date:** 08th July 2025

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5.2.6 CV 5: Solution Architect

Position Title	K-5, Solution Architect		
Name of the Key Personnel	Vishal Singh		
Date of Birth	22nd October 1982		
Country of Citizenship/ Residence	Indian		
Educational Qualification			
Institution		**Dates Attended**	**Degree/ Diploma Obtained**
Bachelor of Technology (B. Tech) in Information Technology (IT)		2005	Uttar Pradesh Technical University Lucknow (UPTU)
Employment record relevant to the assignment			
Period	**Employing organization and your title/position. Contact information for references**	**Country**	**Summary of activities performed relevant to the Assignment**
Jun-2019 - till date	Dhanush Healthcare Systems Private Limited **Designation:** Senior Solution Architect **Contact Info for References:** HR Department Email Id: hr@dhanushsoftech.com	India	• 16.5+ years' Experience in Software Project Management, Design, Development and Implementation in Object Oriented Technology and O&M • Development and execution towards JAVA, J2EE, Spring and Hibernate Technology • VAS, Enterprise Product development and solutioning, Experience with open source technologies and frameworks. • Experience in deployment of VAS services, Enterprise nodes and its configuration. • Experience in AWS Cloud (EC2, RDS, S3, Route53, VPC, Lambda, Cloud Front, Cloud watch etc.) and DevOps (SVN, Maven, Jenking, Docker, Puppet etc.,) • Team Management, Client handling, and Agile Development Methodology

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			• Experience in Call flow designing, project plan creation/preparation, Network layout design, IVR system Sizing, Network Appliances, Arduino board. **WORK EXPERIENCE:** **Project 1#** **Title of the Project:** eVIN System(Electronic Vaccine Intelligence Network System) **Client:** UNDP, India **Regional/ International:** New Delhi, India **Description:** The Electronic Vaccine Intelligence Network (eVIN) is an indigenously developed system that digitizes records of vaccine stocks and monitors its temperature through temperature loggers and extends current statistics of vaccines through web and app to desired officials. eVIN support government's Universal Immunization Programme by providing real-time information on vaccine stocks and storage across all the cold chain points in the respective states. It's have modules like Intent (with Pending, Confirmed, ready for dispatched, shipped, fulfilled statuses), Stock Management, CCE Management, Dashboard, Configuration, Setup, Reports etc. **Responsibilities** • System Design and development • Project status monitoring and implementation planning • Hardware sizing and system deployment • Temperature Logger & Network Integration • AWS X-Ray Implementation • Client interaction and issue resolution. **Project 2#** **Title:** School Health & Wellness Program (SHWP) Application **Client:** UNFPA **Regional / International:** New Delhi, India Description: The SHWP MIS is envisioned to be an all-encompassing platform that aids the program in managing School Health and Wellness Ambassador trainings, recording and reporting of classroom

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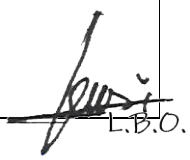
			activities by HWAs, knowledge assessment of school going students (Class 6 to Class 12), access to IEC materials for HWAs and school students, tracking student referrals by HWAs to health facilities and cross sectional and longitudinal data visualization dashboard across multiple levels. **Responsibilities** • System design, development, and deployment • Plan implementation and hardware sizing • Network & system integration • Docker and Kafka configuration • Client interaction for issue resolution **Project 3#** **Title:** Development of Learning Management System (LMS) Application **Client:** All India Council for Technical Education (AICTE), Jawaharlal Nehru Technological University (JNTU) **Regional/ International:** India (New Delhi & Hyderabad) **Description:** Learning Management System LMS is a robust strategic learning tool, It allows self-paced, assisted learning in a collaborative environment, allowing users to take advantage of various tools available for learning, accessing course content, downloading course materials, scheduling classes and courses, applying for new course online, participating in discussions, sharing their experiences through blogs and forums, communicating with other users through mails, tracking the progress of their learning over time, taking tests online, printing certificates etc. It provides a complete platform for collaborative learning in virtual classroom training to the users. **Responsibilities** • System design and end-to-end development • Network and system integration • Deployment and technical support for Docker and Kafka **Project 4#**

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			Title of the Project: AIS (ANMOL Intermediate System) **Client:** UNICEF/MoHFW (Ministry of Health and Family Welfare) **Description of the Project:** AIS (Anmol Intermediate System) is the extension of GOI RCH (Reproductive and Child Health) system, system facilitated the complete mobility to the ANM's (Auxiliary Nursing Midwifery) who can monitory the beneficiaries as well as child's health remotely and can perform their jobs without any hindrances. System is designed and following the Micro services based architectures. There are many micro services like Login service, data entry, ftd's, notifications, Dashboard, download, processing and incremental services etc., **Responsibilities:** • System Design, development • Project status monitoring • Plan Implementation & HW Sizing • End to End System Deployment execution • Discussion with core team for implementation • Guide the team for implementation and Changes • Network & System Integration • Docker and Kafka Configuration and support to client Team • Client interaction for any new as well closure of existing issues **Project 5#** **Title of the Project: ASHA (Accredited Social Health Activist) System** **Client:** UNICEF/MoHFW (Ministry of Health and Family Welfare) **Description of the Project:** ASHA (accredited social health activist) System provides the mobility services to ASHA health workers, system facilitated the complete mobility from beneficiaries as well as child's health status tracking as well as mobilize them to avail the RCH services. System is designed and following the

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			Micro services based architectures. There are many micro services like Login service, data entry, ftd's, notifications, Dashboard and incremental services etc. **Responsibilities:** • System Design, development • System Deployment and configuration execution • Discussion with core team for implementation • Guide the team for implementation and Changes • Network & System Integration
Oct 2017 – March 2019	Aigutech Technologies Pvt Ltd **Designation:** Sr. Solution Architect	India	**Project 1#** **Title of the Project: AMS and Help-Desk System @AGT** **Client:** SSB Satara **Description of the Project:** AMS is robust end to end asset management system, it's have many modules like HAM (Hardware Asset Management), SAM (Software Asset Management), Network Management, Alert Management, RF-ID Tagging, Reporting & Help-Desk Module, HAM module includes the asset inception, configuration, asset assignment, asset revoke, asset transfer, asset destroy and asset warranty check. SAM module includes monitoring and management of licensed and open source s/w's alerting to admin in case any unauthorized s/w found in any machine, Network management module consist of Link monitoring and bandwidth monitoring also notify via mail as well as via sms and opening the auto tickets in the helpdesk system. RFID module provide the facilities to track the ip & non ip-based device easily. Help-Desk module is fully complied with ITIL and ITSM (ISO-20000) which includes incident request, service request, problem management, change management module and SLA Management & CMDB. Tickets would be logged either via end user or through Help-Desk Agent and allocated to the respective analyst by the



			manager and resolved by analyst and closed after getting end user (ticket owner) consent. **Responsibilities:** • Requirement gathering, MOM Circulation. • System Design, development • Project status monitoring • Plan Implementation & HW Sizing • End to End System Deployment execution • Network discussion with client • Discussion with core team for implementation • Guide the team for implementation and Changes • Network & System Integration • Apache Load balancer configuration • Managing Development and implementation Team. Management of SVN • Internal & Client UAT • Client interaction for closure of issues **Project 2#** **Title of the Project:** Remote Management System & Relay Server@AGT **Client:** UNICEF/MoHFW (Ministry of Health and Family Welfare) **Description of the Project:** Remote Management System provide the functionality of Remote access similar to TeamViewer, any desk it have features access user screen, file transfer, chatting and calling features. It works on the concept of UDP hole punching and where ever UDP hole punching fails its use relay server to complete the activity. **Responsibilities:** • Requirement discussion • System Design, Development • Project status monitoring • Discussion with core team for implementation

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			• Guide the team for implementation and Changes • Network & System Integration • Internal UAT • Managing Development and implementation Team. • Management of SVN **Project 3#** **Title of the Project:** Energy Management System @AGT **Description of the Project:** Energy Management System provide functionality and configuration for management of different power sources like Power Grid, DGset, Solar panel and windmills and monitor their consumptions and trigger alerts in case of over/under consumption as well as take the respective action to optimize the utilization and cost for big organizations. **Responsibilities:** • Requirement discussion • System Design, development • Project status monitoring • Discussion with core team for implementation • Guide the team for implementation and Changes • Network & System Integration • Internal UAT • Managing Development and implementation Team. • Management of SVN
Jan 2016 – Sep-2017	Indicium Consultancy Services Pvt Ltd Designation: Solution Architect	India	**Project 1#** **Title of the Project:** Asset Management and Ticketing System @ICS **Client:** Usha International Ltd **Description of the Project:** ICS Asset Management System is robust end to end asset management system, it have many modules like HAM (Hardware

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			Asset Management), SAM (Software Asset Management), Network Management, RF-ID Tagging, Reporting & Help-Desk Module, HAM module includes the asset inception, configuration, asset assignment, asset revoke, asset transfer, asset destroy and asset warranty check. SAM module includes monitoring and management of licensed and open source s/w's alerting to admin in case any unauthorized s/w found in any machine, Network management module consist of Link monitoring and bandwidth monitoring also notify via mail as well as via sms and opening the auto tickets in the helpdesk system. RFID module provide the facilities to track the ip & non ip-based device easily. Help-Desk module is fully complied with ITIL and ITSM (ISO-20000) which includes incident request, service request, problem management and change management module. Tickets would be logged either via end user or through Help-Desk Agent and allocated to the respective analyst by the manager and resolved by analyst and closed after getting end user (ticket owner) consent. **Responsibilities:** • System Design, development • System Deployment and configuration execution • Discussion with core team for implementation • Guide the team for implementation and Changes • Network & System Integration with Client n/w team. • Monitoring of system implementation and project tracking • System internal UAT and client UAT **Role:** - Solution Architect **Project 2#** **Title of the Project: SCADA System @ICS** **Client:** Unison Engg

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			Description of the Project: ICS SCADA is a software based supervisory control and data acquisition system which collect the live voltage, current, kwh, temperature, oil level from the 33KV and 11KV Transformers. It generated and relays the alerts to the configured MSISDN's with the help of GSM Modem. It uses the Modbus RS485 protocol to read electrical meter Input register address at specified intervals. **Roles/ Responsibilities:** Project Manager
May 2014 – Jan 2016	Spice Digital Limited **Designation**: Manager	India	**Project 1#** **Title of the Project: Centralized Billing System @Spice Digital Ltd** **Client:** Spice Digital Ltd (Internal) **Description of the Project:** Central Billing System make the ease in WAP billing to end users. It supports the WAP user billing irrespective of operators and provide the concrete details of transactions. **Responsibilities:** • Team management, Design, development • System Deployment and configuration • Discussion with core team for implementation • Guide the team for implementation and Changes • Interaction with Telecom Operation Billing and SMS team **Role:** - Manager Project Lead **Project 2#** **Title of the Project: WAP Content Management System @ Spice Digital Ltd** **Client:** Spice Digital Ltd (Internal) **Description of the Project:** WAP content management system manages all aspect of content including content ingestion from various CP's, Review the content, approve and stock the content through deck manager and provide the various type of business MIS. **Responsibilities:** • Team management, Design

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			• System Deployment and configuration • Discussion with core team for implementation • Guide the team for implementation and Changes • Interaction with Telecom Operation Billing team **Role:** - Manager Project Lead
Sep 2009 – Aug 2013	Valley Telegence Pvt Ltd **Designation**: Team Lead	India	**Project 1#** **Title of the Project:** ESN Track System Deployment (Aug-2012) @Valley **Client:** MTS SSTL (Sistema Shyam Teleservices Limited) Noida **Description of the Project:** ESN (Electronic Serial Number) Track system keeps the track of the devices which are in the network. It provides the function so that time to time operator can track the subscriber and verified their authenticity to avoid the network missus and provide smooth services to the end users. **Roles/Responsibilities:** Deployment Lead **Project 2#** **Title of the Project:** OTAF System Expansion and Deployment (Aug-2011 to Sep2012) @Valley **Client:** MTS SSTL (Sistema Shyam Teleservices Limited) Chennai **Description of the Project:** Enterprise distributed Over the Air provisioning system for providing the OTAPA and OTASP services. OTAF system provide on the fly PRL, MIN and NAM parameter Update services to the operator. **Project 3#** **Title of the Project:** Reliance OTAF System POC (March-2010) @Valley **Client:** Reliance Infocom Limited (DAKC) Mumbai (Test bed server) **Description of the Project:** Enterprise distributed Over the Air provisioning system for providing the OTAPA

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			and OTASP services. OTAF system provide the PRL and NAM parameter Update services to the operator. **Project 4#** **Title of the Project:** IMPS (Feb-2009 – June2010) @Valley **Client:** BSNL Chennai **Description of the Project:** Enterprise IMSP application consisting of core IM server, Subscription Engine, charging gateway, SMS gateway, provisioning interface, WAP portal.
May 2007 – Sep 2009	i2iTelesource Pvt Ltd **Designation**: Sr. Software Engineer	India	**Project 1#** **Title of the Project:** Content Delivery Server (End to End Discovery and download of Mobile Contents) @i2i (Deployments of Content Delivery Server CDS @ i2i) **Client:** TeleTalk Bangladesh, Grameen Phone Bangladesh, MTS, Spice, Loop Mobile **Description of the Project:** This OMA compliant platform is a complete product that enables mobile operators to launch content services. This solution manages content intake and pricing, provides flexible purchase models with delivery of any content over any relevant channel (SMS/WAP). It also tracks information for reporting and billing purposes Deployments of content delivery server in operator premises for providing end to end VAS services. Below are the list of few deployments • Tele talk CDS Deployment (Onsite: Bangladesh), • Grameen Phone CDS Deployment (Onsite: Bangladesh) • MTS Rajasthan CDS Deployment (Onsite: Jaipur) • Spice Telecommunication CDS Deployment (Karnataka & Punjab) • BPL Mumbai CDS Deployment • LOOP mobile CDS Deployment • Vodafone CDS Deployment **Responsibilities:**

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			• Responsible for onsite/off site deployments, Integrations of CDS with operator SMSC, WAP and Billing systems. • Responsible for the system testing for the modules and UTA testing. • Assign the task, supporting team members for completion **Project 2#** **Title of the Project:** Unified Subscription Engine for Telecom Operator @i2i **Description of the Project:** Subscription engine is complete product that provide a subscription unified layer for providing the subscription services for text, CRBT, mobile content or any other services. Subscription engine can be integrated with any product easily to provide the subscription services. Subscription can be done via channel like WEB, WAP, SMS and IVR. **Project 3#** **Title of the Project:** TATA DoCoMo Huawei Service Delivery Platform (SDP) @i2i **Client:** UNICEF/MoHFW (Ministry of Health and Family Welfare) **Description of the Project:** Huawei SDP is depl oyed in TATA Teleservices for maintaining the TATA DOCOMO portal and other services. SDP is complete product which provides many kind of services to end users. OMA compliant support forward lock, combined delivery, separate deliver DRM.
Aug 2005 – July 2006	Dee Technologies Pvt Ltd **Designation**: Software Project Trainee	India	**Project 1#** **Title of the Project:** mCampaign (Messaging Platform) **Client:** UNICEF/MoHFW (Ministry of Health and Family Welfare) **Description of the Project:** Campaign is an IPR based message broking solution. It is capable of handling MO and MT messaging services. It has no. of salient features and modules that help clients to target their customer groups, scheduled their campaigns.
Membership in Professional Associations and Publications: NA			

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Language Skills (indicate only languages in which you can work):	Language	Speaking	Reading	Writing
	English	✓	✓	✓
	Hindi	✓	✓	✓

Detailed Tasks Assigned on Bidder's Team of Experts

- Continual monitoring, tracking and reporting of project progress.
- Engage proactively with stakeholders on issues, show stoppers, risks
- Communicate and get acceptance on Risk Mitigation Strategies from key stakeholders
- Implement Risk Mitigation strategies and track their efficacy.
- Use standard templates, tools and visualizations such as Project Plans, Gantt Charts and Dashboards to keep key stakeholders abreast of the progress.
- Follow up with the KoTDA strictly adhering to methodology for the application development
- Proactively identify conflict, provide Issue resolutions and get acceptance from all stakeholders to close issues amicably in a time bound manner.

Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks

D1, D2, D3, D4, D5, D6, D7, D8

Experts contact information :	**E-mail:** hr@dhanushsoftech.com	**Phone:** +91 40 49135000

Certification

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.

Name of the Expert: Vishal Singh	**Signature of the Expert**	**Date:** 08th July 2025
Name of authorized Representative of the Bidder: Karan Christie	**Signature of the E** K. R. Christie	**Date:** 08th July 2025

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5.2.7 CV 6: Security Architect

Position Title	K-6, Sr. System Administrator
Name of the Expert	Chejarla Sudhakar
Date of Birth	13-06-1991
Country of Citizenship	INDIA

Educational Qualification

Institution	Dates Attended	Degree/ Diploma Obtained
JNTU Hyderabad	2012	Bachelor of Technology

Employment record relevant to the assignment

S No	Organization	Role	Duration
1	Dhanush Softech Pvt Ltd	Sr. System Administrator	Dec 2015 to Till Date.

Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
Dec 2015 to Till Date.	**Company Name:** Dhanush Softech Private limited **Designation:** **Contact Info for References:** HR **Email Id**: info@dhanushsoftech.com	Indian	**Summary:** • 8+ years of experience managing IT infrastructure in on-premise and cloud environments. • Expertise in VMware administration (ESXi, vCenter, VMware Cloud Director). • Skilled in AWS cloud management (VPC, AMI, security, S3 integration). • Proficient in Windows/Linux server management and data center operations. • Managed 500+ virtual machines, ensuring high availability and scalability. • Experienced in server provisioning with HPE ProLiant systems. • Hands-on with P2V/V2V migrations, LAMP stack, Active Directory, DHCP/DNS, and SQL Server. • Managed Veeam backup solutions and retention policies.

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			• Implemented monitoring with Manage Engine OP Manager. **Responsibilities:** • Managing VMware infrastructure environment with 500 plus virtual machines. • Installation, Configuration and Administration of VMWare ESXI 5.0, 5.1, 6.5, Vcenter 6.5 and VMware Cloud direct • Responsibility for capacity planning, design, install and configuration of newly provisioned HPE ProLiant DL360 Gen 10 Plus servers, build Linux, Windows and ESXI, VM Ware Cloud director servers. • Amazon cloud services support. • Aws cloud management for e.g. creating VPC, installing VM using AMI and creating AMI for different environments. Creating network connectivity and ensuring security parameters are correct. Ability to troubleshoot issues in a cloud environment. Working with S3, EBC etc. • P2V and V2V conversions by using VMware Converter. • Performing Snapshots, Cloning, Cold migrations and host migrations. • Creating templates from VM's and deploy VM's from templates and allocate resources • Root Cause & System log analysis and reporting • Adding a new virtual disk and extending existing virtual disk hardware monitoring of HP systems • Managed two individual Veeam backup environment to backup windows/Linux servers and VM infrastructure

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			• Supporting backups on over 500 servers in 3 operating computers, each with their own retention requirements • Provided detailed reports and confirmation of backups for the various backup agents in the environment • Configured and Monitored 500 servers using Manage Engine OP Manager • Installation, configuration and administration of windows 2012, 2016, 2019, 2022 servers • Installing and configuring DHCP, DNS and Active Directory • Implemented procedures for operation and administration of application deployment technologies in all systems • Installing and configured MSSQL 2016, 2017 and 2019 servers • Build, installed, configured Red Hat Linux, Ubuntu, Centos, Alma Linux server in a data centre environment • Installed and Configured LAMP Server (Linux Red hat, Centos, Ubuntu, Apche, Mysql, PHP)

Membership in Professional Associations and Publications:

Language Skills (indicate only languages in which you can work):	**Language**	**Speaking**	**Reading**	**Writing**
	English	Yes	Yes	Yes
	Telugu	Yes	Yes	Yes

Detailed Tasks Assigned on Bidder's Team of Experts

- Analyze business requirements to design scalable, secure, and cost-effective technical solutions.
- Define system architecture and technology stack in alignment with organizational goals.
- Lead the design and integration of software systems, applications, and infrastructure.
- Evaluate and select appropriate platforms, frameworks, and tools.
- Collaborate with stakeholders including business analysts, developers, and project managers.
- Translate functional requirements into detailed technical specifications.
- Ensure architectural consistency and alignment with enterprise standards.

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• Provide technical leadership and guidance during development and implementation phases. • Conduct impact analysis and identify risks and mitigation strategies. • Maintain documentation for architecture designs, decisions, and system components. • Review code and design outputs for adherence to architectural guidelines. • Ensure solutions are secure, performant, and compliant with regulations. • Support DevOps and CI/CD pipeline integrations for seamless delivery. • Stay up to date with emerging technologies and evaluate their potential use.		
Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks		
D-3, D-4, D-5, D-6, D-7, D-8, D-9, D-10, D-11		
Experts contact information :	**E-mail:** info@dhanushsoftech.com	**Phone: +91 4049135000**
Certification		
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.		
Name of the Expert: Chejarla Sudhakar	**Signature of the Expert**	**Date:** 9th July 2025
Name of authorized Representative of the Bidder: Karan Christie	K. R. Christie	**Date:** 9th July 2025

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5.2.8 CV 7: Security Architect

Position Title	K-7, Security Architect
Name of the Expert	Santosh Tiwari
Date of Birth	2nd April 1986
Country of Citizenship	Indian

Educational Qualification

Institution	Dates Attended	Degree/ Diploma Obtained
Welingkar Institute of Management	2013	Post Graduate

Employment record relevant to the assignment

S No	Organization	Role	Duration
1	Dhanush Softech private limited	Security Architect	July 2025 to till date
2	Tech Mahindra	Security Architect	Mar 2022 – June 2025
3	Geninvo Technology Pvt. Ltd.	Senior Manager IT Security and Compliance	Aug 2021 – Feb 2022
4	Mindtree Limited	Technical Lead	Jan 2021 – Aug 2021
5	Tech Mahindra	Associate Security Architect	Mar 2016 – Dec 2020
6	Orange Business Services	Security Operation Engineer (Global SOC)	Mar 2013 – Mar 2016

Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
June 2025 to till date	**Company Name:** Dhanush Softech Private Limited **Designation:** **Contact Info for References:** HR **Email Id**: info@dhanushsoftech.com	Indian	**Summary:** • 13+ years of experience in cybersecurity, infrastructure protection, and compliance. • Specialized in security architecture, SIEM/SOC operations, and vulnerability assessments. • Proven ability to design and deploy secure enterprise systems across telecom, IT, software, and cloud sectors.

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			• Strong expertise in incident management, penetration testing, and network security. • Hands-on experience with regulatory standards such as ISO, GDPR, and HIPAA. • Held leadership roles at Tech Mahindra, Mindtree, Geninvo, and Orange Business Services. • Successfully reduced cyber risks and improved compliance and threat response. • Skilled in drafting and enforcing security policies and governance frameworks. • Effective in stakeholder engagement and leading cross-functional security teams.
Aug 2021 – Feb 2022	**Company Name:** Geninvo Technology Pvt. Ltd, **Designation:** Senior Manager IT security and compliance		**Roles & Responsibilities:** • Conducted security audits to identify and address vulnerabilities in IT systems and infrastructure, resulting in improved system security • Developed and implemented internal control policies and procedures that improved financial security and compliance • Developed and implemented IT policies and procedures that improved system security and compliance • Developed and implemented a comprehensive IT security policy that reduced the organization's vulnerability to cyber threats by 50%
Jan 2021 – Aug 2021	**Company Name:** Mindtree Limited , Bangalore **Designation:** Technical Lead	India	**Roles & Responsibilities** • Implemented security protocols to protect data and systems from cyber threats Identified and implemented countermeasures to protect against phishing and social engineering attacks • Developed a comprehensive security framework that enforced strict access control policies, resulting in reduction in security breaches

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			• Developed a security incident response plan that enabled the organization to respond quickly and effectively to security threats • Implemented security best practices to harden system security, resulting in decrease in security incidents
Mar 2016 – Dec 2020	**Company Name: Tech Mahindra** **Designation: Associate Security Architect** **Contact Info for References: HR** **Email Id**:	Indian	**Organization Name**: Tech Mahindra **Roles & Responsibilities:** • Conducted a comprehensive security assessment of the company's IT infrastructure, identifying and remediating vulnerabilities that posed a risk to data integrity • Configured and maintained security tools and technologies, such as antivirus and anti-malware, to protect the organization's systems • Monitored the network for malicious activity and implemented countermeasures to protect the organization's systems • Configured firewalls and intrusion detection systems to protect the organization's networks and systems • Conducted security awareness training to educate users on how to protect the organization's systems from threats • Designed and implemented a SIEM system that enabled real-time monitoring and alerting of security services
Mar 2013 – Mar 2016	**Company Name: Orange Business services** **Designation: Security Operation Engineer (Global SOC),** **Contact Info for References: HR** **Email Id**:		**Organization Name: Orange Business services** **Role & Responsibilities:** • Configured firewalls, intrusion detection systems, and other perimeter security measures to protect against external threats Performed penetration tests and vulnerability scans to identify and close existing security gaps in the network

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			• Monitored and analyzed security logs to detect and respond to potential security threats in a timely manner • Developed a dashboard that provided stakeholders with an overview of key performance indicators • Developed and implemented security best practices to protect customer data from malicious actors
Jan 2012 – Mar 2013	**Company Name: XcellHost Cloud Services Pvt Ltd** **Designation: Security Operation Engineer** **Contact Info for References: HR** **Email Id**:		**Organization Name:** Xcellhost Cloud services **Roles & Responsibilities:** • Developed a hybrid cloud infrastructure that allowed for secure data transfer between on-premise and cloud-based systems • Monitored cloud resources to ensure optimal performance and cost efficiency • Implemented security policies and best practices to ensure system compliance with regulatory requirements

Membership in Professional Associations and Publications:

Language Skills (indicate only languages in which you can work):

Language	Speaking	Reading	Writing
English	Yes	Yes	Yes
Marathi	Yes	Yes	Yes
Hindi	Yes	Yes	Yes

Detailed Tasks Assigned on Bidder's Team of Experts

- Analyze business requirements to design scalable, secure, and cost-effective technical solutions.
- Define system architecture and technology stack in alignment with organizational goals.
- Lead the design and integration of software systems, applications, and infrastructure.
- Evaluate and select appropriate platforms, frameworks, and tools.
- Collaborate with stakeholders including business analysts, developers, and project managers.
- Translate functional requirements into detailed technical specifications.
- Ensure architectural consistency and alignment with enterprise standards.
- Provide technical leadership and guidance during development and implementation phases.
- Conduct impact analysis and identify risks and mitigation strategies.

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• Maintain documentation for architecture designs, decisions, and system components. • Review code and design outputs for adherence to architectural guidelines. • Ensure solutions are secure, performant, and compliant with regulations. • Support DevOps and CI/CD pipeline integrations for seamless delivery. • Stay up to date with emerging technologies and evaluate their potential use.		
Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks		
D-3, D-4, D-5, D-6, D-7, D-8, D-9, D-10, D-11		
Experts contact information :	**E-mail**: info@dhanushsoftech.com	**Phone:** +91 4049135000
Certification		
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA**.**		
Name of the Expert: Santhosh Tiwari	**Signature of the Expert**	**Date:** 9th July 2025
Name of authorized Representative of the Bidder: Karan Christie	**Signature of the Expert**	**Date:** 9th July 2025

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5.2.9 CV 8: Security Architecture

Position Title	K-8, Security Architect
Name of the Expert	Anil Shivaji Patil
Date of Birth	16th January 1981
Country of Citizenship	Indian

Educational Qualification

Institution	**Dates Attended**	**Degree/ Diploma Obtained**
KTHM College Nasik Pune University	2004	Bachelor of Computer Science
Noble Work Foundation, Australia	2022	Postgraduate Diploma in Digital Products Management

Employment record relevant to the assignment

S No	**Organization**	**Role**	**Duration**
1	Dhanush Softech Private Limited	Security Architect	July 2025 to till date
2	OneTrust, USA	Referral Partner	Jan 25 to June 25
3	Skillmine Technology Consulting Pvt Ltd	Security Architect	Dec 2021 - Apr 2022
4	Empowered Margins Pvt Ltd	Information Security & Compliance Officer	Jul 2021 - Aug 2021
5	Infosys Ltd	Sr. Consultant	Oct 2019 - Jan 2020
6	Sequretek IT Solutions Pvt Ltd	Sr. InfoSec Consultant / Project Lead	Aug 2017 - Jun 2019

Period	**Employing organization and your title/position. Contact information for references**	**Country**	**Summary of activities performed relevant to the Assignment**
Jan 25 to June 25	**Company Name:** Dhanush Softech Private Limited **Designation:** Security Architecture **Contact Info for References: HR**	India	**Summary:** • 15 years of hands-on experience in cybersecurity across banking, fintech, insurance, healthcare, and IT sectors. • Expert in designing, implementing, and managing robust cybersecurity frameworks.

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	Email Id: hr@dhanushsoftech.com		• Proficient in vulnerability management, penetration testing, threat modeling, and risk assessments. • Experience as both a security consultant and architect, aligning security strategies with business goals. • Holds globally recognized certifications including CEH, CISM, CISSP, GDPR/DPO, CIPP/E, and cloud certifications (AWS, Azure, Google Cloud). • Skilled in compliance with major frameworks such as ISO/IEC 27001, PCI-DSS, and HIPAA. • Proven ability to lead complex security projects and audits in domestic and international contexts. • Known for leading strategic security programs and managing cross-functional teams. • Brings a proactive and innovation-driven approach to enterprise security and regulatory compliance. **Work Experience** **Organization Name**: OneTrust, USA **Project: Privacy Compliance Software** **Description**: Generating Qualified Referrals: Proactively identify, assess, and refer high-potential prospects whose business needs align with OneTrust's privacy, security, and compliance solutions—driving pipeline growth and strategic customer engagement. **Responsibilities** • Strategic Collaboration with OneTrust: Partner closely with OneTrust teams to ensure seamless customer engagements, successful solution implementations, and long-term client satisfaction. • Ongoing Certification & Expertise Development: Maintain up-to-date OneTrust certifications while deepening subject matter expertise across key areas such as Consent Management,

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			Privacy, Artificial Intelligence, Third-Party & Technology Risk, and Data Governance. • Living OneTrust Values: Actively embody and promote OneTrust's core values of integrity, innovation, customer-centricity, collaboration, and continuous learning. • Leveraging OneTrust Resources: Utilize OneTrust's robust ecosystem of training, enablement tools, and technical support to build and expand your Trust Intelligence capabilities and deliver impactful solutions.
Dec 2021 - Apr 2022	**Company Name:** Skillmine Technology Consulting Pvt Ltd **Designation:** Security Architect	India	**Organization Name**: Skillmine Technology Consulting Pvt Ltd **Title**: Tavisca, a cxLoyalty Technology Platform (Division of JP Morgan Chase & Co.), Pune. **Description**: Vulnerability Assessment and Penetration Testing. • Reviewed and resolved security user stories and tasks in DevSecOps using JAMA and Confluence. • Utilized Atlassian Suite tools including CI/CD, Jira, Confluence, and Bitbucket for secure development workflows. • Developed, enhanced, and maintained comprehensive security documentation, including threat models and security architecture reviews. • Conducted secure architectural design reviews and provided expert input on system security. • Performed code reviews using IAST tools like Checkmarx and conducted manual and automated threat modeling using ThreatModeler (STRIDE/MITRE framework). • Executed API security testing with Postman and integrated security checks into build tools. • Provided expert guidance on application vulnerability remediation and threat mitigation strategies.

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Jul 2021 - Aug 2021	**Company Name: Empowered Margins Pvt Ltd. Noida (*HealthCare*)** **Designation:** Information Security & Compliance Officer **Contact Info for References: HR** **Email Id**:	India	**Organization Name**: **Empowered Margins Pvt Ltd. Noida (*HealthCare*)** **Title**: **Bavvy** **Description**: Performed Vulnerability Assessments and penetration testing on web application. • Performed Security Audit as per Penetration testing based on NIST 800-115, SANS-25 and OWASP Top 10 standards. • Analysed scan reports and suggest remediation / mitigation plan.
Jul 2021 - Aug 2021	**Company Name: Infosys Ltd. Hyderabad (*HealthCare*)** **Designation:** Information Security & Compliance Officer	India	**Organization Name**: : Infosys Ltd. Hyderabad (*HealthCare*) **Title**: Merck Life Science Pvt Ltd. Hyderabad (Onsite) (Merck Group) **Description**: AnalysedSource Code scan reports and suggest remediation / mitigation plan. **Responsibilities** • Conducted Web Application Architecture Security Reviews, Static Code Reviews, and Penetration Testing. • Performed Penetration Testing on IoT network devices to identify and mitigate vulnerabilities. • Reviewed and resolved security user stories in DevSecOps environments using CI/CD, JAMA, Jira, and Confluence. • Executed Network Security and Architecture Reviews along with in-depth Source Code Analysis. • Created security hardening guidelines for operating systems, network devices, and performed related security testing.

Membership in Professional Associations and Publications: NA

Language Skills (indicate only languages in which you can work):

Language	Speaking	Reading	Writing
English	Yes	Yes	Yes
Marathi	Yes	Yes	Yes
Hindi	Yes	Yes	Yes

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Detailed Tasks Assigned on Bidder's Team of Experts		
• Design and implement enterprise-wide security architecture and frameworks. • Define security standards, policies, and procedures aligned with business goals. • Evaluate and recommend security tools, technologies, and solutions. • Conduct threat modeling and risk assessments for systems and applications. • Ensure secure design and integration of cloud, network, and application infrastructures. • Collaborate with IT and development teams to embed security in SDLC. • Oversee vulnerability management and remediation strategies. • Lead incident response planning and post-incident analysis. • Ensure compliance with regulatory and industry security standards (e.g., ISO 27001, PCI-DSS, NIST). • Review and approve security architecture for new projects and systems. • Conduct security reviews of third-party vendors and integrations. • Provide technical guidance on encryption, identity management, and access controls. • Monitor emerging threats and update security posture accordingly. • Train and mentor teams on security best practices and policies. • Prepare security documentation and support audits and assessments.		
Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks		
D-2, D3, D4, D5, D6, D7, D8, D9		
Experts contact information:	**E-mail:** hr@dhanushsoftech.com	**Phone:** +91 4049135000
Certification		
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA**.**		
Name of the Expert: Anil Patel	**Signature of the Expert**	**Date:** 08th July 2025
Name of authorized Representative of the Bidder: Karan Christie	**Signature of the Expert** K.R. Christie	**Date:** 08th July 2025

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5.2.10 CV 9: Network Architect

Positon Title and No.	K-7, Network Architect
Name of Expert	Chandra Sekhar T
Data of Birth	17/06/1981
Country of Citizenship/Residence	Indian
Education:	

Degree/ Diploma obtained	Name of Educational Institutions	Dates Attended (Academic year)
Bachelor of Computer Application (BCA)	Osmania University, Hyderabad	2000-2003

Employment record relevant to the assignment:

Period	Employing organization and your title/position. Contact info for references	Country	Summary of activities performed relevant to the Assignment
Nov 2010 – till date	Dhanush Softech Private Limited **Designation:** ICT Manager **Contact Info for References:** HR Department Email Id: hr@dhanushsoftech.com	India	**SUMMARY** • Over 15+ years of experience in computer related industry with a heavy focus on systems, security and networking administration. • Implementation of Active Directory on Windows 2008/2003 Servers. • Analysis, Setup and configuration of Windows 2008/2003 server and workstation. • Management, planning and execution of Microsoft Server solutions. • Installing, configuring, Maintaining Share Point server 2007, Co-ordination with the developers to resolve the issues in programming. • Installing, configuring, Maintaining of SQL 2008/2005, scheduling daily and weekly backup using Microsoft Management Studio. • WSUS Configuration for 2.0 and 3.0, MOM2005.

L.B.O.

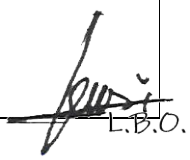
			• Extensive experience with Network interoperability and configurations, focused on security and interrogations of WAN/LAN configurations with Advanced TCP/IP. • Experience in manage and configure Backup for NT backup VSS and verities net back up for windows environment, auto backup for SQL. • Experience in install and manage My SQL and Oracle software's in Windows severs. • Administration, management and maintenance of network devices including switches, Wireless Routers, firewalls/VPN, load- balancers and file servers. • Experience in managing two ways clustering in windows & SQL server. • Installing, configuring, Maintaining of Tomcat, Apache, Jobs, Web logic and PHP servers. • Installing, configuring, Maintaining Version controlling software such as VSS and Team Suit. • Extensive experience on Global and Site to Site VPN's and client side VPN'S. • Maintain high security of network plus analyze and monitor security, anti-virus and spy ware. • Extensive experience with sonic wall NSA 2400, Pro 2040, TZ 210, TZ 170 and Net gear FV 318. • Implemented backup strategy with Magneto-optic and tape backup Solutions. • Extensive experience in all kind of Hardware installations, up-gradation and troubleshooting. • Effective time management, multitasking, and problem solving skills. • Remotely monitoring and managing servers using utilities like VM ware, Terminal Services, RDP, PC Anywhere, Utility, VNC Viewer and Exceed. • Experience in working servers like HCL infinity 1400, IBM System (3400 series, 226), Dell

L.B.O.

			Power Edge 2900, 6850 and 6950, HP ProLiant ML350 G5, HP BL 360C, IBM e & X Server, (X86 based), HCL Global line series, Sun Enterprise Server E250. **Responsibilities** • Installing, configuring and managing mixed Windows Servers • Install, configure and managing Exchange2007 servers. • Installed and configured Office Communication server 2007 R2 • Database server installation and administration On Windows Platforms. • Perform problem diagnoses and implement corrective actions. • Conduct performance configuration and tuning of data servers. • Proactively monitor and check database consistency. • Coordinate and provide support and consulting to applications development, systems administration, systems interoperability, and operations support for database systems in the organization. • Coordinate/install database patches and third party backup software as necessary. • Call Center Setup for Knowledge Process Outsource services. • Monitor and measure data server performance. • Implement database backup and restore tools, processes and procedures • Create user and group accounts as requested. • Provide technical assistance with data migration and system conversion efforts. • Maintain and monitor SQL Servers replication server. • Install and manage Windows 2008 sever • Install restore and mange SQL 2005 databases in to SQL 2008 server. **Windows Server 2008 R2 / 2008 / 2003 administrations** • Installation and Administering Windows server 2003/2008/2008 R2.

L.B.O.

			• Installation and configuration of Active Directory domain controllers. • Managing users and computers using the group policies • Configuring and managing the AD, DNS services. • Authorization of DHCP Servers & Maintaining with MAC binding to the computer for additional security. • Knowledge on Global catalog • Patch management for the Domain controllers and Exchange servers • Management of Active Directory domain controller FSMO roles • Configuring and managing Active Directory sites, site links and subnets • Establishing domain trusts within the forest and knowledge on forest wide trusts • Performing back up and restoration of AD **MS SQL server administration** • Installation of SQL Server 2008 R2/ 2008 /2005. • Creating Databases, managing the SQL users to access the databases • Backup database manual and Automatic schedule, Restoring the Databases from the backup file • Configuring Notification Services, Reporting Services • Configuring Analysis Services **Virtualization** • VM Ware Esxi 3.5, 4.0 and 4.1 • Hyper V **Web servers:** • Worked on IIS 6.0 & IIS 7.0 **Server Hardware** • HCL infinity 1400, IBM System (3400 series, 226, HP ProLiant ML350 G, HP BL 360C
Apr 2007 – Nov 2010	Serveall Enterprise Solutions Pvt Ltd Systems and Network Administrator	India	• Installing, configuring and managing mixed Windows Servers • Install, configure and manage Exchange2007 / 2003 servers.



			• Database server installation and administration On Windows Platforms. • Perform problem diagnoses and implement corrective actions. • Conduct performance configuration and tuning of data servers. • Proactively monitor and check database consistency. • Coordinate and provide support and consulting to applications development, systems administration, systems interoperability, and operations support for database systems in the organization. • Coordinate/install database patches and third party backup software as necessary. • Monitor and measure data server performance. • Implement database backup and restore tools, processes and procedures • Create user and group accounts as requested. • Provide technical assistance with data migration and system conversion efforts. • Maintain and monitor SQL Servers replication server. • Configure and manage VPN , Network Security , spam security using , user level access using LDAP services for authenticate login for internet fire walls (Sonicwall NSA 2400, Pro 2040, TZ 210 and TZ170) • Install and manage MySQL, apache, PHP applications. • Install, configure and manage VM ware for clan up systems for Wise package in Windows environment. • Install and manage Windows 2008 sever and migrating Windows 2000 sever and services to Windows 2008 domain controller. • Install restore and mange SQL 2005 databases in to SQL 2008 server.

L.B.O.

			• Application support for US Airways hotel booking, Oaktee Capital, Net worth. Accubsses, care origin, pinpoint projects & AMS, time sheets projects for internal.
Sep 2005 – Mar 2007	Hosting Networks (India) Pvt Ltd. Assistant Team Lead	India	Responsible for Setup, Maintenance and technical support for staffs. Provided direction and assistance to administration and staff in problems with LAN, Internet access and other software applications needs. Provided direction and assistance to administration and staff in problems with LAN, Internet access and other software applications needs. **Responsibilities** • Acted as an Assistant Team Lead and use to give training for New Joinee. • Handling the escalation chats. • Also leading the Web Hosting Team (L1 Support). • Troubleshooting the problems related to Web hosting Laptops & Desktops. • Troubleshooting different issues by remote desktop sharing s/w Team Viewer. • Provide the chat support as well as E-Mail support to the customer to resolve the problem. • Troubleshooting the problems related to Software's, Hardware's, viruses, spywares etc.

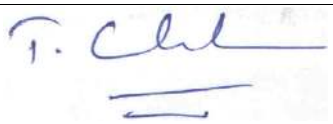
Membership in Professional Associations and Publications	Not Applicable
Language Skills (indicate only languages in which you can work):	English, Hindi, Telugu
Adequacy for the Assignment:	
Detailed Tasks Assigned on Consultant's Team of Experts:	• Develop, implement and distribute deliverables. • Develop, initiate and coordinate product launch. • Coordinate and support product life cycles. • Assess, modify and upgrade specific product technologies. • Implement new product technologies and techniques. • Troubleshoot and resolve large complex issues and problems. • Report unresolvable problems to senior technicians.

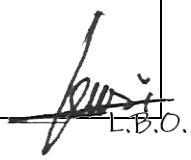
L.B.O.

	• Organize and update databases and information. • Coordinate and support on software issues, training and installation. • Perform installations, requirements analysis and compatibility review.
{List all deliverables/tasks as in TECH -5 in which the Expert will be involved)	D-3, D-4, D-5, D-6, D-7, D-8, D-9, D-10
Expert's contact information:	Email Id: hr@dhanushsoftech.com Phone: 040-49135000

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA**.**

Name of Expert: Chandra Sekhar T	 **Signature**	**Date:** 08th July 2025
Name of Authorized Representative of the Bidder (the same who signs the Proposal) : Karan Christie		**Date:** 08th July 2025



5.2.11 CV 10: Network Architecture

Position Title	K- 10, Network Architecture
Name of the Expert	Vasanth Ramesh
Date of Birth	13-07-1986
Country of Citizenship	Indian

Educational Qualification

Institution	Dates Attended	Degree/ Diploma Obtained
Sastra University	2008	Bachelor of Technology (B. Tech) in Electronics and Communication Engineering (ECE)

Employment record relevant to the assignment

S No	Organization	Role	Duration
1	Dhanush Softech PVT LTD	Network Architect	Feb 2011 To Till Date

Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
Feb 2011 To Till Date	**Company Name:** Dhanush Softech Private Limited **Designation:** Network Architecture **Contact Info for References: HR** **Email Id**: info@dhanushsoftech.com	India	**Summary:** • Over 14 years of experience in designing and managing complex enterprise network infrastructures. • Expertise in LAN/WAN architecture, network security, cloud networking, data center migration, and SD-WAN. • Led end-to-end network transformation projects across IT services, telecom, and enterprise domains. • Proficient in Cisco, Juniper, Fortinet, Palo Alto, and Aruba technologies. • Strong hands-on experience with routing, switching, VPNs, firewalls, load balancers, and HA setups. • Skilled in cloud networking (AWS, Azure, GCP) and automation tools (Ansible, Python, Terraform).

L.B.O.

			• Adept at building scalable, secure, and cost-effective network solutions aligned with business goals. • Excellent at cross-functional collaboration, stakeholder engagement, and performance optimization. • Committed to continuous learning and supporting digital innovation through resilient infrastructure. **Project 1#** **Title**: Centralized Bus Reservation System (CBRS) **Description:** Easy Coach is a passenger transport and a courier service provider in republic of Kenya with an extensive branch network in Nairobi, Rift Valley, Nyanza and Western Provinces as well as Kampala, Capital city of Uganda. This is a business to consumer application, developed in order to enhance the customer service and Streamline the business operations. Easy Coach is implementing a Centralized Bus Reservation System (CBRS) to automate the business processes and manage the bus reservations as well as the Courier services at Easy Coach **Role & Responsibilities** • Design and implement scalable, secure network architectures (LAN/WAN/Cloud/Hybrid). • Evaluate and optimize existing network infrastructure for performance and reliability. • Configure and manage network devices: routers, switches, firewalls, and VPNs. • Ensure network security and compliance with policies and standards. • Plan capacity and support future growth through effective network planning. • Collaborate with IT/security teams and manage vendor coordination. • Troubleshoot complex network issues and provide L3 technical support. • Maintain documentation and enforce architecture standards and best practices.

L.B.O.

			• Lead network-related projects and support cloud integration efforts. • Network Design & Implementation: Design and deploy scalable network architectures (LAN/WAN/Cloud), including segmentation, routing, and switching. • Technology Planning: Evaluate new technologies, lead capacity planning, and drive infrastructure improvements and optimizations. • Configuration & Deployment: Configure routers, switches, firewalls, and wireless devices; integrate with cloud, data centers, and remote sites. • Security & Compliance: Implement network security controls (VPNs, firewalls, IPS), and ensure compliance with industry standards. • Documentation & Standards: Maintain network diagrams and SOPs; define and enforce network architecture standards and best practices. • Troubleshooting & Support: Provide L3 support for complex issues; optimize performance and lead root cause analysis. • Collaboration & Management: Coordinate with IT teams, stakeholders, and vendors; contribute to planning, budgeting, and project execution.

Membership in Professional Associations and Publications:

Language Skills (indicate only languages in which you can work):

Language	Speaking	Reading	Writing
English	Yes	Yes	Yes
Telugu	Yes	Yes	Yes
Hindi	Yes	Yes	Yes

Detailed Tasks Assigned on Bidder's Team of Experts

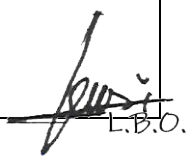
- Design and implement scalable and secure network infrastructures
- Plan network strategies aligned with business goals
- Integrate security features like firewalls, VPNs, and IDS/IPS
- Design cloud and hybrid network solutions (e.g., AWS, Azure)
- Evaluate and recommend networking tools and technologies

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- Implement SD-WAN and network virtualization
- Create and maintain network documentation and diagrams
- Collaborate with IT, security, and vendor teams
- Troubleshoot complex network issues and optimize performance
- Ensure compliance with industry standards and policies
- Estimate costs and support hardware/software procurement
- Develop disaster recovery and failover strategies
- Mentor and guide network engineers and technical staff

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<tr><td colspan="3">Reference to Prior Work/Assignments that Best Illustrate Capability to Handle the Assigned Tasks</td></tr>
<tr><td colspan="3">D-3, D-4, D-5, D-6, D-7, D-8, D-9, D-10</td></tr>
<tr><td>Experts contact information :</td><td>E-mail:
info@dhanushsoftech.com</td><td>Phone: +91 4049135000</td></tr>
<tr><td colspan="3">Certification</td></tr>
<tr><td colspan="3">I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.</td></tr>
<tr><td>Name of the Expert: Vasanth Ramesh</td><td> 
Signature of the Expert</td><td>Date: 9th July 2025</td></tr>
<tr><td>Name of authorized Representative of the Bidder:</td><td>  </td><td>Date: 9th July 2025</td></tr>
</table>



5.2.12 CV 11: Cloud Architect

Position Title	K-11, Cloud Architect		
Name of the Key Personnel	Madhukar Rao		
Date of Birth	08-01-1985		
Country of Citizenship/ Residence	Indian		
Educational Qualification			
Institution		**Dates Attended**	**Degree/ Diploma Obtained**
Kakatiya University, Warangal		2009	Master of Computer Applications (MCA)
Employment record relevant to the assignment			
Period	**Employing organization and your title/position. Contact information for references**	**Country**	**Summary of activities performed relevant to the Assignment**
Apr-2017-till date	Dhanush Softech Private Limited **Designation:** DevOps Engineer **Contact Info for References:** HR Department **Email Id**: hr@dhanushsoftech.com	India	**SUMMARY** • 10+ years of experience in IT industry with Configuration Management, Continuous Integration, Continuous Deployment, Release Management, Cloud Implementations analysis, design and maintenance of client/server and web applications as the primary tasks. • Develop and manage consistent and coherent DevOps processes and practices to support software development, testing, builds and deployment • Implemented AWS Cloud platform and its features which includes EC2, VPC, EBS, AMI, SNS, RDS, EBS, Cloud Watch, Cloud Trail, Cloud Formation, Auto calling, Cloud Front, IAM, S3, R53. • Highly motivated and committed Dev Ops Engineer experienced in Automating, Configuring and deploying instances on AWS, Azure, Google cloud, Open Stack cloud

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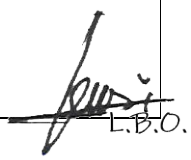
			environments and on premises Data centers. • Experience in establishing a suitable DevOps channel across the organization and Setting up a continuous build environment to speed up software development and deployment process. • Working experience with Docker containers and good knowledge on Docker Swarm. • Experienced in creating docker images using CI/CD workflow and deployed in Decker registry • Experienced with AWS EC2, Route53 DNS, ELB, EBS, AMI, VPC, Cloud Formation Templates, Cloud Watch Monitoring and used Chef with OHAI Orchestration to leverage and manage AWS Instances. • Worked with Ansible playbooks for virtual and physical instance provisioning, configuration management, patching and software deployment. • Experience with Python development under Linux OS (Ubuntu, SUSE Linux, Red Hat) • Experience in writing python scripts for automation. • Experience at DevOps Engineering in automating, building, deploying, and releasing of code from one environment to other environment. • Experienced with continuous integration, continuous delivery, continuous deployment and continuous monitoring. • In-depth knowledge of Linux operating system functionality, kernel tunable, file systems, and server hardware. • Good understanding user and group management including permissions, different authentication methods and quota management

L.B.O.

			• Working knowledge on installing kernel/application patches and kernel updates • Strong understanding of networking concepts and implementation of Linux-based infrastructure solutions • Working knowledge of configuring Kick start, YUM, NIS, NFS, DNS, DHCP, SAMBA, SSH and other services • Knowledge of TCP/IP protocols, scripting and software development • Good understanding of file system and storage management concepts like LVM • Configuring and Managing data backup as per backup policies. • Schedule cron job for day to day system administration and performance tuning for server deployment • Experience in orchestration tools like Docker swarm and Kubernetes. • Knowledge in Active directory services Administration in a network. • Proficient in troubleshooting critical hardware/software issues and preparing Root cause analysis and other necessary documentation. • Work in close coordination with the development and operations team such that the application is in line with performance according to the customer's expectation. • Working with developers ensure that development follows established processes and works as intended. • Good presentation, customer support and trouble shooting skills & experience in providing 24x7 supports. **WORK EXPERIENCE:** **1) Client: UNDP**

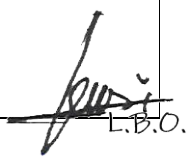
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			Projects: EVIN, ADIGRAMS, FRA **Environment:** GIT, Jenkins, Kubernetes, Apache Tomcat, Linux, Maven, Nexus, Shell Scripting, AWS, On premises datacenter. **Responsibilities:** • Designed and implemented a continuous build-test-deployment (CI/CD) system with multiple component pipelines using Jenkins to support weekly releases and out-of-cycle releases based on business needs • Worked on the Development environment setup for the Confidential & Confidential IDP project. Worked on the CICD setup for all the micro services on Profile, Service Availability, Cart, Pricing and promotion, Product Configuration, Foundation framework and product listing. • Worked on the micro services for Unit testing, Integration test cases, Status check foundation framework, Status check tdd contracts, Compile, Package, Verify, Quality Scan, Publish Artifact, deploy to Development and Start Functional Testing. • Worked on to setup for the various Jenkins CICD pipeline configurations for all the micro services. Worked on the build activities for all the existing micro services • Worked on the IDP development environment setup using Spring Tool Suite using Docker and kubernetes technologies for creating the docker containers and deployed into kubernetes clusters. • Utilized Kubernetes and Docker for the runtime environment of the CI/CD system to build, test deploy. • Deploy and Manage Kubernetes in All environments. • Configuring and Launching of Amazon EC2(AWS) cloud server using AMI's and



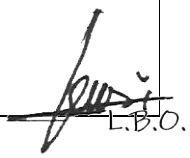
			configuring the servers for specified applications. • Experienced in User management and Plugin Management for Jenkins. • Implemented Jenkins for continuous integration builds and automatically deployments and send Notifications to Emails. • Guiding developers and operation teams in case of an issue various environment. • Facilitating development process and operations **2) Client: IHAT** **Project:** IHAT-UDSP **Environment:** GIT, Jenkins, Kubernetes, Apache Tomcat, Linux, Maven, Nexus, Shell Scripting, AWS, On premises datacenter. **Responsibilities:** • Design the deployment architecture to deploy the application compatible to on premises and cloud. • Implement CI/CD pipeline to deploy the application in diff environments like dev, QA and Prod. • Fixed bugs on the build/deploy platform and worked closely with developers to understand their build requirements. • Working on branching and merging code lines in the GIT and resolved all the conflict raised during merges. • Installing required plugins depends on project. • In job configuration to build the setup trigger options like PollScm, periodically or whenever developer commits changes in GIT automatically trigger will raise. • Involved in post build configuration like configure Upstream projects.

			• Performing Jenkins administration, updating plugins, setting up new projects and debugging build problems. • Setup entire process for automated DEV, QA, and production deployments with Ansible and Jenkins. • Utilized Kubernetes and Docker for the runtime environment of the CI/CD system to build, test deploy. • Delivered specific versions of various components of an application into target environments. • Wrote Shell Scripting to check security setting of the server and to change the server settings. • Used Nexus tool to manage the repository in Maven and used the same to share the snapshots and releases of internal projects. **3) Client: UNICEF** **Project: ANMOL** **Responsibilities:** • Developed and supported the Software Release Management and procedures. • Automated Maven build by integrating with them with CI tools such as JENKINS. • Efficiently perform the task of resolving conflicts while merging in gitlab. • Involved in Shell Scripts for automated deployments. • Implemented &Maintained the branching and build/release strategies utilizing GIT. • Used MAVEN as build tool on java projects for the development of build artifacts on the code. • After completion of build the WAR file can be generated by Maven Tool and total artifacts deployed into Nexus Repository automatically by using Continuous integration tool i.e. Jenkins.



			• Utilized Kubernetes and Docker for the runtime environment of the CI/CD system to build, test deploy. • Deploy and Manage Kubernetes in All environments. • Configuring and Launching of Amazon EC2(AWS) cloud server using AMI's and configuring the servers for specified applications. • Experienced in User management and Plugin Management for Jenkins. • Implemented Jenkins for continuous integration builds and automatically deployments and send Notifications to Emails.
Sep-2014-Mar 2017	Tata Communications Services (TCS) Designation: DevOps Engineer	India	**4) Client: Nielson** **Projects: OPIntel, MMS, Video Library** **Responsibilities:** • Defined and Implemented CM and Release Management Processes, Policies and Procedures. • Installing & Setup ELK environment for log monitoring. • Configure logstash, file beats, kibana for customize different type of logs. • Deploy and monitor scalable infrastructure on Amazon web services (AWS) & configuration management using chef. • Continuous Delivery is being enabled through Deployment into several environments of Test, QA, Stress and Production using Jenkins. • Managed and monitored the server and network infrastructure using Nagios. • Work with development/testing, deployment, systems/infrastructure and project teams to ensure continuous operation of build and test systems. • Designed Chef Cookbooks to manage configurations and automate installation

			process • Implement, maintain and support reliable, timely and reproducible builds for project teams. • Managed the repositories using Nexus. • Proficient in using all Amazon Web Services including EC2, EBS, IAM, S3, ELB.
Sep-2012 – Aug-2014	Sonata Software Designation: Software Engineer	India	**TECHNICAL SUMMARY:** • Defined and Implemented CM and Release Management Processes, Policies and Procedures. • Designed and implemented Chef, including the internal best practices, cookbooks, automated cookbook CI and CD system. Made use of Jenkins for Chef CI, Thor for versioning, Berkshelf for dependency management, and Test-Kitchen for testing and development. • Migrated VMWARE VMs to AWS and Managed Services like EC2, S3 Bucket, Route53, ELB, EBS with Opscode Chef Cookbooks/Recipes. • Proficient in using all Amazon Web Services including EC2, EBS, IAM, S3, ELB. • Automated Weekly releases with ANT/Maven scripting for Compiling Java Code, Debugging and Placing Builds into Maven Repository • Linux (Ubuntu, Redhat, CentOS server) system administration, Server hardware maintenance and troubleshooting. • Installed, Deployed Red Hat Enterprise Linux 6.x/7.x, CentOS and installation of packages and patches for Red Hat Linux Servers. • RPM and YUM package installations, patch and other server management. • Installation of Application, Database related Software's, Utilities on Microsoft client operating systems and Linux operating systems



			• Managing systems routine backup, scheduling jobs like disabling and enabling cron jobs, enabling system logging, network logging of servers for maintenance, performance tuning, testing. • Troubleshooting Day-to-Day issues with various Servers on different platforms • Resolving issues related to Internet and Intranet • Troubleshoot Network connectivity (LAN) issues • Analyzing & Preparing solutions for resolving Desktops • Installed, configured, and troubleshot Apache web servers. • Network Services (DNS, DHCP, NAT, NFS, SSH). • Configuration of Print devices (network and local) on desktops • Monitoring Services, Event, and IIS Logs and reporting the errors • Monitored server and application performance & tuning via various stat commands (vmstat, nfsstat, iostat) and tuned I/O, memory, • Preparing documentation for important installation of software and other configurations • Handle the tasks of providing a variety of systems administration and operational support services for enterprise network systems • Evaluate and install new software releases, system upgrades, and patches within a configuration management framework • Resolve hardware and software-related problems, as well as perform system backup and recovery

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			• Handle the tasks of maintaining data files and monitoring system configuration to ensure data integrity • Work as a team with the client and other contractors to identify, present, and resolve issues with current architecture and foreseeable future issues with limited supervision. • Troubleshooting logon problems, boot process and printing • Responsible for evaluating, defining, gathering, testing and delivering Linux platform solutions • Work with software vendors and UNIX administrators to provide optimum system performance and availability.

Membership in Professional Associations and Publications: NA

Language Skills (indicate only languages in which you can work):	**Language**	**Speaking**	**Reading**	**Writing**
	English	Yes	Yes	Yes
	Hindi	Yes	Yes	Yes
	Telugu	Yes	Yes	Yes

Detailed Tasks Assigned on Bidder's Team of Experts

- Plan, provision, and manage cloud/on-prem infrastructure for staging and production environments.
- Set up high availability, failover, data backup, and disaster recovery strategies.
- Ensure security compliance (e.g., data encryption, firewall configuration, role-based access).
- Monitor system health, performance, and scalability requirements over the lifecycle.
- Support API gateway configurations and secure data exchange workflows.

Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks

D1, D2, D3, D4, D6, D7, D8, D9

Experts contact information :	**E-mail:** hr@dhanushsoftech.com	**Phone:** +91 40 49135000

Certification

L.B.O.

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA**.**		
Name of the Expert: Madhukar Rao	**Signature of the Expert**	**Date:** 08th July 2025
Name of authorized Representative of the Bidder: Karan Christie		**Date:** 08th July 2025

L.B.O.

5.2.13 CV 12: Compute Infrastructure Architect

Position Title	K-12, Compute Infrastructure Architect
Name of the Expert	Vikhil Neerati
Date of Birth	15-05-1996
Country of Citizenship	Indian

Educational Qualification

Institution	Dates Attended	Degree/ Diploma Obtained
Nigama Engineering College	2013-2017	Bachelor of Technology

Employment record relevant to the assignment

S No	Organization	Role	Duration
1	Dhanush Softech Pvt Ltd	Compute Infrastructure Architect	2018 to Till Date

Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
2018 to Present	**Company Name:** Dhanush Softtech Pvt Ltd **Designation:** Network & Security Administrator **Contact Info for References:** HR **Email Id**: info@dhanushsoftech.com	India	**Summary:** • 6+ years of experience in managing enterprise IT infrastructure and cybersecurity • Proficient in VMware ESXi, AWS EC2, Active Directory, and endpoint security solutions • Skilled in system availability, threat prevention, and infrastructure optimization • Experienced in backup and disaster recovery planning • Strong in network troubleshooting, server patching, and DNS/domain management • Capable of incident response and automating tasks using scripting • Supports end-to-end IT service delivery across departments • Collaborates with cross-functional teams and vendors for infrastructure upgrades

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			Project: Skilled IT Professional with hands-on experience in managing VMware and AWS environments, delivering daily technical support and system administration. Proficient in configuring and maintaining backups, implementing endpoint security and antivirus monitoring, and managing both server and software infrastructure. Demonstrates strong expertise in user account management, domain and DNS configuration, and network troubleshooting. Adept at preparing technical documentation, responding to security incidents, and collaborating effectively with cross-functional teams and external vendors to ensure seamless IT operations. **Roles & Responsibilities:** • Lead the deployment, configuration, and management of virtual machines in both VMware ESXi and AWS EC2, ensuring high availability, scalability, and cost efficiency. • Provide technical leadership and mentoring to junior system administrators and support staff on infrastructure management and issue resolution. • Oversee daily IT operations including system health monitoring, backups, antivirus protection, and security patching for enterprise environments. • Administer centralized backup solutions for both VM-level and file-level backups, ensuring compliance with data retention and disaster recovery policies. • Manage endpoint security using Kaspersky Endpoint Security, including policy creation, automated update rollouts, and threat monitoring. • Plan and implement server migrations, upgrades, and patching cycles, minimizing downtime through effective change management.

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			• Monitor and optimize network performance, identify and resolve connectivity bottlenecks, and manage IP/DNS infrastructure. • Respond to and manage security incidents, including user account breaches, malware infections, and suspicious network activity; perform audits and maintain incident logs. • Automate system tasks and improve efficiency using PowerShell, shell scripting, and scheduled jobs (cron, Task Scheduler). • Install, configure, and maintain a wide range of enterprise applications, ensuring version control and license compliance. • Manage user identity and access using Active Directory, including OU structure, GPOs, password policies, and group membership auditing. • Collaborate with cross-functional teams and third-party vendors to support IT projects, software rollouts, and infrastructure improvements. • Create and maintain comprehensive technical documentation covering antivirus policies, backup configurations, SOPs, and change logs. • Perform SQL database backup and restoration in coordination with application and development teams. • Configure and maintain domain and subdomain services through Go Daddy, including DNS management, SSL implementation, and domain redirects.

Membership in Professional Associations and Publications: No

Language Skills (indicate only languages in which you can work):	**Language**	**Speaking**	**Reading**	**Writing**
	English	Yes	Yes	Yes
	Telugu	Yes	Yes	Yes

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	Hindi	Yes	Yes	Yes

Detailed Tasks Assigned on Bidder's Team of Experts

- Design scalable and high-performance compute architectures (on-prem, cloud, hybrid)
- Manage virtualization platforms (e.g., VMware, Hyper-V) and cloud compute (e.g., AWS, Azure)
- Perform capacity planning and resource optimization
- Automate provisioning and management using tools like Ansible or Terraform
- Ensure high availability, redundancy, and disaster recovery
- Implement security hardening and ensure compliance with standards
- Monitor and optimize compute performance (CPU, memory, storage)
- Integrate compute systems with storage and networking layers
- Create and maintain architecture documentation and standards
- Collaborate with IT, DevOps, and security teams for aligned infrastructure
- Evaluate and recommend compute technologies and platforms
- Provide expert-level support and troubleshooting for infrastructure issues

Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks

D-3, D-4, D-5, D-6, D-7, D-8, D-9, D-10

Experts contact information :	**E-mail:** info@dhanushsoftech.com	**Phone: +91 4049135000**

Certification : No

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.

Name of the Expert: Vikhil.N	**Signature of the Expert**	**Date:** 9th July 2025
Name of authorized Representative of the Bidder:	K.R. Chaistie	**Date:** 9th July 2025

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5.2.14 CV 13: Virtualization & Containerization Architect

Position Title	K-13, Virtualization and containerization Architect
Name of the Expert	S. Sarvanatha Raj Yadav
Date of Birth	23rd May 1979
Country of Citizenship	India

Educational Qualification

Institution	Dates Attended	Degree/ Diploma Obtained
Madras University, Chennai	1997-2000	Bachelor of Science in Mathematics

Employment record relevant to the assignment

S No	Organization	Role	Duration
1	Dhanush Softech Private limited	Virtualization and containerization Architect	Jun 25 to till date
2	HCL Technologies	Multi cloud architect	Jan 22 to June 25
3	Tata Consultancy services	Server & Storage Support Engineer	Oct 19 to Dec 21
4	HCL Technologies	System Administrator	Jan 16' to Oct 19
5	Wipro Ltd.	Sr. System Support Engineer	Apr 14 to Jan 16
6	NH INFO MEDIA/HARJAI Computers	Web Designer & Hardware	Oct 11 to Mar 14

Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
June 2025 to till date	Company Name: Dhanush Softech Private Limited Role: Virtualization and containerization Architect **Contact Info for References:** HR	India	**Organization Name**: Dhanush Softech Pvt. Ltd, Hyderabad, India **Summary:** • Overall 14 years' experience of serving as Cloud Architect for multiple clients across Azure, GCP, and Oracle Cloud platforms.

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	Email Id: info@dhanushsoftech.com		• Leading cloud migration projects and hybrid cloud architecture design. • Automating infrastructure deployments using PowerShell and Terraform. • Implementing Disaster Recovery (DR) and High Availability (HA) strategies. • Managing Kubernetes clusters and Oracle database environments. **Roles & Responsibilities:** • Engage with business clients to understand requirements and design tailored cloud strategies. • Plan and execute cloud migrations and implementations across Azure, GCP, and Oracle Cloud. • Develop High-Level Design (HLD), Low-Level Design (LLD), Knowledge Design Document (KDD), and Knowledge Architecture Document (KAD). • Create cloud architecture blueprints and documentation to guide deployment and operations. • Automate infrastructure provisioning using PowerShell and Terraform. • Manage source code and deployment pipelines via Git and Azure Repos. • Design and implement cloud solutions from a holistic perspective, including IaaS services. • Configure and manage High Availability (HA) and Disaster Recovery (DR) in cloud environments. • Prepare RFPs and RFIs for hybrid cloud solutions and client engagements. • Work extensively with cloud services such as service bus, queues, worker roles, Azure Blob/Table Storage, and API Management. • Design and configure networks for two-tier and three-tier application architectures. • Integrate on-premises infrastructure with multi-cloud environments.

			• Lead the design, deployment, and testing of Kubernetes environments (AKS/GKE). • Architect Kubernetes clusters from planning through to production, focusing on networking, security, certificates, and load balancing. • Develop and maintain platforms for managing Kubernetes cluster lifecycles.
Jan 2022 – June 2025	**Company Name** HCL Technologies **Designation:** Multi Cloud Architect	Indian	**Organization Name**: HCL Technologies **Role & Responsibilities:** • Designed and implemented multi-cloud solutions using Azure, GCP, AWS, and Oracle Cloud tailored to business needs. • Created blueprints, HLDs, and LLDs for cloud-based applications and infrastructure. • Automated infrastructure deployment using Terraform, PowerShell, and Azure DevOps tools. • Developed KDD (Knowledge Design Document) and KAD (Knowledge Architecture Document) for cloud migration planning. • Handled cloud migration projects from on-premises to cloud, including strategy, execution, and post-migration validation. • Led RFP/RFI response preparation and hybrid cloud proposal design for clients
Oct 2019 – Dec 2021	**Company Name:** Tata Consultancy Services **Designation:** Cloud Architect		**Organization Name**: Tata Consultancy Services **Description:** Designed and implemented cloud strategies, migration plans, automation (PowerShell, Terraform), hybrid environment integration, Azure DR, VNETs, load balancers, and Azure backups. **Responsibilities** • Reviewed and resolved security user stories and tasks in DevSecOps using JAMA and Confluence. • Utilized Atlassian Suite tools including CI/CD, Jira, Confluence, and Bitbucket for secure development workflows. • Developed, enhanced, and maintained comprehensive security documentation, including threat models and security architecture reviews.

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			• Conducted secure architectural design reviews and provided expert input on system security.
Jan 2016 – Oct 2019	**Company Name:** HCL Technologies **Designation:** Cloud, Storage & Virtualization Architect	Indian	**Organization Name**: HCL Technologies **Role & Responsibilities:** • Automate infrastructure provisioning and deployments using Terraform, Ansible, and PowerShell scripts. • Manage and maintain CI/CD pipelines using Azure DevOps, Git, and Azure Repos. • Implement and manage Kubernetes clusters (AKS/GKE) with advanced configuration including pod security, ingress/load balancing, and certificate management. • Configure Disaster Recovery (DR) and High Availability (HA) setups across multi-region cloud platforms. • Deploy and manage containerized workloads using Kubernetes, integrating monitoring, scaling, and resilience best practices.
Apr 2014 – Jan 2016	**Company Name:** Wipro Ltd **Designation:** Senior Administrator (Cloud and Storage)	Indian	**Organization Name**: Wipro LTD **Description:** Provided support for diverse storage solutions including Hitachi, EMC, and HP; managed AWS services such as EC2, S3, and CloudTrail; handled storage replication technologies like TrueCopy and SnapMirror; and performed tuning in SAN/NAS environments for optimal performance **Roles & Responsibilities:** • Architect and implement secure, scalable, and cost-efficient multi-cloud environments across Azure, AWS, GCP, Oracle Cloud, and Alibaba Cloud. • Design and develop IaaS/PaaS-based cloud architectures including compute, networking, storage, databases, and containerized environments. • Create HLD (High-Level Design) and LLD (Low-Level Design) documentation for cloud and on-premises migration projects.

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			• Prepare and manage RFP/RFI documentation and solution proposals for enterprise and hybrid cloud infrastructures. • Lead cloud migration initiatives including discovery, pre-check/post-check activities, cutover execution, and go-live support. **Cloud Deployment & Automation**: • Automate infrastructure provisioning and deployments using Terraform, Ansible, and PowerShell scripts. • Manage and maintain CI/CD pipelines using Azure DevOps, Git, and Azure Repos. • Implement and manage Kubernetes clusters (AKS/GKE) with advanced configuration including pod security, ingress/load balancing, and certificate management. • Configure Disaster Recovery (DR) and High Availability (HA) setups across multi-region cloud platforms. • Deploy and manage containerized workloads using Kubernetes, integrating monitoring, scaling, and resilience best practices. **Database Administration (Cloud & On-Prem):** • Administer and migrate databases including Oracle 12c/19c, Azure SQL, and RAC environments across cloud and hybrid setups. • Perform database refresh, cloning, backup, patching, and recovery using RMAN, Data Pump, and Oracle utilities. • Configure Data Guard/DR, monitor archive log shipping, rebuild standby databases, and manage AWR/statspack reports. • Implement cross-platform migrations from on-premise Oracle DBs to AWS/Azure using tools like CloudEndure and DMS. **Virtualization & Infrastructure Support**: • Configure and manage VMware ESXi/VCenter environments (6.0–6.7), including VMotion, Storage VMotion, and SRM-based DR replication.

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			• Upgrade and maintain virtual environments including VM tools, hardware versions, templates, and snapshots. • Perform P2V/V2V migrations, hardware resource planning, and capacity management. • Design and manage hybrid networking setups including ExpressRoute, VPNs, VNETs, subnets, and NSGs. **Storage & Backup Administration**: • Administer enterprise storage arrays (Hitachi, HP EVA, EMC VMAX, NetApp, Brocade, Cisco SAN switches). • Configure LUN provisioning, thin pools, replication (HUR, SnapMirror, TrueCopy), and performance tuning. • Manage backup and recovery solutions using HP Data Protector, EMC Networker, and Tape Libraries (MSL, ESL). • Conduct maintenance activities such as cleanup, patching, and DR drills for mission-critical storage infrastructure. **Leadership, Operations & Consulting**: • Serve as a technical lead and consultant across project lifecycle phases – planning, design, build, transition, and support. • Support pre-sales, solutioning, and proposal development for cloud and infrastructure projects. • Lead client discussions, stakeholder workshops, and design reviews, ensuring alignment with business objectives and compliance requirements. • Maintain strict SLAs for ticket and incident resolution, participate in CAB meetings, and prepare RCA reports for major incidents.

Membership in Professional Associations and Publications:

Language Skills (indicate only languages in which you can work):	**Language**	**Speaking**	**Reading**	**Writing**
	English	Yes	Yes	Yes
	Tamil	Yes	Yes	Yes

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Detailed Tasks Assigned on Bidder's Team of Experts		
• Design and define virtualization architecture using VMware, Hyper-V, or KVM. • Develop containerization strategy using Docker, Podman, and Kubernetes (AKS, GKE, OpenShift, etc.). • Deploy and configure virtual environments and Kubernetes clusters. • Automate infrastructure provisioning using Terraform, Ansible, and Helm. • Implement security policies for containers and virtual machines (RBAC, image scanning, etc.). • Design and implement High Availability (HA) and Disaster Recovery (DR) solutions. • Integrate container/VM platforms with enterprise systems (AD, monitoring, logging). • Set up monitoring and performance optimization tools (Prometheus, Grafana, ELK, vRealize). • Prepare architecture documents, SOPs, and conduct knowledge transfer sessions. • Support CI/CD pipelines and DevOps processes for containerized applications. • Evaluate new tools and technologies and provide technical guidance on virtualization and containerization.		
Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks		
D2, D3, D4, D5, D6, D7, D8, D9, D10		
Experts contact information :	**E-mail:** info@dhanushsoftech.com	**Phone:** +91 4049135000
Certification		
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA**.**		
Name of the Expert: Sarvanatha Raj Yadav	**Signature of the Expert**	**Date:** 8th July 2025
Name of authorized Representative of the Bidder: Karan Christie	K.R. Christie	**Date:** 8th July 2025

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5.2.15 CV 14: Service Delivery Manager

Positon Title and No.	K-14, Service Delivery Manager
Name of Expert	Bompally Sheshendra Kumar
Data of Birth	28th Aug 1988
Country of Citizenship	Indian

Education:

Degree/ Diploma obtained	Name of Educational Institutions	Dates Attended (Academic year)
Bachelor of Technology (B.Tech)	JNTU Hyderabad	2005 - 2009

Employment record relevant to the assignment:

Period	Employing organization and your title/position. Contact info for references	Country	Summary of activities performed relevant to the Assignment
June 2010 – till date	Dhanush Softech Private Limited **Designation:** Technical Manager **Contact Info for References:** HR Department Email Id: hr@dhanushsoftech.com	India	• Over 14 years of professional experience in the analysis, design, and development of client/server and web-based applications, with expertise across both front-end and back-end technologies. • 2 years of onsite experience across South Africa, Kenya, Zambia, and Australia, working on enterprise-level projects. • Proficient in developing applications using a wide range of technologies, including ASP.NET, C#.NET, ADO.NET, MVC, Angular, .NET Core, Web API, SQL Server, PostgreSQL, MariaDB, and MongoDB. • Working knowledge of Java and Spring Boot, adding flexibility to work across tech stacks. • Well-versed in Agile and Kanban methodologies, with practical experience in iterative development cycles.

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			• Strong experience using Entity Framework for data access and manipulation. • Extensive expertise in SQL Server database design and development, including stored procedures, views, T-SQL queries, and triggers. • Skilled in building and consuming Web APIs, including Web API 2 and Microservices architecture. • Proficient in front-end technologies such as JavaScript, JQuery, TypeScript, AJAX, XML, HTML5, CSS. • Experienced in writing comprehensive design documentation, user manuals, and installation guides. • Involved in all phases of the Software Development Life Cycle (SDLC), from requirements gathering to deployment and maintenance. • Experience with SharePoint server farm setup, installation, and configuration, including search (content and people) capabilities. • Strong analytical and problem-solving abilities with exposure to modern technologies and best practices. • Skilled in requirement analysis, technical documentation, and maintaining application flow through code reviews, debugging, builds, and deployments. • Hands-on experience with automated build and deployment tools to streamline release processes. **WORK EXPERIENCE:**

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			Project 1# **Title:** Implementation of Learning Management System for OUK **Client:** Open University of Kenya (OUK) **Description:** The Open University of Kenya (OUK) project is a flagship initiative by the Government of Kenya aimed at delivering inclusive, flexible, and high-quality higher education through a fully digital platform. As part of this initiative, a comprehensive ERP system is being developed and implemented to automate and streamline academic, administrative, financial, and student support processes. The ERP includes modules covering admissions, curriculum, examinations, finance, HR, student services, and integrations with LMS, library, and payment systems. It supports the entire student lifecycle online—from registration to certification—enhancing operational efficiency and user experience. This project plays a critical role in advancing Kenya's digital transformation and education accessibility goals. **Responsibilities** • Project Planning & Execution – Oversee project scope, timelines, and delivery of all LMS development phases. • Stakeholder Coordination – Serve as the key liaison between OUK stakeholders and the development team. • Team Leadership & Oversight – Manage cross-functional teams to ensure efficient task execution and issue resolution.

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			• Quality Assurance & Compliance – Ensure the LMS meets quality standards, data security, and regulatory compliance. • Risk & Change Management – Proactively handle project risks and changes in scope, priorities, or timelines. **Project 2#** **Project Title** : Learning Management System **Technologies** : .Net Core 3.1 API, Entity framework core, LINQ, jQuery, Angular 11, Elastic Search and PostgreSQL **Tools** : Visual Studio 2019, PGAdmin 4.1, Visual Studio Code **Description:** Learning Management System (LMS) is designed to provide a platform for online courses. The inbuilt tools of an LMS are user friendly in catering to the needs of different levels and types of users. The users like employees with technical qualification, non –technical managers and learners (students) can avail the services from the Learning Management System. The solutions offered by LMS are easy to comprehend and simple to employ. The main modules involved in LMS are **Admin Module:** This module contains master screens like Cities, departments, Locations, States, Districts etc.,, Creation of Students, Trainers, Courses, Course Schedules, Assessments, Material Uploads, Archive Data, Reports. Trainer Module: This module contains Material Uploads, Attendance, Archive data and Reports. **User Module:** In this the students are able to download the materials, videos,

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			able to attend pre and post assessments, able apply for new courses. Including the above modules we have forums, blogs and Help-desk. **Responsibilities:** • Involved in the development of the system • Involved in the creation SP and functions. • Involved in coordinating with the On-shore team. **Project 3#** **J.J RICHARDS AND SONS PTY. LTD. (Onsite and offshore)** **Client:** J.J Richards and Sons Pty. Ltd, Australia **Technologies:** Asp.net 4.6.1, Entity Framework 6.0, Web API 2, Wave maker, SQL server 2014/2016, MVC and Micro Services, .Net Core 2.0 Web API. **Tools:** Visual Studio 2017, SQL Server 2016, VS Code, Octopus, Team City, Think Automation, Enterprise Designer, Spectrum, JIRA and MapInfo. **Description:** J.J. Richards & Sons was established in 1932 and is the largest privately owned waste management company in Australia. J.J. Richards strives to establish and maintain close, productive working relationships with customers to ensure The most efficient and cost effective services are provided. The ongoing evaluation and evolution of services to improve community amenity and service efficiency. Services provided by J.J. Richards include an extensive range of commercial and domestic services providing customers with Total Waste Management Solutions for all of their waste needs.

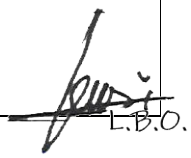
			Responsibilities: • Understanding the business requirements and transforming them into technical requirements. • Designing an Architecture based on the Application Requirement. • Creating the data base schema based on the functional specifications. • Managing the Team and assigning the tasks to the team. **PROJECT: 4#** **RASHTRIYA BAL SWASTHYA KARYAKRAM** Client : GOVERNMENT OF ANDHRA PRADESH. Technologies : Angular 5, Asp.net 4.6.1, Entity Framework 6.0, Web API 2 and MS Test Tools : Visual Studio 2017, SQL Server 2016 and VS Code **Description:** The Ministry of Health & Family Welfare, Government of India, under the National Health Mission launched the Rashtriya Bal Swasthya Karyakram (RBSK), an innovative and ambitious initiative, which envisages Child Health Screening and Early Intervention Services, a systemic approach of early identification and link to care, support and treatment. This programme subsumes the existing school health programme. **Responsibilities:** • Understanding the business requirements and transforming them into technical requirements. • Designing an Architecture based on the Application Requirement.

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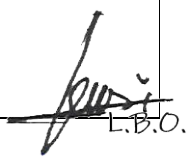
			• Creating the data base schema based on the functional specifications. • Managing the Team and assigning the tasks to the team. **PROJECT # 5** MWMIS (Maternity Wing Management Information System) Client : Jhpiego, Government of India Technologies : Angular 5, Java and Maria DB Tools : Visual Studio Code, Eclipse and SQLyog **Description:** MWMIS is commonly used to strengthen the competency of the Maternity Wing by maintaining Electronic Medical Record (EMR) of Pregnant Woman for Delivery cases. To ensure institutional level compliance of life-saving practices during delivery in line with the safe childbirth checklist (SCC), adopted Maternity Wing Case sheet with L1, L2, L3 process. **Responsibilities:** • Understanding the business requirements and transforming them into technical requirements. • Designing an Architecture based on the Application Requirement. • Creating the data base schema based on the functional specifications. • Managing the Team and assigning the tasks to the team. **PROJECT # 6** Human Resource Management System **Technologies:** Angular 4, PrimeNG Controls, Asp.net, Entity Framework 6.0,

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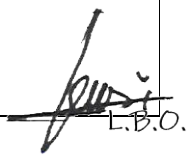
			Web API 2, Repository Pattern and MS Test **Tools:** Visual Studio 2017, SQL Server 2016 **Description:** Smart HR is an integrated, effective application developed by Dhanush team with its internal expertise and has many modules which are interlinked with many other applications. This system acts as a single- source solution to self-manage payroll, benefits administration, recruiting, training & more. The new HR Recruitment is a Module that has been developed to smoothen and quicken the process of Dhanush HR recruitment process through simple screens that have been integrated. The application offers a new approach to HR Management altogether **Responsibilities:** • Understanding the business requirements and transforming them into technical requirements. • Designing an Architecture based on the Application Requirement. • Creating the data base schema based on the functional specifications. • Managing the Team and assigning the tasks to the team. **PROJECT # 7** CBRS (Centralized Bus and Parcel Reservation System), Kenya (On Site) Client : Easy Coach Ltd. Technologies : ASP.Net MVC 4, C#.Net, Entity Framework 5.0, LINQ, jQuery, Bootstrap and Kendo UI Tools : Visual Studio 2012, SQL Server 2012



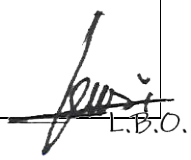
			Description: Easy Coach is a passenger transport and a courier service provider in republic of Kenya with an extensive branch network in Nairobi, Rift Valley, Nyanza and Western Provinces as well as Kampala, capital city of Uganda. This is a business to consumer application, developed in order to enhance the customer service and streamline the business operations. Easy Coach is implementing a Centralized Bus Reservation System (CBRS) to automate the business processes and manage the bus reservations as well as the courier services at Easy Coach. **Responsibilities:** • Understanding the business requirements and transforming them into technical requirements. • Creating the data base schema based on the functional specifications. • Involved in architecture designing and coding for the requirements. • Worked on both the key modules of the project (Bus ticketing and parcel booking). • Worked on hardware integration (weighing machine integration for parcel booking module). • Prepared unit test cases. • Designed and developed the web user interface, the master page, corresponding CSS and branding for the application. **PROJECT # 8** Human Resource Management System Client : COMESA, Zambia (Onsite)



			Technologies : ASP.Net, C#.Net and Telerik Controls Tools : Visual Studio 2013, SQL Server 2012 **Description:** Smart HR is an integrated, effective application developed by Dhanush team with its internal expertise and has many modules which are interlinked with many other applications. This system acts as a single- source solution to self-manage payroll, benefits administration, recruiting, training & more. The new HR Recruitment is a Module that has been developed to smoothen and quicken the process of Dhanush HR recruitment process through simple screens that have been integrated. The application offers a new approach to HR Management altogether **Responsibilities:** • Understanding the business requirements and transforming them into technical requirements. • Creating the data base schema based on the functional specifications. • Involved in architecture designing and coding for the requirements. • Managing the Team and assigning the tasks to the team. **PROJECT # 9** Electronic Urban Primary Health Centre (eUPHC) Client : Commissioner of Health & Family Welfare, Government of Andhra Pradesh Technologies : ASP. NetMvc4, C#.Net, Entity Framework 6.0, Angular 2, HTML5 and Web API



			Tools : Visual Studio 2015, SQL Server 2012 **Description:** Commissioner Health & Family Welfare, Government of Andhra Pradesh, offered Dhanush InfoTech Pvt. Ltd. for operating and managing Electronic Urban Primary Health Centres (hereinafter referred to as "eUPHC"). eUPHC run in various locations are in need of software where patients could get the consultation from specialists through video conferencing which is facilitated by Telemedicine software. **Responsibilities:** • Understanding the business requirements and transforming them into technical requirements. • Creating the data base schema based on the functional specifications. • Involved in architecture designing and coding for the requirements. • Managing the Team and assigning the tasks to the team. • Post Production Support **PROJECT # 10** Reproductive and Child Health Client : UNICEF India Technologies : ASP. NetMvc4, C#.Net, Entity Framework 6.0, Angular JS V1.4 and HTML5 Tools : Visual Studio 2015, SQL Server 2012 **Description:** RCH Portal Development: Design, develop, deploy the Analytics based dashboard Portal to showcase the data Compiled by ANMOL in three dimensions as,



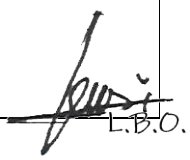
			1) Dimension of Time: Showing the data as per selected Chronology 2) Dimension of User Hierarchy: RCH Portal has to present the appropriate data as per users logged-in based on their Hierarchy 3) Dimension of Geography: The Analytics dashboard has the capability of drilldown facility in the geographical order of country level to village level along with above two dimensions. **Responsibilities:** • Understanding the business requirements and transforming them into technical requirements. • Creating the data base schema based on the functional specifications. • Involved in architecture designing and coding for the requirements. • Managing the Team and assigning the tasks to the team. **PROJECT # 11 LMS ICPAK** Client : ICPAK, Kenya (https://www.icpak.com/) Technologies : ASP.Net, C#.Net, Entity Framework 4.0, LINQ, JQuery, Bootstrap, Telerik Controls and Web API Tools : Visual Studio 2013, SQL Server 2012 **Description:** Learning Management System (LMS) is designed to provide a platform for online courses. The inbuilt tools of an LMS are user friendly in catering to the needs of different levels and types of users. The users like employees with technical qualification, non –technical managers and learners (students) can avail the services from

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			the Learning Management System. The solutions offered by LMS are easy to comprehend and simple to employ. The main modules involved in LMS are **Admin Module:** Admin have full control over the Project. Admin can register the trainer to LMS and can assign the course. Admin have the ability to add the questions for the assessment, can create a course, course schedule for the users to enroll for the course. Admin can Upload the materials for the course which is required for the user to study. **Trainer Module:** Trainers are assigned to the course by Admin and the trainer have the ability to add the questions for the online Assessment and can evaluate the exam for the assigned course. **User Module:** In this module the Users have the ability to read the course materials online, download the materials, videos, able to attend pre and post assessments, able to apply for new courses. Users also have the Online training Sessions. Including the above modules we have forums, blogs and Help-desk. **Responsibilities:** • Understanding the business requirements and transforming them into technical requirements. • Designed the Project Architecture. • Creating the data base schema based on the functional specifications. • Involved in architecture designing and coding for the requirements. • Managing the Team and assigning the tasks to the team. **PROJECT # 12**

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			Learning Management System: **Client :** Ministry of Finance (Kenya) Technologies : ASP.Net, C#.Net, Entity Framework 6.0, LINQ, jQuery, WEB API, Bootstrap and Telerik Controls Tools : Visual Studio 2013, SQL Server 2012 **Description:** Learning Management System (LMS) is designed to provide a platform for online courses. The inbuilt tools of an LMS are user friendly in catering to the needs of different levels and types of users. The users like employees with technical qualification, non –technical managers and learners (students) can avail the services from the Learning Management System. The solutions offered by LMS are easy to comprehend and simple to employ. The main modules involved in LMS are Admin Module: This module contains master screens like Cities, departments, Locations, States, Districts etc, Creation of Students, Trainers, Courses, Course Schedules, Assessments, Material Uploads, Archive Data, Reports. Trainer Module: This module contains Material Uploads, Attendance, Archive data and Reports. User Module: In this the students are able to download the materials, videos, able to attend pre and post assessments, able apply for new courses. Including the above modules we have forums, blogs and Help-desk. **Responsibilities:** • Involved in the development of the system • Involved in the creation SP and functions.



			• Involved in coordinating with the On-shore team. **Project# 13** Liquid Capital (https://motorhappy.co.za/) (On Site) Client : Liquid Capital Pty Ltd (South Africa) Technologies : ASP.Net, C#.Net, Entity Framework 6.0, LINQ, jQuery and Telerik Controls Tools : Visual Studio 2013, SQL Server 2012/2014 **Description:** Liquid Capital is a one-stop shop for the motor industry, providing a comprehensive offering of financial products and related services. Liquid Capital is a registered Financial Services Provider (FSP 6210) and level 3 BEE contributor. Currently Liquid Capital is one of the largest providers of end-to-end white labelled branded financial services solutions to the motor industry and provide a range of motor financial services products for over 12 international motor brands represented in South Africa. **Responsibilities** • Understanding the business requirements and transforming them into technical requirements. • Creating the data base schema based on the functional specifications. • Involved in architecture designing and coding for the requirements. • Worked on both the key modules of the project (Bus ticketing and parcel booking).

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			• Worked on hardware integration (weighing machine integration for parcel booking module). • Prepared unit test cases. • Designed and developed the web user interface, the master page, corresponding CSS and branding for the application. **PROJECT # 14** GEMS (GM Poles Enterprise Management System) (Australia) Client : GM Poles. (http://www.gmpoles.com.au/) Technologies : ASP.Net MVC 3, C#.Net 4.0, Entity Framework, jQuery Tools : Visual Studio 2010, SQL Server 2008 R2 **Description:** GM Poles is a privately owned Manufacturing company, relies on a home grown application to manage its daily routine; this project is to reengineer and build the existing application into a Web application which would be more scalable and robust. This manages all the Manufacturing operation from procurement to Delivery of the goods, which in turn also integrated with Microsoft AX for all the financial transaction operation. **Responsibilities:** • Involved in Architecture Designing and Coding with C#.Net. • Understanding the technical requirements and developed components in .Net using C# as per the Technical Specifications. • Used 3-tier architecture for presentation layer, the Business and

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			Data Access Layers and were coded using C#.Net 4.0. • Written queries, stored procedures and functions using SQL Server 2008. **Project # 15 InterReact - Australia** Client : InterReact Technologies : SharePoint 2013 and C#.Net Tools : Visual Studio 2013, SharePoint Designer and InfoPath 2013. **Project Description** • As a risk managing company InterRisk, uses InterReact application to gather key information from various hotels of ACCOR group in the form of evaluations each quarter. The information from the evaluation is then processed to extract performance reports and analytics of different hotels across regions, brands states etc. • Although the evaluations are filled online, data is being processed manually to come up with different reports and analytics. **Responsibilities:** • Designed and developed custom Master pages & layout pages considering the Branding specifications. • Worked with List Event Handlers, Features & feature event handlers. • Backup & restore operations, alerts management & trouble shooting the issues.

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			• Deployment & Configuration of MOSS (Development, Staging, Production). **Project# 16** My Dhanush Intranet and Extranet Portal **Description:** This is to develop a SharePoint 2010 intranet portal for the current organization, the purpose of this site is to increase the collaboration and the ease of publishing and monitoring all the internal events, Information, Processes and all kinds of documents. **Responsibilities:** • Deployment & Configuration of MOSS (Development, Staging, Production). • Designed and developed custom Master pages & layout pages considering the Branding specifications. • Developed no code applications (DVWPs & CEWPs) and workflows using SharePoint Designer. • Developed custom Web parts (some are connectable). • Backup & restore operations, alerts management & trouble shooting the issues. • Worked on Content Types site columns and customized the advanced search for the custom metadata fields. • Worked with List event Handlers, Features & feature event handlers.

Membership in Professional Associations and Publications	Not Applicable
Language Skills (indicate only languages in which you can work):	

Name of Language	Speak	Read	Write
English	✓	✓	✓

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	Hindi	✓	✓	✓
	Telugu	✓	✓	✓

Adequacy for the Assignment:	
Detailed Tasks Assigned on Bidder's Team of Experts:	• Continual monitoring, tracking and reporting of project progress. • Engage proactively with stakeholders on issues, show stoppers, risks • Communicate and get acceptance on Risk Mitigation Strategies from key stakeholders • Implement Risk Mitigation strategies and track their efficacy. • Use standard templates, tools and visualizations such as Project Plans, Gantt Charts and Dashboards to keep key stakeholders abreast of the progress. • Follow up with the KoTDA strictly adhering to methodology for the application development • Proactively identify conflict, provide Issue resolutions and get acceptance from all stakeholders to close issues amicably in a time bound manner.
{List all deliverables/tasks as in TECH -5 in which the Expert will be involved)	D-1, D-2, D-3, D-4, D-5, D-6, D-7
Expert's contact information:	Email Id: info@dhanushsoftech.com Phone: +91 40 49135000

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.

Name of Expert: Bompally Sheshendra Kumar	**Signature**	**Date:** 08th July 2025
Name of Authorized Representative of the Bidder (the same who signs the Proposal): Karan Christie	K.R. Christie	**Date:** 08th July 2025

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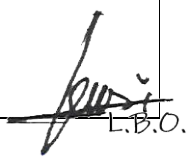
5.2.16 CV 15: Business Analyst

<table>
<tr><td>Positon Title and No.</td><td colspan="4">K-15, Business Analyst</td></tr>
<tr><td>Name of Expert</td><td colspan="4">J DIVYA VANI</td></tr>
<tr><td>Data of Birth</td><td colspan="4">01st January 1991</td></tr>
<tr><td>Country of Citizenship</td><td colspan="4">Indian</td></tr>
<tr><td>Education:</td><td colspan="4"><table><tr><th>Degree/ Diploma obtained</th><th>Name of Educational Institutions</th><th>Dates Attended (Academic year)</th></tr><tr><td>Master of Technology (M.Tech)</td><td>JNTU Hyderabad</td><td>2010-2012</td></tr></table></td></tr>
<tr><td colspan="5">Employment record relevant to the assignment:</td></tr>
<tr><td>Period</td><td>Employing organization and your title/position. Contact info for references</td><td>Country</td><td colspan="2">Summary of activities performed relevant to the Assignment</td></tr>
<tr><td>Jan 2022 - till date</td><td>Dhanush Softech Private Limited</td><td>India</td><td colspan="2">SUMMARY
• 6 years of experience in Business Analyst, skilled at enhancing and optimizing business processes to ensure growth and success.
• Experienced with analyzing internal workflow process to identify areas of enhancement, developing and implementing business development plans, and assessing business requirements.
• Expertise in supporting business solution development across various industries like IT/ITES & Healthcare sectors.
• In addition, a Mental Health Counsellor by passion, have been an asset to my professional team. Counselling Psychologist who can help people with depression, anxiety, social issues.
Project 1#
Title: Educational ERP for OUK and TVET
Client: Open University of Kenya (OUK)
Description: Comprehensive Educational ERP tailored to online distance learning. Involved in requirements gathering, process mapping,</td></tr>
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			functional documentation, stakeholder communication, UAT, and user training. Modules included Admissions, Student Finance, Examination Management, Credit Transfers, Hostel & Transport, and Faculty HR integration. **Responsibilities:** • Gather and document detailed functional and non-functional requirements from OUK stakeholders. • Analyze and map current processes, and recommend improvements aligned with LMS objectives. • Create user stories, use cases, process flows, and wireframes to support development and design teams. • Act as a bridge between business users and the technical team to ensure accurate understanding of requirements. • Conduct gap analysis and feasibility studies to align features with academic workflows and institutional policies. • Support the creation of the project scope, product backlog, and prioritization of features. • Participate in testing phases by validating features against requirements (UAT support). • Continuously gather feedback and refine requirements throughout the development lifecycle. • Ensure the LMS meets academic, administrative, and regulatory expectations of OUK. • Assist in user training, change management, and documentation preparation for end users. **Project 2#** **Title: Samvaad ERP (Learning Management System & Education Management System)** **Description:** A learning management system (LMS) is a software application or web-based technology

			used to plan, implement and assess a specific learning process with, an employee management system that helps improve employee satisfaction and productivity to help a company achieve their overall goals. These tools help monitor, assess and control employees' working hours and efficiently utilize human resources. **Responsibilities:** • Analyzing and providing functional solutions for the requirements • Creating Roadmaps, Planning the epics / stories and executing. • Responsible for resolving requests on Business processes of Recruitment, Marketing and Finance Module. • People management: Identifies team skill gaps, bridging the gaps for effective team delivery • Review goals for Product roadmap and market analysis • Interacted with clients and assured that the product is modified according to client objectives. • Provided training to end users on the developed product. • Documenting the change requests recommended by clients. **Project 3#** **Title:** Learning Management System (LMS) **Client:** Indian Aviation Academy (IAA) **Description:** Develop a web-based application, where an employee can register into the system, make payment, and take an online course through pre-uploaded content, which is in scorn content, upon which a course completion certificate will be generated. **Roles and Responsibilities:** • Defining business requirements and reporting them back to stakeholders.



			• Creating a detailed business analysis, outlining problems, opportunities and solutions for a business • Negotiate and liaise between business teams, technology teams, and support teams. • Deliver high performance and cost effective technology to the client. • Work with users and stakeholders to analyze and validate requirements. • Execute and validate test cases. • Responsible for specifications, implementations, and analytics. • Prepare business models, flowcharts, and diagrams. • Preparing Business Requirement Document (BDR) • Planning and monitoring **Project 4#** **Title:** Samvaad Pro - Video Conferencing Tool **Clients:** TCIL, NITIE, RFRF, AICTE, JNTU, Goa College of Architecture, Kennedy High School **Description:** Samvaad is an easy-to-use collaboration solution that keeps people connected anytime, anywhere. With the Samvaad Solution, we can achieve the complete Virtual Communications Demand of an organization or Institution. Simplify day-to-day interactions that can be enhanced with third-party app integrations for a seamless connectivity. Increase productivity and engagement with real-time communications. Start calls instantly, have high-quality video meetings with Selective screen sharing at the touch of a button. Articulate your ideas on digital whiteboard that participants can be allowed enhance at any time. **Roles & Responsibilities:** • Gathered business requirements, prepared documents, and provided solutions either

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			through configuration or business process, or coordinated with development team. • Providing trainings and created how to guides for user's day-to-day activities. • Analyzing the practicability of and developing requirements for new systems and up gradations to existing systems • Ensuring the system design is perfect as per the needs of the users. • Helping in developing a comprehensive change in management strategy for the court. • Maintaining wizard-driven configuration tables in the case management system.
Sep 2017 – Dec 2021	Swift Cloud Technologies Role: Business Analyst	India	• Negotiate and liaise between business teams, technology teams, and support teams. • Deliver cost effective, high performance technology solutions. • Worked with users and stakeholders to analyze and validate requirements. • Manage project through status meetings, weekly reports, identifying risks, and tracking issues. • Designed, developed, and deployed business intelligence applications. • Served customers and businesses by running and viewing reports. • Execute and validate test cases. Responsible for specifications, implementations, and analytics. • Prepared business models, flowcharts, and diagrams.
June 2015 - August 2016	MINK TECHNOLOGIES Role: Systems Administrator / Networking	India	• Installing and configuring computer networks and systems. • Identifying and solving any problems that arise with computer networks and systems. • Consulting with clients to specify system requirements and design solutions. • Budgeting for equipment and assembly costs • Assembling new systems.

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			• Maintaining existing software and hardware and upgrading any that have become obsolete. • Monitoring computer networks and systems to identify how performance can be improved. • Working with IT support personnel. • Providing network administration and support

Membership in Professional Associations and Publications	Not Applicable
Language Skills (indicate only languages in which you can work):	**Name of Language** / **Speak** / **Read** / **Write** English ✓ ✓ ✓ Hindi ✓ ✓ ✓ Telugu ✓ ✓ ✓
Adequacy for the Assignment:	
Detailed Tasks Assigned on Bidder's Team of Experts:	• Assisting with the business case. • Planning and monitoring. • Translating and simplifying requirements. • Requirements management and communication. • Requirements analysis. • Defining and executing business functional tests
{List all deliverables/tasks as in TECH -5 in which the Expert will be involved)	D-1, D-2, D-3, D-4, D-5
Expert's contact information:	Email Id: info@dhanushsoftech.com Phone: +91 40 49135000

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.

Name of Expert: Divya Vani	**Signature**	**Date:** 08th July 2025
Name of Authorized Representative of the Bidder (the same who signs the Proposal): Karan Christie	K.R. Christie	**Date:** 08th July 2025

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5.2.17 CV 16: Business Analyst

Position Title	K-16, Business Analyst
Name of the Expert	M. Ramachandraiah
Date of Birth	02nd August 1997
Country of Citizenship	India

Educational Qualification

Institution	Dates Attended	Degree/ Diploma Obtained
GITAM Hyderabad Business School	2019 – 2021	Master of Business Administration (MBA)
Ramachandra College of Engineering	2014-2018	Bachelor of Technology (B.Tech) in Computer Science and Engineering (CSE)

Employment record relevant to the assignment

S No	Organization	Role	Duration
1	Dhanush Softech Private Limited	Business Analyst	Mar 2025 to Till Date
2	Wolken Software Private Limited	Business Analyst	Aug 24 to Jan 2025
3	Trisys IT Services Private Limited	Business Analyst	Nov 21 to July 2024

Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
March 2025 to Till Date	**Company Name:** Dhanush Softech Private Limited **Designation:** Business Analyst **Contact Info for References:** HR **Email Id**: hr@dhanushsoftech.com	Indian	**Organization Name**: Dhanush Softech Pvt. Ltd, Hyderabad, India **Summary:** • Over 3+ years of experience as a Business Analyst in IT solutions across software, banking, and SaaS domains. • Skilled in requirement gathering, BRD/FSD documentation, user story creation, and UAT support. • Acted as a key liaison between business and technical teams to ensure project alignment.

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			• Contributed to major public health initiatives like eVIN, SHWP, and Vaccine Van Temperature Monitoring System. • Previous experience includes working on customer support platforms at Wolken Software and banking automation with Trisys IT Services. • Strong analytical, documentation, and communication skills with a focus on aligning solutions with business objectives. **Project 1#** **Title**: Development of eVIN Application (Big Data) **Client:** UNICC **Description**: Electronic Vaccine Intelligence Network (eVIN) is an innovative technological solution aimed at strengthening vaccine supply chain systems across the country. **Responsibilities**: • Gather, analyse, and document business requirements from stakeholders. • Prepare Business Requirement Documents (BRDs), Functional Specifications Documents (FSDs), and user stories. • Translate business needs into technical requirements for development teams. • Facilitate communication between business stakeholders and technical teams. • Conduct gap analysis and identify opportunities for process improvements. • Support User Acceptance Testing (UAT) by defining test cases and coordinating feedback. **Project 2#**

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			Title: SHWP (School Health & Wellness Programme) **Description**: The SHWP MIS is envisioned to be an all-encompassing platform that aids the program in managing School Health and Wellness Ambassador trainings, recording and reporting of classroom activities by HWAs, knowledge assessment of school going students (Class 6 to Class 12), access to IEC materials for HWAs and school students, tracking student referrals by HWAs to health facilities and cross sectional and longitudinal data visualization dashboard across multiple levels. **Responsibilities**: • Gather, analyze, and document business requirements from stakeholders. • Prepare Business Requirement Documents (BRDs), Functional Specifications Documents (FSDs), and user stories. • Work closely with product owners, project managers, and developers throughout the project lifecycle. • Track and manage requirement changes and ensure alignment with project goals. • Assist in project planning, scoping, and stakeholder meetings. **Project 3#** **Title**: Vaccine Van Remote Temperature Monitoring **Description**: Electronic Vaccine Intelligence Network (eVIN) is an innovative technological solution aimed at strengthening vaccine supply chain systems across the country. **Responsibilities:** • Gather, analyze, and document business requirements from stakeholders.

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			• Prepare Business Requirement Documents (BRDs), Functional Specifications Documents (FSDs), and user stories. • Assist in project planning, scoping, and stakeholder meetings. • Analyze and interpret data to support decision-making and strategy. • Provide post-implementation support and help monitor solution effectiveness. • Ensure compliance with business rules, regulations, and standards. • Stay updated with industry trends, tools, and methodologies in business analysis.
Aug 24 to Jan 2025	**Company Name:** Wolken Software Pvt Ltd **Designation:** Business Analyst	India	**Organization Name**: Wolken Software Pvt Ltd **Project 1#** **Title**: Customer Support Management **Description**: Gathered and analyzed requirements, created BRDs/FSDs, coordinated with stakeholders, defined user stories, supported UAT, and ensured alignment between business needs and technical solutions. **Responsibilities**: • Elicit and document business requirements through stakeholder interactions and workshops. • Develop detailed BRDs, FSDs, and user stories to guide solution development. • Translate business needs into clear, actionable technical specifications. • Act as a bridge between business stakeholders and development teams to ensure mutual understanding. • Conduct gap analyses and recommend process enhancements for operational efficiency.

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			• Define and support UAT scenarios, test cases, and coordinate user feedback.
Nov 21 to July 2024	**Company Name:** Trisys IT Services Pvt Ltd **Designation:** Business Analyst	Indian	**Organization Name**: Trisys IT Services Pvt Ltd **Project 1#** **Title**: Karnataka Bank (Home Loan & Car Loan) **Roles and responsibilities:** • Create visual artifacts such as process flows, mockups, and wireframes to support design. • Collaborate with project managers, product owners, and technical teams throughout the SDLC. • Manage change requests and maintain alignment with project scope and goals. • Support project planning and provide insights during stakeholder meetings. • Analyse business data to support informed decision-making and reporting.

Membership in Professional Associations and Publications: NA

Language Skills (indicate only languages in which you can work):	**Language**	**Speaking**	**Reading**	**Writing**
	English	Yes	Yes	Yes
	Telugu	Yes	Yes	Yes
	Hindi	Yes	Yes	Yes

Detailed Tasks Assigned on Bidder's Team of Experts

- Assisting with the business case.
- Planning and monitoring.
- Translating and simplifying requirements.
- Requirements management and communication.
- Requirements analysis.
- Defining and executing business functional tests

Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks

D-1, D-2, D-3, D-4, D-5

Experts contact information :	**E-mail:** hr@dhanusoftech.com	**Phone:** +91 4049135000

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Certification		
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.		
Name of the Expert: M. Ramachandraiah	**Signature of the Expert**	**Date:** 8th July 2025
Name of authorized Representative of the Bidder: Karan Christie	K.R. Christie	**Date:** 8th July 2025

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5.2.18 CV 17: Business Analyst

Position Title	K – 17, Business Analyst
Name of the Expert	Samuel Kusinyi
Date of Birth	10th September 1998
Country of Citizenship	Kenya

Educational Qualification

Institution	Dates Attended	Degree/ Diploma Obtained
Multimedia University of Kenya	2022	Bachelor of Business Information Technology

Employment record relevant to the assignment

S No	Organization	Role	Duration
1.	Dhanush Softech Private Limited	Business Analyst	2022 to Till Date

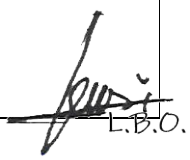
Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
2022 to till date	**Company Name:** Dhanush Softech Private Limited **Designation:** Business Analyst **Contact Info for References: HR** **Email Id**: info@dhanushsoftech.com	Kenya	**Summary:** • IIBA-certified Business Analyst with 3+ years of experience • Specialized in ERP implementation for educational institutions • Skilled in requirement elicitation, stakeholder engagement, UAT coordination, and process documentation • Led digital transformation projects at Open University of Kenya and Ol'lessos TVET Institute • Strong ability to align technical solutions with business and institutional goals • Fluent in English and Swahili, experienced in diverse user environments **Project 1#** Title: **Open University of Kenya ERP** **Description**:

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			Requirements gathering and Analysis. • Conducted structured stakeholder interviews, workshops, and process walkthroughs to gather functional and non-functional requirements. • Worked with education-sector stakeholders including registrars, finance officers, academic staff, and IT teams to understand pain points and expectations. • Translated stakeholder needs into well-documented business and functional requirements. **Process Mapping and Documentation.** • Developed detailed process flow diagrams and use case models for core modules such as student admissions, academic records, finance, HR, and examinations. **System Design Support and Validation.** • Collaborated with developers to ensure that system designs aligned with documented requirements. **Stakeholder engagement and communication.** • Maintained continuous engagement with key decision-makers, technical teams, and end-users to align expectations and improve system adoption. • Facilitated feedback sessions and change management communication to support user buy-in. **User Acceptance Testing (UAT) Support.** • Created test cases based on requirements and supported UAT execution with users from academic and administrative departments. • Logged and followed up on issues, enhancements, and system refinements • Training & Capacity Building Support. **Project 2#**

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			Title: Ol'lessos Technical and vocational education Training (TVET) institute ERP**.** **Requirements gathering and Analysis.** • Conducted structured stakeholder interviews, workshops, and process walkthroughs to gather functional and non-functional requirements. • Worked with education-sector stakeholders including registrars, finance officers, academic staff, and IT teams to understand pain points and expectations. • Translated stakeholder needs into well-documented business and functional requirements. **Process Mapping and Documentation.** • Developed detailed process flow diagrams and use case models for core modules such as student admissions, academic records, finance, HR, and examinations. **System Design Support and Validation.** • Collaborated with developers to ensure that system designs aligned with documented requirements. **Stakeholder engagement and communication.** • Maintained continuous engagement with key decision-makers, technical teams, and end-users to align expectations and improve system adoption. • Facilitated feedback sessions and change management communication to support user buy-in. **User Acceptance Testing (UAT) Support.** • Created test cases based on requirements and supported UAT execution with users from academic and administrative departments. • Logged and followed up on issues, enhancements, and system refinements • Training & Capacity Building Support.



Membership in Professional Associations and Publications: IIBA Member, ECBA Certified				
Language Skills (indicate only languages in which you can work):	**Language**	**Speaking**	**Reading**	**Writing**
	English	Yes	Yes	Yes
	Swahili	Yes	Yes	Yes

Detailed Tasks Assigned on Bidder's Team of Experts

- Requirements Gathering & Analysis
- Conducted interviews, workshops, and walkthroughs with stakeholders.
- Captured and translated business needs into detailed functional/non-functional requirements.
- Analyzed user pain points and aligned requirements with institutional goals.
- Process Mapping & Documentation
- Created process flow diagrams, use cases, and requirement traceability matrices.
- Mapped existing (as-is) and proposed (to-be) processes for core ERP modules:
- System Design & Validation Support
- Liaised with development teams to ensure alignment of system design with requirements.
- Stakeholder Engagement & Communication
- Maintained regular interaction with cross-functional stakeholders
- Ensured transparency and consensus throughout project phases.
- Designed test cases and test scripts based on requirements.
- Coordinated UAT sessions with users from academic and administrative units.
- Tracked and escalated defects, enhancements, and feedback during testing.
- Supported end-user training initiatives, especially for non-technical users.
- Created user guides, manuals, and walkthroughs for system onboarding.
- Maintained detailed project documentation, including BRDs, SRS, and stakeholder registers.
- Prepared reports and updates for internal teams and client decision-makers

Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks

D-1, D-2, D-3, D-4, D-5, D-6, D-7, D-8, D-9, D-10

Experts contact information:	**E-mail:** hr@dhanushsoftech.com	**Phone: :** +91 4049135000

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award.

L.B.O.

I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.		
Name of the Expert: Samuel Kusinyi	**Signature of the Expert**	**Date:** 9th July 2025
Name of authorized Representative of the Bidder: Karan Christie		**Date:** 9th July 2025

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5.2.19 CV 18: Data Migration Expert

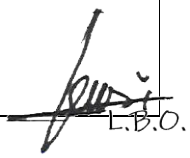
Positon Title and No.	K -18, Data Migration Expert
Name of Expert	Bojjupalli Srikanth Rao
Data of Birth	16th January 1982
Country of Citizenship	Indian
Education:	**Degree/ Diploma obtained** | **Name of Educational Institutions** | **Dates Attended (Academic year)** Bachelor of Engineering (B.E) | Madras University | 2000 - 2004

Employment record relevant to the assignment:

Period	Employing organization and your title/position. Contact info for references	Country	Summary of activities performed relevant to the Assignment
May 2021- till date	Dhanush Softech Private Limited **Designation:** Sr. Database Engineer **Contact Info for References:** HR Department Email Id: info@dhanushsoftech.com	Indian	**SUMMARY** • Experienced and versatile Sr. Database Developer with 14+ years in database architecture, development, and administration. • Specialized in relational database design, optimization, and performance tuning using SQL Server, PostgreSQL, and MySQL. • Expert in developing complex stored procedures, triggers, and executing large-scale data migration and integration projects. • Proficient in ETL development using SSIS and report creation with SSRS. • Skilled in performance diagnostics using execution plans and monitoring tools. • Hands-on experience with high-availability and disaster recovery strategies, including log shipping and mirroring. • Successfully delivered mission-critical projects like ANMOL, eUPHC Telemedicine,

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			Centralized Bus Reservation System, and uCustoms. • Known for collaborative problem-solving and providing cross-platform support. • Experienced in mentoring junior DBAs and supporting team development. • Ensures secure, scalable, and high-performing database environments aligned with business requirements. **WORK EXPERIENCE:** **Project 1#** **Title : SmartHR (Kenya)** **Client:** Parliament of Kenya, COMESA **Description:** Smart HR is an integrated, effective application developed by Dhanush team with its internal expertise and has many modules, which are interlinked with many other applications. This system acts as a single- source solution to self-manage payroll, benefits administration, recruiting, training & more. **Project 2#:** Project : **ANMOL** Client : Ministry of Health & Family welfare Designation : Sr.Software Engineer Environment : Windows 2012/2003 Server, .Net **Description:** ANMOL is WEB application for Ministry of Health & Family welfare. The main aim of anmol is to track mother and child whenever woman was pregnant. During pregnancy, the application maintains regular checkups and vaccinations and tests and delivery plan and PNC visits and Child Immunizations and Child TT1, TT2 and TT Boosters. In a single application, the app integrates previously discrete, proven innovations including a client registry for enumeration and continuity of care; client's household details, eligible couples and mother and child registration; electronic forms with embedded logic and decision-support including



			checklists and algorithms for risk assessment; scheduling and service reminder tools; and automated reporting into sub-district and national reporting systems. **Roles & Responsibilities:** • Writing Complex T-Sql Queries, Functions, Stored Procedures on SQL Server 2012. • Developing reports with SSRS reports. • Working on performance tuning. • Creating and scheduling Jobs to automate process. • Re-writing and tuned long-running SQL queries for execution with shorter time, • Working on the performance monitor, sql profile and sql trace. • Working on performance fine-tuning with help of execution plans. **Project 3#** Project: **Centralized Bus Reservation System (CBRS)** Client : Easy Coach (Kenya) Designation : Sr. Software Engineer Environment : Windows 2008/2003 Server, .Ne **Description:** Easy Coach is a passenger transport an courier service provider in republic of Kenya with Extensive branch network in Nairobi, Rift Valley, Nya and Western Provinces as well as Kampala, Capital of Uganda. This is a business to consumer applicati developed in order to enhance the customer service a Streamline the business operations. Easy Coach is implementing a Centralized Reservation System (CBRS) to automate the busin processes and manage the bus reservations as wel the Courier services at Easy Coach **Roles & Responsibilities:** • Creating SQL objects like Views, Indexes, Triggers

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			• Writing Complex T-Sql Queries, Functions, Stored Procedures on SQL Server 2008/2012/2014. • Created complex analytic queries on large data sets. • Creating and scheduling Jobs to automate process. • Re-writing and tuned long-running SQL queries for execution with shorter time, • Working on the performance monitor, sql profile and sql trace. • Working on performance fine-tuning with help of execution plans. • Developing reports with SSRS reports. **Project 4#** Project : uCustoms Client : Royal Malaysian Customs Departme Designation : Sr. Software Engineer Environment : Windows 2012/2003 Server, .Net **Description:** UCustoms is a fully integrated, end-to-e Customs modernization solution that delivers 'Sir Window' for goods clearance. This project conta around 50 modules, from which key modules are Car Declaration, Inspection, Assessment and Release. **Roles & Responsibilities:** • Writing Complex T-Sql Queries, Functions, XML, Stored Procedures on SQL Server 2012. • Developing reports with SSRS reports. • Creating and scheduling Jobs to automate process. • Re-writing and tuned long-running SQL queries for execution with shorter time, • Working on the performance monitor, sql profile and sql trace. • Working on performance fine tuning with help of execution plans **Project 5#**

			Project : **eUPHC – Telemedicine (Electro Urban Primary Health Center)** Client : Government of Andhra Pradesh Designation : Sr. Software Engineer Environment : Windows 2012/2003 Server, .Net **Description: e**UPHC – Telemedicine is "The delivery of health care services, where distance is a critical factor, by All health care professionals using information and communication technologies for the exchange of Valid information for diagnosis, treatment and prevention of disease and Injuries, research and Evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities." Telemedicine uses ICTs to overcome geographical barriers, and increase access to health Care Services. This is particularly beneficial for rural and underserved communities in developing Countries groups that traditionally suffer from lack of access to health care **Roles & Responsibilities:** • Writing Complex T-Sql Queries, Functions, Stored Procedures on SQL Server 2012. • Developing reports with SSRS reports. • Working on performance tuning. • Creating and scheduling Jobs to automate process. • Re-writing and tuned long-running SQL queries for execution with shorter time, • Working on the performance monitor, sql profile and sql trace. • Working on performance fine tuning with help of execution plans
Oct 2019 – May 2021	Agility E Services Role: Sr. Software Engineer	India	**Project 6#** Project : **Hospital Optimum Process Engine** Company name : Ethon Healthcare Solution

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			Designation : Sr. Software Engineer Environment : Windows 2008/2003 Server, Java **Description:** Hospital Optimum Process Engine (HOPE) is a component based, work flow oriented, parameter Driven enterprise solution. All the activity areas administrative, clinical, financial, materials Management, services and knowledge management are integrated into a complete hospital Information system that help manage the complete health care organization by automating and Improving effectiveness of processes. **Roles & Responsibilities:** • Working on the data models & data base designing like SQL objects like Tables, Views, Indexes, Triggers • Writing Complex T-Sql Queries, Functions, Stored Procedures on SQL Server 2005/2008/2012. • Developed database objects and structures for data storage, retrieval, and reporting according to project specifications. • Created complex analytic queries on large data sets. • Creating and scheduling Jobs to automate process. • Rewrote and tuned long-running SQL queries to cut execution time, ease database load and improve scalability. • Data base maintenance job schedules. • Working on performance fine-tuning with help of execution plans. • Worked on DBA activities like give permissions, back up scheduling & monitoring, Data base restoration.

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			• Worked implementing the Replication in sql server 2012.
Oct 2015 to Sep 2019	Dhanush InfoTech Private Limited Role: Sr. Software Engineer	India	Project : **Centralized Bus Reservation System (CBRS)** Client : Easy Coach (Kenya) Designation : Sr. Software Engineer Environment : Windows 2008/2003 Server, .Net **Description:** Easy Coach is a passenger transport and a courier service provider in republic of Kenya with an extensive branch network in Nairobi, Rift Valley, Nyanza and Western Provinces as well as Kampala, Capital city of Uganda. This is a business to consumer application, developed in order to enhance the customer service and Streamline the business operations. **Roles & Responsibilities:** • Creating SQL objects like Views, Indexes, Triggers • Writing Complex T-Sql Queries, Functions, Stored Procedures on SQL Server 2008/2012/2014. • Created complex analytic queries on large data sets. • Re-writing and tuned long-running SQL queries for execution with shorter time, • Working on the performance monitor, sql profile and sql trace. • Working on performance fine-tuning with help of execution plans. • Developing reports with SSRS reports.
Jan 2010 to Feb 2015	IDHA Soft Ltd Role: r. Software Engineer	India	**Project 8#** Project Title : **Idha Hospital Management System** Operating System : Windows XP professional Duration : In House (Product) Client : Rockland Hospital (New Delhi) **Description:**

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			IHIS-A Web base hospital information system is a compact Package designed to provide a sophisticated, state of the art web technology, aimed at bringing about total quantity in management. WHIS provides online-integrated information of payers to health care organization with robust security and privacy features. **Roles & Responsibilities:** • Part of a team in designing the Screens and .Net coding. • Writing Queries, Store Procedures, Function, Views according to the Requirement. • Requirement gathering from client, Functional requirement analysis and designing solution. • Document/Code/Functionality Review. • Implementing the HIS at Client side **Project 9#** Project Title : **Idha Pharmacy and laboratory Management Information System** Operating System : Windows XP professional Duration : In House (Product) **Description:** ILMIS is a Specialty Laboratory services with the support of state-of-the-art technology in all disciplines. ILMIS with its dream to be one amongst the top referral laboratories introduces diagnostic Laboratory Services to serve the humankind with ultimate quality and care. **Roles & Responsibilities:** • Part of a team in designing the Screens and .Net coding. • Writing Queries, Store Procedures, Function, Views according to the Requirement. • Requirement gathering from client, Functional requirement analysis and designing solution. • Document/Code/Functionality Review. • Implementing the HIS at Client side

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Mar 2008 to Jan 2010.	Kamineni Hospital's Role: Database Administrator	India	

Membership in Professional Associations and Publications	Not Applicable

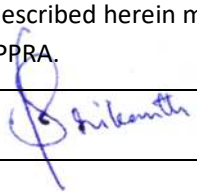
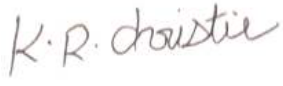
Language Skills (indicate only languages in which you can work):	Name of Language	Speak	Read	Write
	English	Yes	Yes	Yes
	Hindi	Yes	Yes	Yes
	Telugu	Yes	Yes	Yes

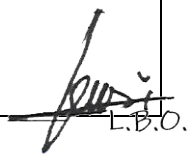
Adequacy for the Assignment:

Detailed Tasks Assigned on Bidder's Team of Experts:	• Installing and configuring database MySQL on Ubuntu. • Maintaining database scripts in various environments (Dev, Prod). • Scheduling Jobs frequently to run the functions. • Written some views for dashboard data as per client requirement. • Maintaining Scripts for Dev Instance, PROD Instance
{List all deliverables/tasks as in TECH -5 in which the Expert will be involved)	D-2, D-3, D-4, D-5, D-6, D-8
Expert's contact information:	Email Id: info@dhanushsoftech.com Phone: +91 40 49135000

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.

Name of Expert: BOJJUPALLI SRIKANTH RAO	**Signature** 	**Date:** 08th July 2025
Name of Authorized Representative of the Bidder (the same who signs the Proposal		**Date:** 08th July 2025



5.2.20 CV 19: Developer

Position Title	K - 19, React Js Developer
Name of the Expert	Saiteja Kotla
Date of Birth	15-08-1994
Country of Citizenship	Indian

Educational Qualification

Institution	Dates Attended	Degree/ Diploma Obtained
Annamacharya Institute of Technology and Sciences	2011 - 2015	Bachelor of Technology in Mechanical

Employment record relevant to the assignment

S No	Organization	Role	Duration
1	Dhanush Softech Pvt. Ltd	React Js Developer	Dec-2020 to till date
2	Celegence Systems Pvt. Ltd	React Js Developer	Oct-2019 to Dec -2020

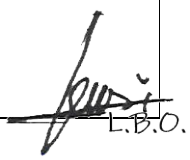
Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
Dec-2020 to till date	**Company Name:** Dhanush Softech private limited **Designation:** React Js Developer **Contact Info for References: HR** **Email Id**: info@dhanushsoftech.com	Indian	**Summary:** • Over 5+ years of experience in developing scalable and responsive web applications using React.js. • Expertise in building modular, reusable UI components and optimizing front-end performance. • Skilled in JavaScript, React.js, HTML5, CSS3, and modern frontend practices. • Experienced across domains like HRMS, eco-awareness, AV conferencing, and pharmaceutical regulatory systems. • Translates functional requirements into interactive, user-friendly interfaces. • Delivered key projects such as OUK SMHR, EcoMitram, Samvaad Pro, MDR, and SRI.

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			• Focused on performance, maintainability, and accessibility in UI development. • Adheres to coding standards and collaborates effectively in agile teams. • Committed to technical excellence and delivering business-focused UI solutions. **Project 1#** **Title**: OUK SMHR **Description**: SMHR is a comprehensive HR management application that streamlines employee lifecycle processes, from employee creation to payroll, attendance, leaves, recruitment, pensions, loans, and reporting. It provides an efficient and integrated solution for managing HR operations, ensuring accuracy, automation, and ease of use for organizations. **Responsibilities:** • Translated project requirements into detailed technical specifications. • Analyzed application modules for efficient content management and planning. • Designed responsive, cross-browser-compatible web pages using HTML5 and CSS3. • Developed secure and interactive UIs with JavaScript. • Maintained consistent styling through external CSS stylesheets. • Participated in coding, testing, and debugging of the web UI layer. **Project 2#** **Title**: Ecomitram **Description**: EcoMitram is an eco-awareness application designed to encourage people to develop sustainable and eco-friendly habits. The platform promotes environmental consciousness by organizing quizzes, competitions, exams, and

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			various interactive activities to educate and engage the public about nature conservation. **Responsibilities:** • Developed secure and interactive UIs with JavaScript. • Maintained consistent styling through external CSS stylesheets. • Participated in coding, testing, and debugging of the web UI layer. • Collaborated on website enhancements, integrations, and technical upgrades. • Built modular, reusable UI components with React.js for maintainability. **Project 3#** **Title**: Samvaad Pro **Description**: Samvaad is an AV (audio-video) conferencing system, used to communicate via both audio and video. It has multiple features such as whiteboard, multi-screen sharing, internet connection status, pin and spotlight view, live chat, live streaming, screen sharing, polls, recording the session, breakout rooms, etc. Samvaad Pro is one of the most used and most secure AV conferencing systems used throughout India, especially by government organizations. **Roles & Responsibilities** • Translated project requirements into detailed technical specifications. • Analyzed application modules for efficient content management and planning. • Designed responsive, cross-browser-compatible web pages using HTML5 and CSS3. • Developed secure and interactive UIs with JavaScript. • Maintained consistent styling through external CSS stylesheets.



			• Participated in coding, testing, and debugging of the web UI layer. • Collaborated on website enhancements, integrations, and technical upgrades. • Built modular, reusable UI components with React.js for maintainability. • Deployed front-end code following coding standards and best practices. • Improved web features through stakeholder collaboration and iterative feedback.
Oct-2019 to Dec - 2020	**Company Name:** Celegence Systems Pvt Ltd **Designation:** React Js Developer		**Organization Name**: Celegence Systems Pvt Ltd **Project 1#** **Title**: **:** MDR(Medical Device Regulatory) **Description**: Medical Device Regulatory web application which makes the work easier for Medical Writers and CER(Clinical Evaluation Report) experts. Closely worked with the product team to validate the requirement and understand the use cases to build the application. Celegence MDR enables medical writers to evaluate and review the literature/ journals etc. posted on various medical search repositories. This application also supports systematic literature review, identifies and cross verify adverse events of the medical device or the device families, and helps to prepare the CER. **Responsibilities**: • Collaborated with the product team to understand business and medical requirements. • Designed and developed modules for systematic literature review and data extraction. • Ensured MDR compliance by working closely with medical writers. • Implemented features for reviewing medical journals from sources like PubMed.

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			• Developed tools to identify and cross-verify adverse events for medical devices. • Supported Clinical Evaluation Report (CER) workflows including data analysis and documentation. **Project 2#** **Title**: SRI (Simplified Regulatory Intelligence) **Description**: A B2B SaaS-based product for Pharma clients to manage and share regulatory Intelligence information from the stage of product launch and beyond. **Roles & Responsibilities** • Collaborated with the product team to understand business and medical requirements. • Implemented features for reviewing medical journals from sources like PubMed. • Developed tools to identify and cross-verify adverse events for medical devices. • Supported Clinical Evaluation Report (CER) workflows including data analysis and documentation. • Participated in UAT, bug fixes, and release cycles to ensure product quality. • Provided post-deployment support and assisted QA with testing and performance validation.

Membership in Professional Associations and Publications:

Language Skills (indicate only languages in which you can work):

Language	Speaking	Reading	Writing
English	Yes	Yes	Yes
Telugu	Yes	Yes	Yes
Hindi	Yes	Yes	Yes

Detailed Tasks Assigned on Bidder's Team of Experts

- Designing, developing and maintaining business intelligence solutions

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• Crafting and executing queries upon request for data • Presenting information through reports and visualization • Maintain and support data analytics platforms • Create tools to store data • Conduct unit testing and troubleshooting • Collaborate with teams to integrate systems • Develop and execute database queries and conduct analyses • Create visualizations and reports for requested projects • Develop and update technical documentation		
Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks		
D-3, D-4, D-5, D-6, D-7, D8, D9		
Experts contact information :	**E-mail:** info@dhanushsoftech.com	**Phone:** +9140 49135000
Certification		
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.		
Name of the Expert: Saiteja Kotla	**Signature of the Expert**	**Date:** 9th July 2025
Name of authorized Representative of the Bidder:	K.R. Chaitie	**Date:** 9th July 2025

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5.2.21 CV 20: Developer

Position Title	K-20, Software Developer
Name of the Expert	Nalam Pomeshwar
Date of Birth	24/03/1995
Country of Citizenship	India

Educational

Institution	Dates Attended	Degree/ Diploma Obtained
Visvesvaraya College of Engineering & Technology, Ibrahimpatnam	2018	B.Tech in Computer Science Engineering

Employment record relevant to the assignment

Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
August 2021 – Present	**Company Name:** Dhanush Softech Private limited **Designation:** Jr. Software Developer **Contact Info for References:** HR **Email Id**: hr@dhanushinfotech.com	India	**Summary:** • Over 3+ years of experience in designing and developing scalable web applications using Angular and REST APIs across healthcare, HR, education, and finance domains. Demonstrated ability to build robust front-end solutions and streamline workflows across complex enterprise platforms. • Successfully contributed to mission-critical systems such as the Learning Management System (LMS), Hospital Management Information System (HMIS), SMART HR, and Finance Management System, delivering user-centric features including dynamic dashboards, real-time data tracking, integrated reporting, and automation of administrative processes. • Strong understanding of modular UI/UX development, real-time integration, and cross-functional system connectivity. • Known for collaborative team efforts, attention to performance, and building

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			maintainable front-end applications that support enterprise growth and operational efficiency. **Project 1#** **Title**: Learning Management System (LMS) **Description**: Developed modules for Admin, Trainer, and Student portals using Angular. Implemented role-based dashboards, course scheduling, material uploads, and assessment features. **Project 2#** **Title**: Hospital Management Information System (HMIS) **Description**: Contributed to clinical and operational modules including patient intake, lab integration, and health records. Focused on real-time service quality and feedback tracking. **Project 3#** **Title**: SMART HR System **Description**: Automated HR processes such as onboarding, leave, payroll, and employee self-service using Angular and REST APIs. Integrated the system with finance and admin workflows. **Project 4#** **Title**: Finance Management System **Description**: Implemented budgeting, expense tracking, and approval workflows. Integrated with HR and HMIS systems for accurate payroll and procurement management.

Membership in Professional Associations and Publications:

Language Skills (indicate only languages in which you can work):	**Language**	**Speaking**	**Reading**	**Writing**
	English	Yes	Yes	Yes
	Hindi	Yes	Yes	yes
	Telugu	Yes	Yes	Yes

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	Marathi	Yes	Yes	No

Detailed Tasks Assigned on Bidder's Team of Experts

- Designing, developing and maintaining business intelligence solutions
- Crafting and executing queries upon request for data
- Presenting information through reports and visualization
- Maintain and support data analytics platforms
- Create tools to store data
- Conduct unit testing and troubleshooting
- Collaborate with teams to integrate systems
- Develop and execute database queries and conduct analyses
- Create visualizations and reports for requested projects
- Develop and update technical documentation

Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks

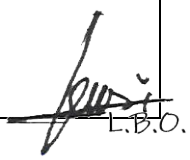
D-3, D-4, D-5, D-6, D-7, D-8, D-9, D-10

Experts contact information :	**E-mail:** hr@dhanushinfotech.com	**Phone:** +9140 49135000

Certification

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA**.**

Nalam Pomeshwar		
Name of the Expert	**Signature of the Expert**	**Date:** 08th July 2025
Name of authorized Representative of the Bidder: Karan Christie		**Date:** 08th July 2025



5.2.22 CV 21: Developer

Position Title	K-21, Dot Net Developer
Name of the Expert	Damodharan V B
Date of Birth	10/11/1997
Country of Citizenship	Indian

Educational Qualification

Institution	Dates Attended	Degree/ Diploma Obtained
Sri Venkateswara College of Engineering	2020	Bachelor of Engineering

Employment record relevant to the assignment

S No	Organization	Role	Duration
1	Dhanush Softech Pvt Ltd	Dot Net Developer	Aug 2021 – Till Now

Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
Aug 2021 - present	**Company Name:** Dhanush Softech private limited **Designation:** Dot Net Developer **Contact Info for References: HR** **Email Id**: info@dhanushsoftech.com	India	**Summary:** • Over 3+ years of experience as a .NET Developer, specializing in web-based enterprise applications using ASP.NET, C#, and PostgreSQL. • Skilled in building scalable and secure backend systems with expertise in Dapper, joins, views, triggers, and complex stored procedures. • Key contributor to major projects like Learning Management System (LMS) and SMART HR. • Developed modules for admin operations, course scheduling, payroll, and employee self-service. • Strong ability to translate business requirements into effective technical solutions.

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			• Experienced in all stages of the software development lifecycle—analysis, coding, testing, and deployment. • Effective collaborator with cross-functional teams to ensure timely and quality delivery. **Project 1#** **Title**: Learning Management System **Description**: Learning Management System (LMS) is designed to provide a platform for online courses. The inbuilt tools of an LMS are user friendly in catering to the needs of different levels and types of users. The users like employees with technical qualification, non –technical managers and learners (students) can avail the services from the Learning Management System. The solutions offered by LMS are easy to comprehend and simple to employ. The main modules involved in LMS are Admin Module: This module contains master screens like Cities, departments, Locations, States, Districts etc, Creation of Students, Trainers, Courses, Course Schedules, Assessments, Material Uploads, Archive Data, Reports. Trainer Module: This module contains Material Uploads, Attendance, Archive data and Reports. **Project 2#** **Title**: SMART HR **Description**: Smart HR bridges the gap between Human Resource Management team and Information Technology. It provides the ability to efficiently manage and monitor all HR related Operations. Also eliminates the cumbersome manual activities and helps resources focus on Strategic Decision Making! **Responsibilities**

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			• There are few modules in SMHR-knowledge in Smart HR they are Payroll module, Salary Slip module

Membership in Professional Associations and Publications:

Language Skills (indicate only languages in which you can work):	**Language**	**Speaking**	**Reading**	**Writing**
	English	Yes	Yes	Yes
	Telugu	Yes	No	No
	Tamil	Yes	Yes	Yes

Detailed Tasks Assigned on Bidder's Team of Experts

- Designing, developing and maintaining business intelligence solutions
- Crafting and executing queries upon request for data
- Presenting information through reports and visualization
- Maintain and support data analytics platforms
- Conduct unit testing and troubleshooting
- Collaborate with teams to integrate systems
- Develop and execute database queries and conduct analyses
- Create visualizations and reports for requested projects
- Develop and update technical documentation

Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks

D-3, D-4, D-5, D-6, D-7, D-8, D-9, D-10

Experts contact information :	**E-mail:** info@dhanushsoftech.com	**Phone:** +91 4049135000

Certification

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.

Name of the Expert: Damodharan V B	**Signature of the Expert**	**Date:** 08th July 2025
Name of authorized Representative of the Bidder: Karan Christie	K.R. Christie	**Date:** 08th July 2025

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5.2.23 CV 22: Developer

Position Title	K-22, Software Developer
Name of the Expert	Bompally Saiteja
Date of Birth	30 June 1998
Country of Citizenship	Indian

Educational Qualification

Institution	Dates Attended	Degree/ Diploma Obtained
Vijay Rural Engineering College (JNTUH)	2021	B.Tech – Computer Science Engineering(CSE)

Employment record relevant to the assignment

S No	Organization	Role	Duration
1	Dhanush Softech private limited.	Software Developer	Aug 2021 - present

Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
Aug 2021 – Present	**Company Name:** Dhanush Softech private limited **Designation:** Junior Software Developer **Contact Info for References: HR** **Email Id**: info@dhanushsoftech.com	India	**Summary:** • 3+ years of experience as a Software Developer, focused on designing, developing, and deploying user-centric web applications. • Proficient in front-end development using Angular, with experience building scalable and responsive platforms. • Contributed to key projects including LMS, E-LMS for Indian Aviation Academy, and internship portals like Eco Mitram and Open University of Kenya. • Skilled in creating intuitive user interfaces and integrating them with backend services. • Maintains high code quality and collaborates effectively with cross-functional teams. • Experienced in deploying builds, fixing bugs, and ensuring applications are responsive and accessible.

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			Work Experience **Project 1#** **Title**: Implementation of Education ERP **Client:** Open University of Kenya(OUK) **Description**: The OUK ERP system was developed as a comprehensive, integrated digital platform to support end-to-end academic, administrative, and financial processes for the university. The project supports over 20 academic programmes and 10–15 short courses and was designed to facilitate 100% online education, from student admission to graduation. The platform is integrated with payment gateways, third-party LMS and library systems, and also includes internal HR and finance modules. The ERP serves all students in Kenya, eliminating the need for physical presence at any stage. • Design and develop software applications based on client or internal requirements. • Participate in system architecture and design discussions, providing input on best practices and frameworks. • Debug, test, and troubleshoot software to ensure functionality and performance. • Collaborate with cross-functional teams including designers, product managers, and QA engineers. • Integrate software components and third-party APIs. • Maintain and improve existing applications by adding new features or optimizing performance. • Document codebase, workflows, and development processes for future reference. **Project 2#** **Title**: Learning Management System (LMS)

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			Description: Learning Management System LMS is a robust strategic learning tool, It allows self-paced, assisted learning in a collaborative environment, allowing users to take advantage of various tools available for learning, accessing course content, downloading course materials, scheduling classes and courses, applying for new course online, participating in discussions, sharing their experiences through blogs and forums, communicating with other users through mails, tracking the progress of their learning over time, taking tests online, printing certificates etc. It provides a complete platform for collaborative learning in virtual classroom training to the users. **Responsibilities** • Design and develop software applications based on client or internal requirements. • Write clean, efficient, and scalable code using programming languages • Participate in system architecture and design discussions, providing input on best practices and frameworks. • Debug, test, and troubleshoot software to ensure functionality and performance. • Collaborate with cross-functional teams including designers, product managers, and QA engineers. **Project 3#** **Title**: Eco Mitram – Social Internship Platform **Description**: Developed a system for internship program management including signup, evaluation exams, and certificate issuance. **Responsibilities** • Design and develop software applications based on client or internal requirements. • Participate in system architecture and design discussions, providing input on best practices and frameworks.

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			• Debug, test, and troubleshoot software to ensure functionality and performance. • Collaborate with cross-functional teams including designers, product managers, and QA engineers. • Integrate software components and third-party APIs. • Maintain and improve existing applications by adding new features or optimizing performance. • Document codebase, workflows, and development processes for future reference. **Project 4#** **Title**: Indian Aviation Academy – E-LMS **Description**: IAA LMS stand for Indian Aviation Academy – Learning Management System. The main objective of the project is to provide an E-LMS platform for Indian Aviation Academy to be able to administer a particular course for each employee working in an airport. Through this portal every users will have access to register, make payment and take course based on their need to take course. **Responsibilities** • Design and develop software applications based on client or internal requirements. • Debug, test, and troubleshoot software to ensure functionality and performance. • Collaborate with cross-functional teams including designers, product managers, and QA engineers. • Integrate software components and third-party APIs. • Maintain and improve existing applications by adding new features or optimizing performance.

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Membership in Professional Associations and Publications:				
Language Skills (indicate only languages in which you can work):	**Language**	**Speaking**	**Reading**	**Writing**
	English	Yes	Yes	Yes
	Telugu	Yes	Yes	Yes
	Hindi	Yes	Yes	Yes
Detailed Tasks Assigned on Bidder's Team of Experts				
• Designing, developing and maintaining business intelligence solutions • Crafting and executing queries upon request for data • Presenting information through reports and visualization • Maintain and support data analytics platforms • Create tools to store data • Conduct unit testing and troubleshooting • Collaborate with teams to integrate systems • Develop and execute database queries and conduct analyses • Create visualizations and reports for requested projects • Develop and update technical documentation				
Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks				
D-3, D-4, D-5, D-6, D-7, D-8, D-9				
Experts contact information :	**E-mail:** info@dhanushsoftech.com		**Phone:** +9140 49135000	
Certification				
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.				
Name of the Expert: Bompally Saiteja	B. Saiteja **Signature of the Expert**		**Date:** 08th July 2025	
Name of authorized Representative of the Bidder:	K.R. Chaitie		**Date:** 08th July 2025	

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5.2.24 CV 23: Developer

Position Title	K-23, Database Developer
Name of the Expert	Ranga Reddy Ravipati
Date of Birth	08-02-1999
Country of Citizenship	Indian

Educational Qualification

Institution	Dates Attended	Degree/ Diploma Obtained
Krishna Chaitanya institute of Technologies and sciences	2021	Bachelor of Technology

Employment record relevant to the assignment

S No	Organization	Role	Duration
1	**Dhanush Softech Private limited**	Database Developer	July-2022 to till date

Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
July-2022 to till date	**Company Name:** Dhanush Softech Private limited **Designation:** Database Developer **Contact Info for References:** **Email Id**: info@dhanushsoftech.com	India	**Summary:** • 3+ years of hands-on experience as a Database Developer in the healthcare domain. • Skilled in designing, developing, and optimizing scalable database solutions using PostgreSQL. • Expertise in ETL development, multi-schema architecture, and data partitioning for high-performance systems. • Contributed to major government projects like RBSK Health Screening System and Hospital Management System (HMS). • Designed robust data models and automated data pipelines to improve system efficiency.

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			• Improved performance using advanced partitioning and optimization techniques. • Experienced in system integration using REST APIs and Foreign Data Wrappers (FDW). • Developed state-wise databases ensuring secure and isolated access to health data **Project 1#** **Title**: Hospital Management System **Description**: A Health Management System (HMS) is an integrated platform designed to manage all aspects of a healthcare facility's operations-including patient data, appointments, billing, lab results, prescriptions, staff administration, and reporting. **Responsibilities:** • Design, develop, and maintain relational and non-relational database systems. • Create and optimize SQL queries, stored procedures, functions, triggers, and views. • Develop and maintain data models and database schema based on application requirements. • Ensure data integrity, accuracy, and consistency across systems. • Collaborate with software developers and business analysts to understand data requirements. • Implement data migration, data import/export, and data integration solutions. • Monitor database performance and tune queries to improve efficiency. **Project 2#**

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FORM TECH-6B: CURRICULUM VITAE (CV)

Position Title and No.	*Lead Project Manager*
Name of Expert:	*Yvonne Maua*
Date of Birth:	*22/12/1981*
Country of Citizenship	Kenya

Education: {*List college/university or other specialized education, giving names of educational institutions, dates attended, degree(s)/diploma(s) obtained*}

2022 to Date : Mount Kenya University : Masters in Science in IT

2024 to Date: Management University of Africa: Masters of Management and Leadership

2007: 2013: Postgraduate Diploma in Information Technology

2001:2004: Bachelors in Science in IT and Management

Employment record relevant to the assignment: {*Starting with present position, list in reverse order. Please provide dates, name of employing organization, titles of positions held, types of activities performed and location of the assignment, and contact information of previous Procuring Entity's and employing organization(s) who can be contacted for references. Past employment that is not relevant to the assignment does not need to be included.*}

Period	**Employing organization and your title/position. Contact Infor for references**	**Country**	**Summary of activities performed relevant to the Assignment**
November 2020- to Date	Konza Technopolis Development Authority Lewis Ogundo, Ag, Chief Manager IT and Smart City solutions.	Kenya	• Construct the Konza National Data Centre • Operationalize the Konza National Data Centre • Coordinate the Project management for Open University ERP • Coordinate the Implementation of the KoTDA ERP

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April 2014- November 2024	CBM International Reuben Mwangi, Director	Kenya	• Consultant Project management for ERP's, Data Centre Deployments and Technical Infrastructure Delivery
April 2014- April 2010	Kenya National Examinations Council Principal Officer , Systems Infrastructure and Technical Support Support	Kenya	• Established Service Desk Office and Systems • Established the Primary Data Centre • Implemented KNEC ERP • Implemented the NEC Intrusion Detection System
April 2010- January 2006	World Vision Somalia ICT Manager Stephen Ciirah, Regional ICT Director	Kenya	• Established Help Desk Office and Systems • Established ERP cross border operations • Established Helios Supply Chain Management Systems • Established Cross Border Networks through Radio, LAN and Satellite.

Membership in Professional Associations and Publications:

Prince 2 Foundation and Practioner

ICT Professional ICTA

_____

Language Skills (indicate only languages in which you can work):___ English &Kiswhaili

Adequacy for the Assignment:

Detailed Tasks Assigned on Bidder's Team of Experts:	**Reference to Prior Work/Assignments that Best**

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	Illustrates Capability to Handle the Assigned Tasks
{List all deliverables/tasks as in TECH- 5 in which the Expert will be involved) Project Management and Program Management	• Construct the Konza National Data Centre • Operationalize the Konza National Data Centre • Coordinate the Project management for Open University ERP • Coordinate the Implementation of the KoTDA ERP • Consultant Project management for ERP's, Data Centre Deployments and Technical Infrastructure Delivery • Established Service Desk Office and Systems • Established the Primary Data Centre • Implemented KNEC ERP • Implemented the NEC Intrusion Detection System • Established Help Desk Office and Systems • Established ERP cross border operations • Established Helios Supply Chain Management Systems • Established Cross Border Networks through Radio, LAN and Satellite.

Expert's contact information :(e-mail……ymaua@konza.go.ke….....phone…….....0724580507.....)

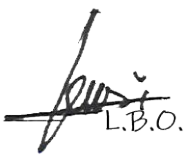
Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.

L.B.O.

Name of Expert Yvonne Maua Signature  Date {28/07/2025}

Name of authorized Lewis Ogundo Signature.  Date 28/07/2025
Representative of the Bidder (the same who signs the Proposal



FORM TECH-6B: CURRICULUM VITAE (CV)

Position Title and No.	ICT security engineer
Name of Expert:	Anthony Kiarie Ngigi
Date of Birth:	*09/11/1994*
Country of Citizenship	Kenya

Education: {*List college/university or other specialized education, giving names of educational institutions, dates attended, degree(s)/diploma(s) obtained*}

- ***Strathmore university: 2021 – ongoing*** *master of science in information security*
- ***Technical university of Mombasa: 2013 – 2017*** *bachelor of science in statistics and computer science*

Employment record relevant to the assignment: {*Starting with present position, list in reverse order. Please provide dates, name of employing organization, titles of positions held, types of activities performed and location of the assignment, and contact information of previous Procuring Entity's and employing organization(s) who can be contacted for references. Past employment that is not relevant to the assignment does not need to be included.*}

Period	**Employing organization and your title/position. Contact Infor for references**	**Country**	**Summary of activities performed relevant to the Assignment**
April 2025 present	Konza Technopolis development authority/ICT security Engineer For references: Tel 0726262679/e-mai Lomollo@konza.go.ke; Mr. Lucas Omollo , Chief manager	Kenya	• Perform vulnerability assessments to identify possible security risks; • Recommend security solutions based on industry best practices and standards, such as the National Institute of Standards and Technology (NIST) Cybersecurity Framework; • Analyze network

L.B.O.

			security threats and developing security solutions to mitigate risk;
October 2020-April 2025	East African Data Handlers/information security officer For references: Tel 0702578778/email David.kaga@eadatahandlers.co.ke; Mr.David Kaga, manager	Kenya	• Developed and implemented comprehensive cybersecurity strategies aligned with ISO 27001, COBIT, and other industry best practices (for 14 organizations • Oversaw risk assessments, vulnerability management programs, and incident response planning, ensuring a proactive security posture that minimized downtime. • Conducted strategic security audits for clients, providing actionable recommendations that improved their overall security posture by an average of 20%.

Membership in Professional Associations and Publications:

Language Skills (indicate only languages in which you can work):___ English, Swahili

Adequacy for the Assignment:

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Detailed Tasks Assigned on Bidder's Team of Experts:	**Reference to Prior Best Work/Assignments that Illustrates Capability to Handle the Assigned Tasks**
{List all deliverables/tasks as in TECH- 5 in which the Expert will be involved) Security	● Perform vulnerability assessments to identify possible security risks; ● Developed and implemented comprehensive cybersecurity strategies aligned with ISO 27001, COBIT, and other industry best practices (for 14 organizations

Expert's contact information :(e-mail akiarie@konza.go.ke

phone 0750920549)

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.

Name of Expert Anthony Kiarie Ngigi Signature. _____ Date 24/7/2025

Name of authorized Lewis Ogundo Signature. _____Date24/7/2025___
Representative of the Bidder (the same who signs the Proposal

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2. FORM TECH-6B: CURRICULUM VITAE (CV)

Position Title and No.	NETWORK ENGINEER
Name of Expert:	*RODGERS MOMANYI*
Date of Birth:	*17TH September, 1994*
Country of Citizenship	*KENYA*

Education:

Bachelor of Science in Computer Science, Kisii University, Kisii - August 2013 — December 2017

Microsoft Certified: Azure Data Fundamentals, MICROSOFT LEARNING - June 2021 — June 2021

Microsoft Certified: Azure Fundamentals, MICROSOFT LEARNING - July 2021 — July 2021

Microsoft Certified: Azure AI Fundamentals , MICROSOFT LEARNING - July 2021 — July 2021

Microsoft Certified: Power Platform Fundamentals, MICROSOFT LEARNING - July 2021 — July 2021

CFOS/H FTTx Certified, FIBER OPTIC ASSOCIATION(FOA) - June 2021 — June 2021

HCIP-Transmission, Huawei Learning - October 2024 — December 2024

HCIP-Access, Huawei Learning November 2024 — January 2025

HCIA-Datacom, Huawei Learning - January 2025 — March 2025

HCSP-Transmission, Huawei Learning - October 2024 — December 2024

HCSA-Transmission & Access, Huawei Learning - October 2024 — December 2024

HCSA-IP Network, Huawei Learning - July 2024 — September 2024

Juniper Networks Certified Associate – June 2025

Employment record relevant to the assignment: *{Starting with present position, list in reverse order. Please provide dates, name of employing organization, titles of positions held, types of activities performed and location of the assignment, and contact information of previous Procuring Entity's and employing organization(s) who can be contacted for references. Past employment that is not relevant to the assignment does not need to be included.}*

Period	**Employing organization and your title/position.**	**Country**	**Summary of activities performed relevant to the Assignment**
May 2022 — Present	*Vilcom Networks Limited* For references: +254 722 272287 e-mail: agnes@vilcom.co.ke ; Mrs Agnes Limo. Network Systems Engineer	*Kenya*	**Core Network Leadership and *Management:*** *Provided technical leadership to internal core network engineering teams, fostering expertise in IP/Layer 2/Layer 3 networking, LAN/WAN, and wireless architectures.* ***Advanced Network Design and Validation****:Designed and validated complex L2/L3 IP test plans, tunnels, QoS, and acceptance criteria* ***Transmission and Optical Network Expertise(HCIP-Transmission):****Engineered and supported high-capacityNG WDM transmission networks, leveraging advanced optical technologies* ***Access Network Deployment and Management (HCIP-Access):-*** *Engineered and deployed advanced FTTx and PON solutions, driving enhanced connectivity.*

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			Data Communication and Network Fundamentals (HCIA-Datacom)*:Built and configured interconnected IP networks, implementing fundamental routing and switching protocols.* ***Field Engineering and Customer Support:****Managed onsite surveys, installations, testing, commissioning, and maintenance of active and FTTx equipment.*
May 2018 — April 2022	*Geonet Technologies Limited* For references: *+254727105996* e-mail: joakim.kiplimo@geonet-tech.co.ke ; Mr Joakim Kiplimo . Network Operations Centre Engineer	*Kenya*	***Incident Management****: Responded promptly to network incidents, outages, and performance alerts. Analyzed, prioritized, and escalated issues as needed.* ***Customer Satisfaction****: Ensured high customer satisfaction by providing timely support through ticketing systems and addressing requests effectively.* ***Technical Expertise****: Participated in planning technical requirements for customer and internal network services, demonstrating strong technical understanding.* ***Fiber Optic Maintenance****: Troubleshooted fiber optic faults, identified root causes, and implemented preventive solutions. Performed corrective and preventive maintenance on fiber optic cables (FOC).* ***Alert Management****: Created and managed alerts through ticketing systems, documented corrective and restoration measures for network failures using Huawei OWS and Geonet ERP* ***Reporting****: Generated reliable and timely reports across departments and fulfilled client reporting demands.* ***Project Management****: Updated project designs and documentation based on change requests.* • **Knowledge Transfer**: Trained new personnel on the skills acquired while working at the Network Operations Center (NOC).
July 2016 — August 2016	*Kemri Wellcome Trust* For references: *+254723080619* e-mail: dkimurgor@kemri wellcome.org; Mr Dennis Kimurgor. *Network and server engineer*	*Kenya*	*Infrastructure maintaince within the organization* *Administered Windows Server 2008 R2, including perimeter security, Active Directory, and Domain Name System (DNS)* *End-User Support* *Software Management* *Hardware Support*

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Membership in Professional Associations and Publications:

The Fiber Optic Association Inc.

Language Skills (indicate only languages in which you can work): English, Kiswahili

Adequacy for the Assignment:

Detailed Tasks Assigned on Bidder's Team of Experts:	**Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks**
{List all deliverables/tasks as in TECH- 5 in which the Expert will be involved)	Survey and Design of the network. Implementation. Equipment Configuration. Testing and Commissioning. Training and Support

Expert's contact information :(e-mail: rodgers.momanyi@vilcom.co.ke phone: +254 711 411020)

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.

Name of Expert: RODGERS MOMANYI Signature: Date: 28/07/2025
{day / month/year}

Name of authorized: AGNES LIMO Signature.: Date: 28/07/2025
Representative of the Bidder (the same who signs the Proposal)

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FORM TECH-6B: CURRICULUM VITAE (CV)

Position Title and No.	*Network Engineer, KoTDA2024148*
Name of Expert:	Denis Gitonga
Date of Birth:	03/01/1999
Country of Citizenship	Kenya

Education: {*List college/university or other specialized education, giving names of educational institutions, dates attended, degree(s)/diploma(s) obtained*}

South Eastern Kenya University

2018-2022

BSC in Electronics

Employment record relevant to the assignment: {*Starting with present position, list in reverse order. Please provide dates, name of employing organization, titles of positions held, types of activities performed and location of the assignment, and contact information of previous Procuring Entity's and employing organization(s) who can be contacted for references. Past employment that is not relevant to the assignment does not need to be included.*}

Period	**Employing organization and your title/position. Contact Infor for references**	**Country**	**Summary of activities performed relevant to the Assignment**
[e.g., DEC 2024- to date	**Konza Technopolis Development Authority – Network Engineer** Mr. Omollo - Chief manager ICT & smartcity solutions **Tel:** 0726262679 **e-mail:** lomollo@konza.go.ke	Kenya	• Implement carrier grade networks. • Route protocols of BGP, OSPF. • Design, Implement and Deploy IP Networks. • Implement EPON/GPON networks for FTTX solutions.
	State Department for Devolution – Network		• Installing and configuring

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2023-2024	**Engineer.** Mr. Anthony Akama - Systems Administrator **Tel:** 0700171050 **Email:** antony.akama@devolution.go.ke	**Kenya**	computer networks and systems. • Installing, configuring and supporting network equipment including routers, proxy servers, switches, LAN, WAN accelerators, DNS and DHCP. • Identifying and solving any problems that arise with computer networks and systems.
2021-2023	Kenya Plant Health Inspectorate Service Mr. Kevin Gesora ICT and Innovations Officer **Tel:** 0720108027 **Email:** kevgesora@gmail.com		• LAN structured cabling, network switches configurations and troubleshooting Using Putty • Installation and update of Computer Software using tools like MECM • Provision of general ICT Technical support to users.

Membership in Professional Associations and Publications:

Institution of Engineering Technologists and Technicians of Kenya-IETK

Language Skills (indicate only languages in which you can work):___ English, Kiswahili

Adequacy for the Assignment:

Detailed Tasks Assigned on Bidder's Team of Experts:	**Reference to Prior Best Work/Assignments that** **Illustrates Capability to Handle the Assigned Tasks**
{List all deliverables/tasks as in TECH- 5 in which the Expert will be involved)	

Expert's contact information :(e-mail…dgitonga@konza.go.ke
phone…0708154194

Certification:

L.B.O.

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.

Name of Expert Denis Gitonga Signature _____ Date {24/7/2025}

Name of authorized Representative of the Bidder (the same who signs the Proposal Lewis Ogundo Signature. _____ Date25/7/2025____

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FORM TECH-6B: CURRICULUM VITAE (CV)

Position Title and No. Senior System Operations Engineer	Senior System Operations Engineer
Name of Expert:	Boyd Ogonda
Date of Birth:	*20/03/1984*
Country of Citizenship	Kenya

Education: *University States International University – Business Administration 2006-2013*

Employment record relevant to the assignment: {*Starting with present position, list in reverse order. Please provide dates, name of employing organization, titles of positions held, types of activities performed and location of the assignment, and contact information of previous Procuring Entity's and employing organization(s) who can be contacted for references. Past employment that is not relevant to the assignment does not need to be included.*}

Period	**Employing organization and your title/position. Contact Infor for references**	**Country**	**Summary of activities performed relevant to the Assignment**
Jan 2010 - 2014 March	Dimension Data Limited Contact: Human Resource Office Office line: +254 732 136200 or +254 20 3600 200	Kenya	• I deployed and integrated new PoPs at Seacom Tanzania DC in Daresalam, and Seacom Kenya at East Africa Data Center. I interconnected fiber and copper cables at the data centers and configured the routers and switches in High Availability connecting Nairobi, Daresalam and Mtunzini in South Africa. • I designed and deployed network, server, and

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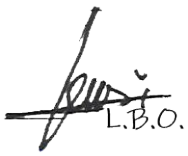
			security automation solutions at UAP Old Mutual. The solutions provided real time dashboards, topologies, customized reports including inventory management, alerting, configuration management, application performance reporting SIEM security, among others. • I designed and deployed automation solutions for MTN Rwanda on Linux and Windows servers. I designed and customized portals for MTN customers providing analytics and performance reports of their Core and Enterprise network. • I designed and deployed automation solutions at Kenya Commercial Bank (KCB) and Cooperative Bank of Kenya, USIU, and UAP Old Mutual. • I was technical lead in deployment and integration of 30+ branches of Tuskys supermarket, and migrated their application systems and databases to their new HQ Data Center.
May 2014 – 2016 Dec	Console partners – Onsite Cisco Consultant Contact: Cisco Kenya Admin Office Office line +254202764000.	Kenya	• Network Consulting Engineer at Consol Partners . I deployed network automation solutions to support the Safaricom Enterprise and Core MPLS/BGP network with solutions running Docker images. I deployed virtualized automation and provisioning solutions on a fleet of RedHat Linux in High Availability cluster,

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			and on Windows servers. I provisioned and managed virtualized automation solutions to assist in proactive response. I automated services including software backups, configuration backups, and software upgrades. I configured servers, routers, and switches to provide deep packet inspection, IPSLA, and QoS between PoP and Edge enterprise customer networks, and provided automated performance reports. Other services I provided are summarized below: • I worked with vendors Business Unit (BU) to supported and customize automation solutions to cover new requirements, and features requests to ensure continuous improvement. • I configured pre-requisites and ensured Core and Enterprise network nodes were updated for synchronization with network changes. • I worked with sales team to plan for upgrade of computing hardware as capacity requirements increased. • I participated in weekly review meetings with customer and provided root cause analysis for service requests, and advised on infrastructure improvements.

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			• Upgraded and patched applications on Linux and Windows to latest versions.
Jan 2017 – 2020	Individual Consultant – Crossbow Consulting Contact: Self-employed	Kenya	• Consultant at Unaitas Sacco. I deployed automation and service desk solutions used to formulate workflow policies for customers. The automation solutions are used to manage critical applications including T24. • Consultant at Atlancis Technologies. I deployed security solutions in HA for KenTrade (Kenya Trade Networks Agency). The deployed solutions are hosted in EADC (East Africa Data Center, a Tier three DC), providing Iaas/Paas/SaaS, for solutions accessed remotely by its government partners such as Kenya Ports Authority (KPA), and Kenya Revenue Authority (KRA). • Consultant at Kenya Ports Authority (KPA) I deployed network automation, SIEM, and Service Desk solutions at Kenya Ports Authority data center to manage the KPA digital infrastructure covering 400+ devices including servers, firewalls,



			routers, switches and wireless nodes. The solutions provide configuration management, application performance reporting, security event management and service desk. • Consultant at East Africa Bank I deployed security solutions for East Africa Bank covering Network Access Control (NAC), Security Information and Event Management (SIEM) for East Africa Bank Djibouti. This ensures security policy enforcement for the bank employees and guest users. I also worked with the bank to provide continuous asset security and visibility, with forensic capability by capturing all logs form critical assets. • Consultant at Telkom Kenya / IEBC I deployed automation solutions to manage more than 300 Telkom Kenya sites used to provide services to IEBC HQ and remote offices (all constituencies). The solutions provided real time dashboards and reports including inventory management, alerting, configuration management,

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			application performance reporting among others. • Consultant at Isolations Associates I deployed automation solutions to manage CIC Group assets in Kenya and remote offices in Eastern Africa. The solutions provided real time dashboards, topologies and reports including inventory management, alerting, configuration management, application performance reporting among others.
Nov 2020- To Datw	Senior Systems Operations Engineer		• Technical lead in Maintenance of Open University of Kenya (OUK) Learning Management Solution (LMS) and Enterprise Resource Planning (ERP) • Installed and configured IT Infrastructure for the Konza National Data Center, Availability Zones – AZ1 and AZ2 (Primary and Disaster recovery sites) • Implementation of Cyber Security solutions including integration to key Government institutions such as MSEA HustlerFund, ICTA, KSG, EGPAF(Ministry of Health), among others • Technical Lead in implementation of KoTDA ER system - Microsoft 365 Business Central

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			• Technical lead in maintenance and Konza National Data Center and Smart City Solutions Manitenance Committee • Deployed complex Smart City Solutions in cloud environment including Intelligent Traffic and Transport (ITS), Solutions, Intelligent Video Surveillance (IVS), and Konza Digital Twin platform • Optimizing system resources to reduce Capex and Opex • Operationalize the 130 Video Conference platforms to government MDAs and The Cabinet for paperless operations. • Develop and customize applications to be used government and enterprise customers. • Carry out systems analysis and design specifications in liaison with users • Supervising installation certification, repairs and maintenance of ICT equipment, smart city solutions and associated peripherals • Recommending and supervising Hardware/Software specifications for ICT and the Smart City • Administering and maintaining web-based systems and database server's configuration. • Maintaining Systems security and Databases. • Enforcing implementation of ICT policies and procedures

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Membership in Professional Associations and Publications:

Language Skills (indicate only languages in which you can work):___

Adequacy for the Assignment:

Detailed Tasks Assigned on Bidder's Team of Experts:	**Reference to Prior Best Work/Assignments that Illustrates Capability to Handle the Assigned Tasks**
{List all deliverables/tasks as in TECH- 5 in which the Expert will be involved) Hosting /Infrastructure Cloud Design	• Technical lead in Maintenance of Open University of Kenya (OUK) Learning Management Solution (LMS) and Enterprise Resource Planning (ERP) • Installed and configured IT Infrastructure for the Konza National Data Center, Availability Zones – AZ1 and AZ2 (Primary and Disaster recovery sites) • Implementation of Cyber Security solutions including integration to key Government institutions such as MSEA HustlerFund, ICTA, KSG, EGPAF(Ministry of Health), among others • Technical Lead in implementation of KoTDA ER system - Microsoft 365 Business Central • Technical lead in maintenance and Konza National Data Center and Smart City Solutions Manitenance Committee • Deployed complex Smart City Solutions in cloud environment including Intelligent Traffic and Transport (ITS), Solutions, Intelligent Video Surveillance (IVS), and Konza Digital Twin platform

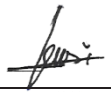
Expert's contact information :(e-mail bogonda@konza.go.ke phone +254704586888)

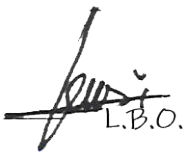
Certification:

L.B.O.

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.

Name of Expert Boyd Ogonda Signature  Date {24 / July/2025}

Name of authorized Lewis Ogundo Signature.  Date 25/07/2025
Representative of the Bidder (the same who signs the Proposal



FORM TECH-6B: CURRICULUM VITAE (CV)

Position Title and No.	Network Engineer
Name of Expert:	Robert Mwangi
Date of Birth:	12-Aug
Country of Citizenship	Kenya

Education:

- Bachelor of Science in Computer Information Systems – 2012 - 2016

Employment record relevant to the assignment: {Starting with present position, list in reverse order. Please provide dates, name of employing organization, titles of positions held, types of activities performed and location of the assignment, and contact information of previous Procuring Entity's and employing organization(s) who can be contacted for references. Past employment that is not relevant to the assignment does not need to be included.}

Period	**Employing organization and your title/position. Contact Infor for references**	**Country**	**Summary of activities performed relevant to the Assignment**
Nov 2019 To Date	Visibility Technology Services For references: Tel +254 709 208 000 Email: gerald@visibility.co.ke Mr. Gerald Simila, CTO]	Kenya	• Designing and architecting complex customer networks with security as a forethought • Describe the existing threat to customers, why there is a need to deploy architecture for the protection, and how the deployments will defend the business using Zero trust architecture and defense in depth. • Maximizing efficiency in system protection, networks, data, software, and information systems to guard against ever-emerging attacks/Threats. • Monitoring network safety problems and working cohesively with IT departments to craft dynamic solutions. • Working closely with other security personnel to ensure complete protection for the client in every aspect. • Assess each client's system and identify security issues specific to them. Using the findings, prepare a business case outlining the strategies and architecture that should be used to prevent threats and address vulnerable areas. • Designing, implementing, and maintaining security protocols, policies, plans, and systems to cover all possible security threats. • Meeting with clients to discuss security measures, provide information, and explain the designed system via technical workshops.

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			• Maintain a strategic understanding of the existing infrastructure and its relationship to the business. • Integration of network monitoring tools to poll device's health and simplify the troubleshooting process by providing real-time alerts and notifications.
Nov 2018 To Oct 2019	Computech Limited	Kenya	• Firewalls (Cisco, Fortinet, Checkpoint, and Palo Alto) deployment and support • Cisco Identity Services Engine (ISE) deployment and support • WAN/LAN design, Implementation, and optimization (Routing, Switching, and Security) • Consult with client organizations to understand their business, technical, and financial needs. • Network Gaps analysis/assessment, advise the customer on best practices and seal loopholes. • Network design to meet customer requirements and minimize the attack surface. • Advising customers on emerging technologies and how best to achieve their technological goals. • Performing quarterly security health checks as per the SLA
Aug 2016 To Oct 2018	Co-operative Bank of Kenya	Kenya	• Performing analysis of network security needs and contributing to the design, integration, and installation of hardware and software. • Analyzing, troubleshooting, and correcting network problems remotely and on-site using network monitoring tools like Solarwinds and PRTG • Maintaining and administering security systems such as Cisco ISE, Cisco and Checkpoint firewalls, SIEM and ACS • Maintaining virtual private networks, email (ESA), and web security appliances (WSA) • Analyzing and implementing new security protocols and technologies • Working with ICT risk in Investigating of security breach alerts. • Design security strategy in the sphere of new networking fields. • Maintain and implement security strategy and standardization methods. • Prepare designs for the improvement of network detection tools.

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			• Working hand in hand with the vendors and participating in configuration and management programs to install updated security tools. • Administer all security reviews on the newly launched application as per requirement. • Provide operational backup round the clock. • Manage and resolve networking issues at the time of problem detection. • Over 150 branches of WAN support
July 2008– July 2016	The Copycat Group	Kenya	• WAN/LAN design, Implementation, and optimization (Routing, Switching and Security). • Maintain a strategic understanding of the existing infrastructure and its relationship to the business. • Provide network security by configuring routers, switches, firewalls, etc. according to company security standards; monitor security measures in place within the network perimeter, ensuring security breaches do not occur and information is safeguarded from unauthorized use, etc. • Roll-out of IP Telephony systems. • Proactively plan and manage the implementation of voice services and voice networks for Client's entities. • Coordinate voice PABX integrations and network upgrade, implementation, and test plans. • Consult with client organizations to understand their business, technical, and financial needs. • Wireless LAN Controllers, lightweight and Autonomous Access point setup and configuration • Cisco ASA configuration, VPNs (Site-site and Remote) setup, and troubleshooting • Firewalls (Cisco, Checkpoint, and Palo Alto) Installation and Troubleshooting. • Identity Services Engine (ISE) deployment

Membership in Professional Associations and Publications:

- Certified Information Security Systems Professional-CISSP
- NSE 7 Network Security Architect
- CrowdStrike Certified Falcon Administrator (CCFA)
- HCIP (Huawei Certified Internetwork Professional)
- Check Point Certified VSX Specialist – R81
- Check Point Certified Security Master Elite
- Check Point Certified Security Master
- Check Point Certified Security Administrator R80

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- Check Point Certified Security Expert R80
- BeyondTrust Certified Implementation Engineer-BCIE-PAM
- Extreme Campus Fabric Specialist-Campus Fabric
- Cisco Certified Network Professional-CCNP Security
- Checkpoint Certified Security Expert-CCSE R77
- Cisco Certified Network Associate-Security-CCNA-Security
- Checkpoint Certified Security Administrator-CCSA R77
- Cisco Certified Network Professional-Routing and Switching
- Certificate in Linux Administration-Redhat
- AWS Certified Solutions Architect-Associate
- AWS Cloud Practitioner Essentials-Cloud concepts
- Cisco Certified Network Associate-CCNA

Language Skills (indicate only languages in which you can work): **English & Kiswahili**

Adequacy for the Assignment:

Detailed Tasks Assigned on Bidder's Team of Experts:	**Reference to Prior Work/Assignments that Illustrates Capability to Handle the Assigned Tasks**
{List all deliverables/tasks as in TECH- 5 in which the Expert will be involved)	Survey and Design of the security. Implementation. Equipment Configuration. Testing and Commissioning. Training and Support

Expert's contact information :(e-mail: rmwangi@visibility.co.ke phone: +254 709 208 000

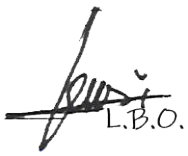
Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.

Name of Expert: **Robert Mwangi** Signature  Date: **28/07/2025**

Name of authorized: **Ali Hassan** Signature  Date: **28/07/2025**

Representative of the Bidder (the same who signs the Proposal)



IFORM TECH-6B: CURRICULUM VITAE (CV)

Position Title and No.	Security Architect
Name of Expert:	Munir Njenga
Date of Birth:	27-Jun
Country of Citizenship	Kenya

Education:

- Bachelor of Science in Information and Communication Technology Management – 2008 - 2012

Employment record relevant to the assignment: {Starting with present position, list in reverse order. Please provide dates, name of employing organization, titles of positions held, types of activities performed and location of the assignment, and contact information of previous Procuring Entity's and employing organization(s) who can be contacted for references. Past employment that is not relevant to the assignment does not need to be included.}

Period	**Employing organization and your title/position. Contact Infor for references**	**Country**	**Summary of activities performed relevant to the Assignment**
May 2020 To Date	Visibility Technology Services For references: Tel +254 709 208 000 Email: gerald@visibility.co.ke Mr. Gerald Simila, CTO]	Kenya	• Oversee day-to-day operations • Guide product and service development • Project Management • Researching and identifying business and growth opportunities • Design strategy and set goals for growth • Maintain budgets and optimize expenses • Set/Enforce policies and processes • Review security control frameworks/guidelines to ensure consistent application of security controls • Review procedures for investigating and closure of technology security incidents in line with industry best practices. • Keep abreast with the latest technology security trends and provide input to mitigate emerging threats.
Feb 2017 To April 2020	Safaricom PLC	Kenya	• Participation in the overall development and delivery of the audit plan • Review of the mobile money systems from a technical standpoint with a view to ensuring controls are adequate to mitigate and/or manage the technology risk to acceptable levels. • Review of security controls around key network elements (BSS, MSC, HLR/AUC, IN, NGN, GGSN/SGSN) • Prepare deliverables/reports for senior management that include thematic issues, trends and other micro/macro level risks identified through the

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			execution of IT audits within the Financial Services space. • Serve as an on-going subject matter expert in the area of information security controls and technologies. • Present, discuss and follow-up audit recommendations with management. • Delivery of continuous information security assessments and penetration testing. • Articulation of security risk exposure to various stakeholders. • Review security control frameworks/guidelines to ensure consistent application of security controls • Review procedures for investigating and closure of technology security incidents in line with industry best practices. • Keep abreast with the latest technology security trends and provide input to mitigate emerging threats
Jun 2013 To Jan 2017	Price Waterhouse Coopers	Kenya	• Serve as an on-going subject matter expert in the area of information security controls and technologies. • Resource planning • Delivery of continuous information security assessments and penetration testing. • Articulation of security risk exposure to various stakeholders. • Review security control frameworks/guidelines to ensure consistent application of security controls • Review procedures for investigating and closure of technology security incidents in line with industry best practices. • Keep abreast with the latest technology security trends and provide input to mitigate emerging threats.

Membership in Professional Associations and Publications:

- Certified EC-Council Instructor
- SOC Analyst - Level 3, 2, 1
- Advanced Threat Detection in ICS – SCADA Environments
- Certificate in Professional Ethics
- Certificate in JavaScript for Pentesters
- Active Defense & Cyber Deception
- Penetration Testing: Advanced Kali Linux
- CPTE: Certified Penetration Testing Engineer
- Certified Ethical Ninja – SAMA Instructor
- Certified Ethical Ninja – SENPAI Instructor

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- Next Generation Red Teaming
- Critical Thinking, National Association of State Boards of Accountancy

Language Skills (indicate only languages in which you can work): **English & Kiswahili**

Adequacy for the Assignment:

Detailed Tasks Assigned on Bidder's Team of Experts:	**Reference to Prior Work/Assignments that Illustrates Capability to Handle the Assigned Tasks**
{List all deliverables/tasks as in TECH- 5 in which the Expert will be involved)	Survey and Design of the security. Implementation. Equipment Configuration. Testing and Commissioning. Training and Support

Expert's contact information :(e-mail: munir@visibility.co.ke phone: +254 709 208 000

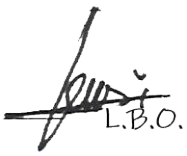
Certification:

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Name of Expert: **Munir Njenga** Signature  Date: **28/07/2025**

Name of authorized: **Ali Hassan** Signature  Date: **28/07/2025**

Representative of the Bidder (the same who signs the Proposal)



FORM TECH-6B: CURRICULUM VITAE (CV)

Position Title and No.	**Compute Infrastructure Architect**
Name of Expert:	*Vincent Muema Kioko*
Date of Birth:	26/05/1995
Country of Citizenship	Kenya

Education:

01/2012 – 09/2016 Applied Computer Technology,United States International University-Africa

2012- *2015 IGCSE Certificate with a mean grade of A,Juja Preparatory and Senior School*

Employment record relevant to the assignment:

Period	**Employing organization and your title/position. Contact Infor for references**	**Country**	**Summary of activities performed relevant to the Assignment**
September 2022- ToDate	Konza Technopolis & Development Authority Lewis Ogundo Ag CM IT and Smart City Solutions , KoTDA	Kenya	• Designs, develop, and deploy modular cloud-based systems; • Develops and maintains cloud solutions in accordance with best practices;Ensures efficient functioning of data storage and process functions in accordance with organization security policies and best practices in cloud security; Identifies, analysess, and resolves infrastructure vulnerabilities and application deployment issues; Regularly reviews existing systems and make recommendations for improvements; Interacts with clients, provide cloud supports, and make

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			recommendations based on client needs; Maintains Cloud OPEX & related CAPEX within Budget; ● Administers, configures and troubleshoots of server/storage hardware and operating system software. This includes implementation of tactical service improvements, upgrades and patching; • Collaborates with the team and various stakeholders to identify technical problems, design solutions for them and help implement where required; • Operates of backup tools, respective hardware and software assurance and testing of disk and data recovery. In case of issues offer prompt restoration of lost data for the organization; • Remediates of Security, Compliance and Audit • Issues within the Cloud & Core Infrastructure; • Technical support for • assigned organization initiatives and projects; Participation in feasibility studies and testing for new IT infrastructure components; and Maintenance of systems documentation and procedures.
02/2020 – 08/2022	Cloud & Data Center Engineer Huawei Technologies Kenya KevinWenkai, Director, Huawei Technologies Kenya	Kenya	• Management and maintenance of Konza • National • Data Center • Management of cloud services running on the data center

L.B.O.

	+254715087168		• Design and implement data • center layouts, including server racks, network • cabinets, power distribution, • cooling systems, and cabling infrastructure, adhering to industry best practices and standards. Maintenance of Data Center Facilities Monitor resource utilization and plan for future capacity needs Manage and maintain virtual desktop platforms Manage and maintain video conferencing platforms
08/2017 – 01/2020	Dimension Data East Africa Business Continuity Coordinator Pete Frielinghaus, Managing Director, Dimension Data East Africa pete@frielinghaus.co.za	Kenya	• Management of work area recovery site • Conduct disaster recovery exercises/tests coordination • Development of business continuity plans•Implement disaster recovery systems in the work • area recovery Manage Data Center facilities • Nairobi, Kenya • Management and maintenance of Data Center • Supervise installation of new equipment • Coordinate IT disaster recovery tests • Management of IT systems in the office space such as • Domain Controller, CCTV, Access Control

Membership in Professional Associations and Publications:

L.B.O.

Huawei Certified ICT Associate - Cloud Computing

Huawei Certified ICT Associate – Data Center Facilities

Huawei Certified Specialist Associate - Storage (Storage Sales Specialist)

Huawei Certified Specialist Associate - Intelligent Collaboration

Huawei Certified Specialist Associate - Enterprise Services

Huawei Certified Specialist Associate -Digital Power

_____

Language Skills (indicate only languages in which you can work):___ English &Kiswhaili

Adequacy for the Assignment:

Detailed Tasks Assigned on Bidder's Team of Experts:	**Reference to Prior Best Work/Assignments that Illustrates Capability to Handle the Assigned Tasks**
{List all deliverables/tasks as in TECH- 5 in which the Expert will be involved) **Compute Infrastructure Architect**	• Hosting Infrastructure Design and Development

Expert's contact information :(e-mail……vmuema@konza.go.ke….....phone…….....+254 727 806043.....)

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.

VM

Name of Expert Vincent Muema Signature _____Date {28/07/2025}

Name of authorized Lewis Ogundo Signature. _____Date 28/07/2025
Representative of the Bidder (the same who signs the Proposal

L.B.O.

FORM TECH-6B: CURRICULUM VITAE (CV)

Position Title and No.	***Virtualization and Containerization Architect***
Name of Expert:	*Frankline Momanyi*
Date of Birth:	*13/04/1997*
Country of Citizenship	Kenya

Education:

Sep 2021 — Present MSc. Software Engineering, JKUAT

Sep 2015 — Dec 2020 BSc. Computer Science, Moi University

Employment record relevant to the assignment:

Period	**Employing organization and your title/position. Contact Infor for references**	**Country**	**Summary of activities performed relevant to the Assignment**
• May 2024:Present	Cloud Developer, Konza Technopolis Development Authority (KoTDA) Konza, Kenya	Kenya	• Design, develop, and deploy modular cloud-based systems. • Develop and maintain cloud solutions in accordance with best practices. • Ensure efficient functioning of data storage/backups and process functions in accordance with organization security policies and best practices in cloud security. • Identify, analyze, and resolve infrastructure

L.B.O.

			vulnerabilities and application deployment issues. • Regularly review existing systems and makes recommendations for improvements.
Apr 2023 — May 2024	Software Engineer, Zindi Health Nairobi, Kenya **REFERENCES** Mr. Vincent Muema Cloud Developer, Konza Technopolis Development Authority vmuema@konza.go.ke +254 727 806 043	Kenya	1. Designed and implemented relational databases using SQL for efficient and structured data storage, supporting the overall architecture of web applications. 2. Developed server-side logic and applications using PHP. Implemented robust and scalable backend functionalities to handle data processing, business logic, and communication with databases. 3. Created interactive and user-friendly interfaces by leveraging Bootstrap. Implemented responsive design principles to ensure an optimal user experience across various devices and screen sizes. 4. Utilized Python and SQL for data analysis, extracting valuable insights from various datasets.

L.B.O.

			5. Implemented data visualization using tools like Tableau and PowerBI, presenting complex information in a visually compelling and easily understandable format for informed decision-makin
Jul 2022 — Mar 2023	Programmes Data Analyst, UN World Food Programme (RBN) Nairobi, Kenya Ms. Christine Akunaye Programme Policy Officer, World Food Programme RBN christine.akunaye@wfp.org +254 723 465 115	Kenya	1. Managed, analyzed, and visualized Country Office Programme output data in the Country Office Monitoring and Evaluation Tool (COMET) system. Additionally, provided data support by querying and refining data for partner units. 2. Developed Palantir Foundry (DOTs) dashboards for monitoring cooperating partner agreements and expenditures. 3. Created Power BI dashboards for comparing beneficiary caseloads in Annual Country Reports. 4. Developed Tableau dashboards for trend analysis on Food & CBT distribution. 5. Reviewed Cash-Based Transfers & Food

L.B.O.

			distribution data in COMET systems. My contributions resulted in an impressive 95% validation rate for distribution reports, up from 88%, and a significant reduction in the food variance KPI to just 3%, down from 5%, across the entire bureau
Jan 2020 — Jan 2021	IT Service Desk Intern, Kenya Power and Lightning Company (KPLC) Nairobi, Kenya Dr. Ernest Kiprop Lecturer, Database Systems, Moi University ekiprop@mu.ac.ke +254 720 250 396 Dr. Mulang Onando Lecturer, Machine Learning, JKUAT isaiah.mulang@jkuat.ac.ke +254 711 250 239	Kenya	1. Installed, configured, and updated software applications and operating systems. 2. Provided technical support to staff, troubleshooting systems-related issues, and offering guidance on using the organization's systems and software. 3. Monitored and maintained the organization's server and network infrastructure to ensure optimal performance and reliability. 4. Configured switches, routers, and access points for networking purposes.

L.B.O.

			5. Installed, repaired, and maintained hardware components. 6. Maintained comprehensive documentation of system infrastructure, configurations, passwords, and procedures. Notably, our ticket resolution rate witnessed a significant improvement, rising from 78% to an impressive 85% during my tenure.

Membership in Professional Associations and Publications:

- MEAL, Humanitarian Leadership Academy Oct 2023 — Jan 2024
- Data Science Professional Certificate, IBM Jun 2023 — Dec 2023
- Data Analysis & Visualization, IBM Jun 2023 — Dec 2023
- Databases and SQL for Data Science with Python, IBM Jun 2023 — Dec 2023
- Machine Learning with Python, IBM Jun 2023 — Dec 2023
- Machine Learning, Udemy Jan 2023 — May 2023
- Certified Cloud Practitioner, AWS Apr 2022 — Jun 2022
- Network Fundamentals, CISCO Mar 2022 — Jun 2022

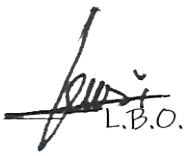
Language Skills (indicate only languages in which you can work):___ English &Kiswhaili

Adequacy for the Assignment:

Detailed Tasks Assigned on Bidder's Team of Experts:	**Reference to Prior Best Work/Assignments that Illustrates Capability to Handle the Assigned Tasks**

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Virtualization and Containerization Architect	•Design, develop, and deploy modular cloud-based systems. • Develop and maintain cloud solutions in accordance with best practices. • Ensure efficient functioning of data storage/backups and process functions in accordance with organization security policies and best practices in cloud security. • Identify, analyze, and resolve infrastructure vulnerabilities and application deployment issues. • Regularly review existing systems and makes recommendations for improvements. 1. Designed and implemented relational databases using SQL for efficient and structured data storage, supporting the overall architecture of web applications. 2. Developed server-side logic and applications using PHP. Implemented robust and scalable backend functionalities to handle data processing, business logic, and communication with databases. 3. Created interactive and user-friendly interfaces by leveraging Bootstrap. Implemented responsive design principles to ensure an optimal user experience across various devices and screen sizes. 4. Utilized Python and SQL for data analysis, extracting valuable insights from various datasets.



	5. Implemented data visualization using tools like Tableau and PowerBI, presenting complex information in a visually compelling and easily understandable format for informed decision-makin 1. Managed, analyzed, and visualized Country Office Programme output data in the Country Office Monitoring and Evaluation Tool (COMET) system. Additionally, provided data support by querying and refining data for partner units. 2. Developed Palantir Foundry (DOTs) dashboards for monitoring cooperating partner agreements and expenditures. 3. Created Power BI dashboards for comparing beneficiary caseloads in Annual Country Reports. 4. Developed Tableau dashboards for trend analysis on Food & CBT distribution. 5. Reviewed Cash-Based Transfers & Food distribution data in COMET systems. 1. Installed, configured, and updated software applications and operating systems. 2. Provided technical support to staff, troubleshooting systems-related issues, and offering guidance on using the organization's systems and software.

L.B.O.

	3. Monitored and maintained the organization's server and network infrastructure to ensure optimal performance and reliability. 4. Configured switches, routers, and access points for networking purposes. 5. Installed, repaired, and maintained hardware components. 6. Maintained comprehensive documentation of system infrastructure, configurations, passwords, and procedures. .

Expert's contact information :(email:ymaua@konza.go.ke. phone...+254 717 656880

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.

F.M

Name of Expert Frankline Momanyi Signature _____ Date {28/07/2025}

Name of authorized Lewis Ogundo Signature. _____ Date 28/07/2025
Representative of the Bidder (the same who signs the Proposal

L.B.O.

FORM TECH-6B: CURRICULUM VITAE (CV)

Position Title and No.	Lead-Network Engineer
Name of Expert:	Fredrick Odosy
Date of Birth:	5th Dec 1990
Country of Citizenship	Kenya

Education: {List college/university or other specialized education, giving names of educational institutions, dates attended, degree(s)/diploma(s) obtained}

EDUCATION

Qualification	**Institution**	**Year**	**Remarks**
PhD in Business Innovation & Technology Management	Jomo Kenyatta University of Agriculture and Technology (JKUAT), Kenya	2025 – Present	Ongoing
Master of Science in Big Data Science	Queen Mary University of London, UK	2023 – 2024	Distinction
Bachelor of Science in Computer Science	Maseno University, Kenya	2012 – 2015	Upper Second Class Honours (USCH)
Kenya Certificate of Secondary Education (KCSE)	Mwea Boys High School	2007 – 2011	A – (Minus)

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Certifications and Trainings

Certification	Issuing Institution
Certified Project Management Professional (PMP)	Project Management Institute
Senior Management Course	Kenya School of Government
Cisco Certified CyberOps Associate	Cisco Networking Academy
Supervisory Skills Development Course	Kenya School of Government
PRINCE2 Agile® Foundation & Practitioner	AXELOS Global Best Practice
ICIS CNSS – Certified Network Security Specialist	ICIS
Certified Information Security Analyst	IBM
CCNA	Cisco Networking Academy
CCNA – Enterprise Networking, Security, and Automation	Cisco Networking Academy
IT Project Management	Indian School of Business
LPI – Certified Linux for System Administration	Linux Professional Institute (LPI)

Employment record relevant to the assignment: {Starting with present position, list in reverse order. Please provide dates, name of employing organization, titles of positions held, types of activities performed and location of the assignment, and contact information of previous Procuring Entity's and employing organization(s) who can be contacted for references. Past employment that is not relevant to the assignment does not need to be included.}

Period	Employing organization and your title/position. Contact Info for references	Country	Summary of activities performed relevant to the Assignment
Dec 2022 – Present	**Konza Technopolis Development Authority** Lead – Projects and Technical Service Delivery	KENYA	- Led design, deployment, and optimization of the **Konza Smart City Network Backbone**, enabling seamless integration of ITS, IoT, IVS, and urban infrastructure. - Engineered **redundant, high-availability network architecture** for the **Konza Tier III National Data Center**, ensuring 99.9% uptime for 140+ government tenants. - Directed

L.B.O.

Period	Employing organization and your title/position. Contact Info for references	Country	Summary of activities performed relevant to the Assignment
			deployment of **13 ITS systems, 58 smart poles, and 200 IVS cameras**, integrating fiber backhaul, wireless mesh, and secure IoT endpoints. - Established **Konza's Network Operations Center (NOC)** and **Security Operations Center (SOC)** with full packet inspection, IDS/IPS, and real-time telemetry. - Implemented **multi-tenant cloud networking** with VLAN segmentation, access control, and encrypted links to support Kenya Cloud First Policy. - Managed **hybrid cloud interconnectivity**, SD-WAN configurations, and firewall rule optimization during **KRA Konza Cloud Migration**. - Designed and activated **redundant DR site** with real-time replication for e-Citizen, IFMIS, and Government ERPs. - Collaborated with Cisco, Huawei, and Telkom Kenya to provision MPLS, IP transit, and dark fiber circuits across smart city zones. - Integrated **blockchain-backed secure transaction systems** and **AI-driven network optimization** tools for performance tuning and anomaly detection. - Drafted policies on IP planning, BGP/OSPF routing, smart city protocols, and spectrum utilization.
Feb 2024 – Sep 2024	**Kenya High Commission – UK (Ministry of ICT)** Digital Economy Attaché	UNITED KINGDOM	- Engaged UK-based infrastructure firms on **5G networks, cybersecurity architectures, and smart urban networks** for bilateral knowledge transfer. - Facilitated discussions on **network scalability and cloud exchange models** for African governments. - Promoted Kenya's smart infrastructure investment potential to UK private sector players and IoT consortiums.
Feb 2023 – Aug 2023	**State Department of ICT and Digital Economy** Lead – Digital Economy Programmes, Advisor to PS	KENYA	- Provided strategic guidance on national ICT backbone investments. - Supported the **Government Common Core Network (GCCN) upgrade**, improving secure L2/L3 interconnects across ministries. - Promoted cloud-hosted BPO and network-based job platforms for youth and civil

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Period	Employing organization and your title/position. Contact Info for references	Country	Summary of activities performed relevant to the Assignment
			service.
Feb 2020 – Aug 2022	**Judiciary of Kenya** Project Lead – Judiciary Digitization	KENYA	- Supervised digitization of 7M case records across 120+ court stations, requiring secure **LAN/WAN integration** and server upgrades. - Oversaw deployment of **networked scanners, firewalls, and VPN tunnels** for secure case management access. - Implemented **cloud-access controls and endpoint security** for Ajira Youth working on judicial data. - Supported rollout of **real-time transcription infrastructure**, with low-latency streaming over judicial networks.
May 2018 – Aug 2022	**Ministry of ICT and Digital Economy** Program Coordinator – Ajira Digital Program	KENYA	- Led **infrastructure readiness** for 150+ digital labs in universities and TVETs, including structured cabling, switch/router setups, and internet delivery via NOFBI. - Oversaw cloud-based dashboard hosting, requiring stable **backbone connectivity and security hardening**. - Supported deployments of **Virtual Desktop Infrastructure (VDI)** in education institutions. - Coordinated implementation of **load-balanced web platforms**, ensuring network availability for 800,000+ Ajira users.
Aug 2016 – May 2018	**ICT Authority** County Program Lead – NOFBI & DLP Projects	KENYA	- Oversaw expansion of the **National Optic Fibre Backbone Infrastructure (NOFBI)** across 6 counties (3,000+ km). - Conducted last-mile connectivity design, fiber patching, DWDM installation oversight, and POP monitoring. - Supervised DLP rollouts in 1,200 schools, deploying routers, structured cabling, and digital classroom networks. - Ensured conformance with power backup, patch management, and hardware QA procedures during deployments.

Membership in Professional Associations and Publications:

Professional Memberships

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Organization	Membership Role
ISACA (Information Systems Audit and Control Association)	Member
PMI (Project Management Institute)	Certified Project Management Professional (PMP)
Computer Society of Kenya (CSK)	Member

Publications, Policies, and Strategies Contributed To

Policy/Strategy	Contribution & Impact
Business Process Outsourcing (BPO) Policy	Drafted and implemented the BPO Policy, which led to the creation of over 600 jobs and positioned Kenya as a competitive global BPO hub.
Cloud First Policy	Spearheaded the adoption of cloud technologies in government operations, promoting scalability, cost-efficiency, and service delivery modernization.
Konza ICT Policy and Procedures	Authored governance frameworks and operational ICT procedures to support smart infrastructure deployment at Konza Technopolis.
Kenya National Artificial Intelligence (AI) Strategy	Played a pivotal role in drafting and reviewing the national AI Strategy, with a focus on ethical adoption, responsible innovation, and sustainable AI ecosystems.
Digital Masterplan 2022–2032	Contributed to the formulation of Kenya's long-term digital transformation blueprint, aligning infrastructure, skills, policy, and services.
The Digital Literacy and Opportunities Bill, 2024	Advocated and provided expert input for the creation of this bill to promote digital literacy, skills development, and youth empowerment.
NGCDF Act Amendment (Digital Hubs Allocation)	Successfully led the advocacy and drafting for the amendment to earmark 3% of constituency utility budgets for digital hubs, ensuring sustainable digital access at grassroots level.
The Technopolis Bill, 2023	Provided expert input in the drafting of the bill to establish legal and institutional frameworks for Kenya's technopolis zones, starting with Konza.

Language Skills (indicate only languages in which you can work):___

English

Swahili

L.B.O.

Adequacy for the Assignment:

Detailed Tasks Assigned on Bidder's Team of Experts:	**Reference to Prior Best Work/Assignments that** **Illustrates Capability to Handle the Assigned Tasks**
{List all deliverables/tasks as in TECH- 5 in which the Expert will be involved) Deployment of KEMIS Service Delivery Manager	Deployment of various over 50 -Konza NAtional Data Centre Customer Workloads and Solutions

Expert's contact information :(e-mail…….....…
fodosy@konza.go.ke phone 0719808934

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.

Name of Expert:FREDRICK ODOSYSignature Date {25 / 07/2025}

Name of authorized Lewis Ogundo Signature. Date25 / 07/2025
Representative of the Bidder (the same who signs the Proposal

L.B.O.

FORM TECH-6B: CURRICULUM VITAE (CV)

Position Title and No.	*ICT OFFICER PAAS & SAAS*
Name of Expert:	Nancy Kwamboka Daudi
Date of Birth:	22/12/1996
Country of Citizenship	Kenya

Education: *List college/university or other specialized education, giving names of educational institutions, dates attended, degree(s)/diploma(s) obtained*}

Bachelor of Science in Computer Science – Laikipia University Graduated: 2018 (2nd Class Upper Division)

Internet & Core Computing Certification – St. Ann's College Graduated: 2014 (Distinction)

Kenya Certificate of Secondary Education – St. Angela Sengera Girl's Graduated: 2013 (A- 76 Points)

Employment record relevant to the assignment: *Starting with present position, list in reverse order. Please provide dates, name of employing organization, titles of positions held, types of activities performed and location of the assignment, and contact information of previous Procuring Entity's and employing organization(s) who can be contacted for references. Past employment that is not relevant to the assignment does not need to be included.*}

Period	**Employing organization and your title/position. Contact Infor for references**	**Country**	**Summary of activities performed relevant to the Assignment**
Aug 2020-present	Konza Technopolis Development Authority, ICT Officer PaaS & SaaS	Kenya	• Deploy, configure, and maintain cloud resources • Respond to and resolve customer issues related to cloud services.

L.B.O.

			• Ensure the security and compliance of cloud environments by implementing best practices and adhering to standards. • Educate end-users and internal teams on cloud features, tools, and troubleshooting techniques. • Stay updated with the latest cloud technologies and industry trends.

Membership in Professional Associations and Publications: Member of ISACA, supporting continuous professional development in cloud security and enterprise IT governance.

Language Skills (indicate only languages in which you can work): **English**

Adequacy for the Assignment:

Detailed Tasks Assigned on Bidder's Team of Experts:	**Reference to Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks**
{List all deliverables/tasks as in TECH- 5 in which the Expert will be involved) Infrastructure Deployment and Automation (Compute, Storage, Kubernetes, IaC)	Set up virtual machines and Kubernetes clusters for client workloads. Implemented IAM policies, encryption standards, and compliance controls for Konza cloud environment.

L.B.O.

Cloud Security, Compliance, and Governance Performance Optimization, Monitoring, and Cost Management Disaster Recovery, High Availability, and Business Continuity Stakeholder Engagement, Documentation, and Knowledge Transfer	Optimized cloud spends by implementing autoscaling and rightsizing of resources. Designed and tested DR strategies inter-region failover on Konza Cloud for KoTDA's internal mission critical services, meeting defined RTO and RPO targets. Presented solutions to executives, documented key architecture decisions, and trained ICT teams through practical sessions.

Expert's contact information:

E-mail: ...nkwamboka@konza.go.ke……. **Phone:** …+254746399911…….

Certifications:

- HCIA Cloud Computing, HCIA Cloud Service, HCIA DATACOM, HCIA AI, CISCO CyberOperations, HCSA IP Networks, HCSA Power, HCSA Internet Collaboration, Prince 2 Project Management

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.

Name of Expert: Nancy Kwamboka Daudi **Signature:** **Date:** 25/07/2025

Name of authorized Lewis Ogundo Signature. _____ Date 25/07/2025
Representative of the Bidder (the same who signs the Proposal

L.B.O.

FORM TECH-6B: CURRICULUM VITAE (CV)

Position Title and No.	*{e.g., K-1, Team Leader}*
Name of Expert:	*Hildah Jelagat*
Date of Birth:	*09/03/2000*
Country of Citizenship	Kenyan

Education: *{List college/university or other specialized education, giving names of educational institutions, dates attended, degree(s)/diploma(s) obtained}*

Multimedia University of Kenya - Bachelor of Software Engineering

Sept 2018 – Dec 2022

Employment record relevant to the assignment: *{Starting with present position, list in reverse order. Please provide dates, name of employing organization, titles of positions held, types of activities performed and location of the assignment, and contact information of previous Procuring Entity's and employing organization(s) who can be contacted for references. Past employment that is not relevant to the assignment does not need to be included.}*

Period	**Employing organization and your title/position. Contact Infor for references**	**Country**	**Summary of activities performed relevant to the Assignment**
Sept 2024 - Present	Konza Technopolis Development Authority/ Software Engineer (Full Stack Developer & UI/UX) Reference: Nicholas Karimi +254710568014 nkarimi@konza.go.ke	Kenya	• Analyse user requirements and convert requirements to design documents • Design creative prototypes according to specifications.. • Develop software solutions by studying information needs; conferring with the

L.B.O.

	Software Engineer (Lead)		users; studying system flow, data usage and work processes; investigating problem areas; following the software development life cycle. • Test, maintain and recommend software improvements to ensure strong functionality and optimization. • Troubleshoot, debug and upgrade existing systems
Jan 2023-Aug 2024	Konza Technopolis Development Authority/ UI/UX Engineer Reference: Nicholas Karimi +254710568014 nkarimi@konza.go.ke Software Engineer (Lead)	Kenya	• Understand business requirements and any technical limitations • Conceiving and conducting user research, interviews and surveys and translating them into sitemaps, user flows, customer journey • Design the overall functionality of the product and to ensure a great user experience, iterate upon it in accordance with user- testing • Translate concepts into user flows, wireframes, mock-ups and prototypes that lead to intuitive user experiences. • Facilitate the client's product vision by researching, conceiving , sketching, prototyping and user testing experiences for digital products.

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			• Design and deliver wireframes, user stories, user journeys and mockups optimized for a wide range of devices and interfaces. • Identify design problems and devise elegant solutions • Make strategic design and user experience decisions related to core and new functions and features • Take a user centered design approach and rapidly test and iterate your designs • Collaborate with other team members and stakeholders

Membership in Professional Associations and Publications:

_____

Language Skills (indicate only languages in which you can work):___

- UI/UX development – Figma, Adobe XD
- Android Development – Kotlin/Java
- Web design and Development – Laravel Framework(PHP), HTML5, Bootstrap, CSS
- Data Storage and Retrieval – SQL database
- Source and Version Control – Git, Github

Adequacy for the Assignment:

Detailed Tasks Assigned on Bidder's Team of Experts:	**Reference to Prior Best Work/Assignments that Illustrates Capability to Handle the Assigned**

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	Tasks
{List all deliverables/tasks as in TECH- 5 in which the Expert will be involved) Developer	Developed Visitor Management System, Konza Website Developed Flexy and KoTDA Business Cards, Developed KoTDA ERP

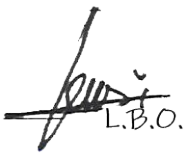
Expert's contact information :(e-mail……hjelagat@konza.go.ke…..…… phone……+254 702 255356.....)

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.

Name of Expert __Hildah Jelagat Mutai Signature  Date ___24/07/2025

Name of authorized Lewis Ogundo ___Signature.  _____Date_ **25/07/2025**
Representative of the Bidder (the same who signs the Proposal



FORM TECH-6B: CURRICULUM VITAE (CV)

Position Title and No.	*FullStack Software Engineer*
Name of Expert:	Nicholas Karimi
Date of Birth:	02/09/1995
Country of Citizenship	Kenyan

Education: {*List college/university or other specialized education, giving names of educational institutions, dates attended, degree(s)/diploma(s) obtained*}

Jomo Kenyatta University of Agriculture & Technology

2016-1019

Bachelor of Information Technology

Employment record relevant to the assignment: {*Starting with present position, list in reverse order. Please provide dates, name of employing organization, titles of positions held, types of activities performed and location of the assignment, and contact information of previous Procuring Entity's and employing organization(s) who can be contacted for references. Past employment that is not relevant to the assignment does not need to be included.*}

Period	**Employing organization and your title/position. Contact Infor for references**	**Country**	**Summary of activities performed relevant to the Assignment**
[Oct 2021 - Present]	Konza Technopolis Development Authority Full stack Software Engineer Mr. Lucas Omollo 0726262679 lomollo@konza.go.ke	Kenya	• Develops software solutions by studying information needs; conferring with users; studying systems flow, data usage, and work processes; investigating problem areas; following the software development lifecycle.

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	Chief Manager – ICT & Smart City Solutions		• Tests, maintain and recommend software improvements to ensure strong functionality and optimization. • Improves operations in the data center by conducting systems analysis; recommending changes in policies and procedures. • Troubleshoots, debug and upgrade existing systems in the data center. • Analyses user requirements and convert requirements to design documents • Ability to develop software using a variety of programming languages, and have excellent knowledge of relational databases, SQL and ORM technologies. • Understand client requirements and how they translate in application features • Develops and direct software system testing and validation procedures, programming, and documentation. • Designs creative prototypes according to specifications

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			• Writes high quality source code to program complete applications within deadlines. • Performs unit and integration testing before launch. • Obtains and licenses software used in the data center by obtaining required information from vendors; recommending purchases; testing and approving products • Articulates technology and product positioning to both business and technical users Provides design and specification development support to consultants, integrators, and distributors • Performs technical/product training for salespeople, estimators, and engineers at targeted accounts • Listens, understand, and convey customer requirements

Membership in Professional Associations and Publications:

L.B.O.

Language Skills (indicate only languages in which you can work):___

Python, Golang, PHP, Django, FastAPI, SvelteJS, HTML, Boostrap, Tailwind, HTMX, ALpineJS

Adequacy for the Assignment:

Detailed Tasks Assigned on Bidder's Team of Experts:	**Reference to Prior Best Work/Assignments that Illustrates Capability to Handle the Assigned Tasks**
{List all deliverables/tasks as in TECH- 5 in which the Expert will be involved) Developer	Developed Konza Flow -Enterprise ERP Developed KoTDA ERP Developed Compliance system

Expert's contact information :(e-mail nkarimi@konza.go.ke phone. 0710568014.)

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.

Name of Expert: *Nicholas Karimi* Signature: Date: *25/7/2025*

Name of authorized Lewis Ogundo Signature. Date *25/7/2025* ___
Representative of the Bidder (the same who signs the Proposal

L.B.O.

FORM TECH-6B: CURRICULUM VITAE (CV)

Position Title and No.	Developer
Name of Expert:	*Kelvin Kiprop*
Date of Birth:	*11/09/1995*
Country of Citizenship	*Kenya*

Education: *List college/university or other specialized education, giving names of educational institutions, dates attended, degree(s)/diploma(s) obtained.*

Course	**Institution**	**Year**	**Grade/Award**
MSc. Embedded Systems	*University of Sfax, Tunisia*	*2021 – 2022*	*Distinction*
BSc. Software Engineering	*Kisii University, Kenya*	*2014 – 2018*	*Second Class (Upper Division)*

Employment record relevant to the assignment: *Starting with the present position, list in reverse order. Please provide dates, name of employing organization, titles of positions held, types of activities performed, and location of the assignment, and contact information of previous Procuring Entity s and employing organization(s) who can be contacted for references. Past employment that is not relevant to the assignment does not need to be included.*

Period	**Employing organization and your title/position. Contact Infor for references**	**Country**	**Summary of activities performed relevant to the Assignment**
July 2022 - Present	**Software Engineer (Full-stack Developer)** Konza Technopolis Development Authority For references: ***+254(0) 717 588171/tkosgei@konza.go.ke Mr. Timothy Kosgei, ICT Officer***	Kenya	• Develop software solutions by studying information needs. • Designs creative prototypes according to specifications. • Test, maintain, and recommend software improvements to ensure strong functionality.

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July 2020 - Dec 2020	**Web Developer** Wise & Agile Solutions Limited (WIZAG) For references: ***+254(0)728 956 308/pj@wizag.com, Mr. Paramjeet Bhambra, Director***		• Listen, understand, and convey customer requirements. • Writes high-quality source code to program complete applications within deadlines.
June 2019 - June 2020	**Applications Developer** ICT Authority - Presidential Digital Talent Program (PDTP) For references: ***+254(0)726 912 806/ geoffrey.tarus@ict.go.ke, Mr. Geoffrey Tarus, Senior ICT Officer***	Kenya	• Gathering and analyzing software requirements. • Developing applications to streamline government processes and activities to ensure effective service delivery. • Writing documentation and operating manuals.
June 2018 - Feb 2019	**Software Engineer** Masterpiece Fusion, Nairobi (MPF) For references: ***+254(0)727 361 707/ gladys. mueni@masterpiecenet.co.ke, Ms. Gladys Mueni, Accountant***	Kenya	• Collecting, analyzing the client's requirements, and proposing a solution. • Using development tools to write and test code. • Writing documentation and operating manuals. • User training and support.

Membership in Professional Associations and Publications:

Association of Computing Practitioners – Kenya (ACPK), PM000522

Language Skills (indicate only languages in which you can work):

PHP | Python | Java | Kotlin | JavaScript | SQL and Laravel (PHP) | Django (Python) | Bootstrap (CSS) | Angular, Vue (JavaScript) | Android (Java/Kotlin)

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Adequacy for the Assignment:

Detailed Tasks Assigned to Bidder's Team of Experts:	**Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks**
Developer	Developed the ***Jitume* Portal** (https://jitume.konza.go.ke), **KonzaOSS** (https://oss.konza.go.ke), ***Sajili* Digtial Attendance Register** (https://sajili.konza.go.ke) among other.

Expert's contact information: (e-mail: kkiprop@konza.go.ke phone: +254(0) 725 734 000)

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Procuring Entity, and/or sanctions by the PPRA.

Name of Expert: **KelvinKiprop**Signature:_____ Date: **25/07/2025**

Name of authorized: __Lewis Ogundo_Signature: _____ Date**25/07/2025** _____
Representative of the Bidder (the same who signs the Proposal

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SECTION:8

TECH-7: - Mandatory and Support Document

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DETAILED EVALUATION CRITERIA

Evaluation will be carried out through five stages as follows:

The evaluation will be carried out through the following stages as follows:

Stage 1: Compliance with the Mandatory Requirements

Stage 2: Technical Evaluation.

Stage 3: Financial Evaluation

Stage 4: Negotiation with the bidder

Stage 5: Recommendation of award

STAGE 1: COMPLIANCE WITH THE MANDATORY REQUIREMENTS (MR)

The Bidder shall have the following minimum qualifications and experience:

No	Requirements	Requirement	Tenderer's Response
1.	Certificate of Incorporation/Certificate of Registration or equivalent	**Attached/Not Attached**	Attached
2.	A valid Tax Compliance Certificate or equivalent	**Attached/Not Attached**	Attached
3.	Certified copy of a valid and current CBK banking License	**Attached/Not Attached**	Attached
4.	Similar Consulting Assignments Experience (Bidder to insert here copies of the form of contract, purchase order, service order, and performance certificate or similar evidence of similar assignments carried out by the firm. The assignments shall be the same as those provided under FORM TECH 2B)	**Attached/Not Attached**	Attached
5.	Academic Certificates (Bidder to insert copies of the required relevant academic certificates relevant to the assignment for all the key experts)	**Attached/Not Attached**	Attached
6.	Professional Certificates (Bidder to insert copies of professional certificates and relevant short-term trainings to demonstrate professional qualifications for all the key experts)	**Attached/Not Attached**	Attached
7.	Professional Membership of Key Experts	**Attached/Not Attached**	Attached
8.	Certificate of Independent Proposal Determination (The Form is available on Tech FORM TECH-1: TECHNICAL PROPOSAL SUBMISSION FORM)	**Attached/Not Attached**	Attached
9.	Where the Tenderer is in a Joint Venture (JV) or a	**Attached/Not Attached**	Attached

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	Consortium with another or others, the tenderer shall attach a JV Agreement by the Consortium specifying clear responsibilities, scope ownership and roles for each partner and shall be executed by the authorized representatives of all members of the joint venture/consortium (attach Power of Attorney for each)		
10.	Properly hard cover bound (No spiral Cover bound), paginated, serialized tender document (each page of the tender submission must have a number and the numbers must be in chronological order). For pagination, English Numerals shall be used, i.e. 1,2,3,4,5,6,7,8,9,10… n (n being the last numerical page of the tender document)	**Complied/Non-Compliant**	Complied
11.	Duly dated and stamped letter signed by a legally authorized representative of the bidder authorizing the person to sign on behalf of the Bidder.	**Attached/Not Attached**	Attached

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3. FORMTECH-7: MANDATORY SUPPORT DOCUMENTS

[The Bidder shall use this form to submit all the required support documentary evidence as required in the RFP, especially the mandatory and eligibility criteria specified in the Data Sheet ITC 21.1]

a) Certificate of Incorporation/Certificate of Registration Attached on Page 684-695

b) A Valid Tax Compliance Certificate Attached on Page 696-700

c) KRA PIN Certificate Attached on Page 701-704

d) Certified copy of a valid and current CBK banking License Attached on Page 709

e) Copy of Certificate of Registration/Incorporation under the Companies Act. Attached on Page 684-695

f) Copy of CR12 Attached on Page 705-708

g) Copy of Certificate of Registration as a data Processor issued by the Office of the Data Commissioner Attached on Page 710-713

h) Copy of Certificate of Registration as a data Controller issued by the Office of the Data Commissioner Attached on Page 710-713

(Bidder to insert here copies of the form of contract, purchase order, service order, and performance certificate or similar evidence of similar assignments carried out by the firm. The assignments shall be the same as those provided under FORM TECH 2B)

i) Academic Certificates

(Bidder to insert copies of the required relevant academic certificates relevant to the assignment for all the key experts)

j) Professional Certificates

(Bidder to insert copies of professional certificates and relevant short-term trainings to demonstrate professional qualifications for all the key experts)

k) Professional Membership of Key Experts

(If applicable, Bidder to insert copies of professional membership certificate for its key experts)

l) Certificate of Independent Proposal Determination

(The Form is available on Tech FORM TECH-1: TECHNICAL PROPOSAL SUBMISSION FORM).

m) Where the Tenderer is in a Joint Venture (JV) or a Consortium with another or others, the tenderer shall attach a JV Agreement by the Consortium specifying clear responsibilities, scope ownership and roles for each partner and shall be executed by the authorized representatives of all members of the joint venture/consortium (attach Power of Attorney for each)

n) Properly hard cover bound (No spiral Cover bound), paginated, serialized tender document (each page of the tender submission must have a number and the numbers must be in

L.B.O.

chronological order). For pagination, English Numerals shall be used, i.e. 1,2,3,4,5,6,7,8,9,10… n (n being the last numerical page of the tender document) Complied

o) Duly dated and stamped letter signed by a legally authorized representative of the bidder authorizing the person to sign on behalf of the Bidder. Complied

L.B.O.

NATIONAL COUNCIL FOR LAW REPORTING
SIGN.....
DATE.....
O. Box 10443, NAIROBI, KENYA

LEGAL NOTICE NO. 23

THE STATE CORPORATIONS ACT
(*Cap.* 446)

IN EXERCISE of the powers conferred by Article, 132 (4) of the Constitution and section 3 (1) of the State Corporations Act, I, Mwai Kibaki, President of the Republic of Kenya and Commander-in-chief of the Kenya Defence Forces, make the following Order:—

THE KONZA TECHNOPOLIS DEVELOPMENT AUTHORITY ORDER, 2012

PART I—PRELIMINARY

Citation.

1. This Order may be cited as the Konza Technopolis Development Authority Order, 2012.

Interpretation.

2. In this Order unless the context otherwise requires—

"Area" means all that parcel of land known as L.R. 9918/6 located within Makueni and Machakos Counties measuring approximately 2023.6 hectares;

"Authority" means the Konza Technopolis Development Authority established under Paragraph 3 of this Order;

"Board" means the Konza Technopolis Development Authority Board established under paragraph 5 of this Order;

"buffer zone" means parcels of land lying within a delineated 10 kilometer radius from the Area;

"Chief Executive Officer" means the Chief Executive Officer appointed under paragraph 10 of this Order.

"Minister" means the Minister for the time being responsible for matters relating to information and communications technology.

PART II—ESTABLISHMENT OF THE AUTHORITY

Establishment of the Authority.

3. (1) There is established an Authority to be known as the Konza Technopolis Development Authority.

(2) The Authority shall be a body corporate with perpetual succession and a common seal and shall in its corporate name, be capable of—

(a) suing and being sued;

(b) taking, purchasing or otherwise acquiring, holding, charging or disposing of movable and immovable property;

(c) borrowing or lending money;

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(d) entering into contracts; and

(e) doing or performing such other things or acts necessary for the proper performance of the functions of the Authority under the Order and which may lawfully be done or performed by a body corporate.

Headquarters.

4. The Headquarters of the Authority shall be in Nairobi.

Board of the Authority.

5. (1) The Authority shall be managed by a Board comprising of—

(a) a non-executive chairperson appointed by the President.

(b) the Permanent Secretary to the Treasury;

(c) the Permanent Secretary in the Ministry for the time being responsible for matters relating to information and communications technology;

(d) two persons of opposite gender, being public officers, appointed by the Minister in consultation with the Public Service Commission;

(e) not more than seven other members, two of whom shall be of the opposite gender and not being employees of the Authority nor public officers, appointed by the Minister in consultation with the Public Service Commission by virtue of their qualifications, knowledge or experience in matters relating to the development of special economic zones, information and communications technology, science parks infrastructure, economics or taxation; and

(f) the Chief Executive Officer appointed under Paragraph 10 (1).

Term of office.

6. The chairperson and members of the Board appointed under paragraph 5 *(d)* and *(e)* shall serve for a term of three years and shall be eligible for appointment for one further term.

Disqualification of Board Member.

7. The chairperson or a member of the Board appointed under paragraph 5 *(d)* and *(e)* shall cease to hold office if he—

(a) resigns from office in writing to the appointing authority;

(b) is absent without reasonable excuse from three consecutive meetings of the Board of which he has had notice;

(c) is adjudged bankrupt;

(d) is incapacitated by prolonged physical or other illness;

(e) is convicted of any offence in contravention of the tenets of Chapter Six of the Constitution; or

(f) is otherwise unable or unfit to discharge the functions of the Board.

Functions of the Board.

8. The functions of the Board shall be to—

(a) develop all aspects of the Area with particular emphasis on—

L.B.O.

(i) developing integrated infrastructural facilities, and

(ii) provision of advice to the Government on the removal of impediments to, and creation of incentives for trade, services and manufacturing in the Area;

(b) regulate and administer approved activities within the Area, through implementation of a system in which the Area enterprises are self regulatory to the maximum extent possible;

(c) generate additional economic activities in the Area;

(d) plan for the development of the Area and initiate project activities identified for such planning through Government;

(e) develop and keep up to date a long term development plan for the Area;

(f) initiate studies, and carry out surveys of the Area as may be considered necessary by the Government or the Authority, and to assess the alternative and substitute demands within the Area on the available resources;

(g) co-ordinate the various studies of, and schemes within the Area so that human, land, energy, water and other resources are utilized to the best advantage and monitor the design and execution of planned projects within the Area;

(h) effect a programme of both monitoring and evaluation of the performance of any project within the Area so as to improve that performance, establish responsibility and improve planning;

(i) cause the construction of any works necessary for the protection and preservation of natural resources within the Area;

(j) maintain liaison between the Government, the private sector and other Government agencies including but not limited to any specialized economic zone agency, in matters of development of the Area with a view to maximizing resource utilization and benefits to the people of Kenya;

(k) liaise with relevant government institutions to promote both locally and internationally the opportunities for investment in information and communications technology and such other industrial activities of the Area;

(l) facilitate and manage information and communication technology, industrial incubation parks and science and technology parks together with related facilities within the Area and buffer zone;

(m) liaise with the Machakos and Makueni County Authorities to ensure developments within the buffer zone are in line with the permitted standards of the Area.

(n) liaise with Machakos and Makueni County Authorities in

L.B.O.

coordinating regulatory matters relating to investment requirements of the Area.

(o) carry out any other activity that the Board considers necessary for the promotion and facilitation of development of information and communications technology products and services within the Area.

Meetings of the Board.

9. (1) The chairperson shall preside over all meetings and in the absence of the chairperson; the other members present at the meeting shall appoint one of the members to act as chairperson for the purpose of that meeting.

(2) The quorum for the Board meeting shall be two-thirds of the members.

(3) The Board may co-opt, for such period as it may deem fit, not more than three persons whose assistance or advice it may require, but the persons so co-opted shall not be considered as members for the purpose of forming a quorum and shall not be entitled to vote at any meeting of the Board.

(4) Every decision of the Board shall be by a simple majority of the members present and voting but the chairperson or the person appointed to be the chairperson under sub-paragraph (1) shall have a casting as well as a deliberative vote.

(5) Subject to this Order, the Board may regulate its own proceedings.

Chief Executive Officer and other staff.

10. (1) There shall be a Chief Executive Officer of the Authority appointed by the Minister in consultation with the Board.

(2) The Chief Executive Officer shall be the secretary to the Board.

(3) The Chief Executive Officer shall hold office for such period and on such terms and conditions of employment as the Board may determine with the approval of the Minister.

(4) The Board may appoint other officers and employees as it deems necessary upon such terms and conditions as it deems proper for the efficient operation of the Authority.

(5) The Board shall pay remuneration, fees, allowances and such other reimbursement to members of the Board and staff of the Authority as may be approved by Treasury.

(6) The Board may delegate any of its powers to any of its committees or to the Chief Executive Officer.

Execution of documents.

11. (1) The common seal of the Board shall be authenticated by the signature of the Chairperson and the Chief Executive Officer, or by either the Chairperson or the Chief Executive Officer, together with one member other than an *ex officio* member of the Board authorized in writing by the Board in that behalf.

(2) Any document, other than a document which is required by any law to be under seal, made and any decision of the Board, may be signified under the hand of the Chairperson, or the Chief Executive

L.B.O.

Officer or any other member of the Board or any other person authorized in writing by the Board in that behalf.

Protection from liability.

12. (1) Neither the Board, any of its members nor any officer, employee or servant of the Authority shall be personally liable for an act which is done or purported to be done in good faith by such person, on the direction of the Board or in the performance of any duty or in the exercise of any power under this Order.

(2) Any expenses incurred by any person referred to in subsection (1) in any suit or prosecution brought against him before any court in respect of any act which is done or purported to be done by him under this Order on the direction of the Board shall, if the court holds that such act was done in good faith be paid out of the general fund of the Authority, unless such expenses are recovered by him in such suit or prosecution.

PART III—FINANCIAL PROVISIONS

Funds for the Authority.

13. (1) The funds of the Authority shall consist of—

(a) such moneys as may be provided by Parliament for the purposes of the Authority;

(b) such moneys or assets as may accrue or vest in the Authority in the course of the performance of its functions under this Order; and

(c) such moneys as may be payable to the Authority pursuant to this Order or any written law or pursuant to any gift or trust.

Financial year.

14. The financial year of the Authority shall be the period of twelve months ending on the thirtieth June in each year.

Annual estimates.

15. (1) At least four months before the commencement of each financial year, the Board shall cause to be prepared estimate of the revenue and expenditure for that year.

(2) The annual estimates shall make provision for all estimated expenditure of the Authority for the financial year concerned, and in particular shall provide for—

(a) the payment of the salaries, allowances and other charges in respect of the members of the Board and the staff of the Authority;

(b) the payment of pensions, gratuities and other charges in respect of retirement benefits to staff of the Authority;

(c) the proper maintenance of the buildings and ground of the Authority;

(d) the proper maintenance, repair and replacement of the equipment and other movable property of the Authority; and

(e) the creation of such reserve funds to meet future or contingent liabilities in respect of retirement benefits, insurance or replacement of buildings or equipment or in

L.B.O.

respect of such other matters as the Board may consider necessary.

(3) The annual estimates shall be submitted to the Board for approval before the commencement of the financial year to which they relate provided that once approved, the sum provided in the estimate shall not be increased without a prior consent of the Board.

(4) No expenditure shall be incurred for the purposes of the Authority except in accordance with the annual estimates approved under sub paragraph (3) or in pursuance of an authorization by the Board.

Accounts and audit.

16. (1) The Board shall cause to be kept all proper books and records of accounts of the income, expenditure, assets and liabilities of the Authority.

(2) Within a period of three months after the end of each financial year, the Board shall submit to the Auditor-General the accounts of the Authority together with—

(a) a statement of income and expenditure during that year; and

(b) a statement of the assets and liabilities of the Authority on the last day of the financial year.

No 12 of 2003.

(3) The accounts of the Authority shall be audited in accordance with the Public Audit Act.

(4) Within a period of six months after the end of the financial year, the Auditor-General shall report on the examination and audit of the accounts of the Authority to the Board and to the Minister.

(5) Nothing in this Order shall be construed to prohibit the Auditor-General from carrying out an inspection of the Authority's accounts or records whenever it appears to him desirable so to do and the Auditor-General shall carry out such an inspection at least once every six months.

Investment of funds.

17. (1) The Board may invest any of the funds of the Authority which are not immediately required for its purposes in such securities as Treasury may, from time to time, approve.

(2) The Board may place on deposit with such bank or banks as it may determine any money not immediately required for the purposes of the Authority.

Dated the 28th March,2012.

MWAI KIBAKI,
President.

PRINTED AND PUBLISHED BY THE GOVERNMENT PRINTER, NAIROBI

L.B.O.

No. CPR/2015/185698

CERTIFICATE OF INCORPORATION

I hereby CERTIFY, *that -*

KCB BANK KENYA LIMITED

is this day Incorporated under the Companies Act (Cap. 486) and that the Company is **LIMITED**.

GIVEN under my hand at Nairobi this **20 th** day of **April** Two Thousand and **Fifteen**

Registrar Of Companies

694

Certificate of Incorporation/Certificate of Registration

सत्यमेव जयते

GOVERNMENT OF INDIA
MINISTRY OF CORPORATE AFFAIRS

Central Registration Centre

Certificate of Incorporation

[Pursuant to sub-section (2) of section 7 and sub-section (1) of section 8 of the Companies Act, 2013 (18 of 2013) and rule 18 of the Companies (Incorporation) Rules, 2014]

I hereby certify that DHANUSH SOFTECH PRIVATE LIMITED is incorporated on this Twelfth day of August Two thousand twenty-one under the Companies Act, 2013 (18 of 2013) and that the company is limited by shares.

The Corporate Identity Number of the company is U72900TG2021PTC154068.

The Permanent Account Number (PAN) of the company is **AAICD6808L** *

The Tax Deduction and Collection Account Number (TAN) of the company is **HYDD11920G** *

Given under my hand at Manesar this Twelfth day of August Two thousand twenty-one .

DS MINISTRY OF CORPORATE AFFAIRS 6

Digital Signature Certificate
Pankaj Srivastava
DEPUTY. REGISTRAR OF COMPANIES
For and on behalf of the Jurisdictional Registrar of Companies
Registrar of Companies
Central Registration Centre

Disclaimer: This certificate only evidences incorporation of the company on the basis of documents and declarations of the applicant(s). This certificate is neither a license nor permission to conduct business or solicit deposits or funds from public. Permission of sector regulator is necessary wherever required. Registration status and other details of the company can be verified on www.mca.gov.in

---

Mailing Address as per record available in Registrar of Companies office:

DHANUSH SOFTECH PRIVATE LIMITED
6th Floor D No 1-8-448 4 5, Lakshmi Buildings, S PRoard Begumpet,,
Hyderabad, Hyderabad, Telangana, India, 500003

* as issued by the Income Tax Department

L.B.O.

Dhanush InfoTech is a Parent Company of Dhanush Softech

प्रारुप 1

पंजीकरण प्रमाण–पत्र

कॉर्पोरेट पहचान संख्या : U72200AP2008PTC057506 2007 - 2008

मैं एतदद्वारा सत्यापित करता हूँ कि मैसर्स

DHANUSH INFOTECH PRIVATE LIMITED

का पंजीकरण, कम्पनी अधिनियम 1956 (1956 का 1) के अतंर्गत आज किया जाता है और यह कम्पनी प्राइवेट लिमिटेड है।

यह निगमन–पत्र आज दिनांक आठ फरवरी दो हजार आठ को मेरे हस्ताक्षर से हैदराबाद में जारी किया जाता है।

Form 1

Certificate of Incorporation

Corporate Identity Number : U72200AP2008PTC057506 2007 - 2008

I hereby certify that DHANUSH INFOTECH PRIVATE LIMITED is this day incorporated under the Companies Act, 1956 (No. 1 of 1956) and that the company is private limited.

Given under my hand at Hyderabad this Eighth day of February Two Thousand Eight.

(RAMAKRISHNAN D)

सहायक कम्पनी रजिस्ट्रार / Assistant Registrar of Companies

ऑध्र प्रदेश

Andhra Pradesh

कम्पनी रजिस्ट्रार के कार्यालय अभिलेख में उपलब्ध पत्राचार का पता :

Mailing Address as per record available in Registrar of Companies office:

DHANUSH INFOTECH PRIVATE LIMITED

7-1-27/2, AND 3, SURAJMANSION, AMEERPET, LALBUNGLOW,

HYDERABAD - 500016,

Andhra Pradesh, INDIA

L.B.O.

REPUBLIC OF KENYA

Company Reg No. **CPR/2014/166556**

Application ID. **CN-NZPS3X**

CERTIFICATE OF CHANGE OF NAME

I hereby **CERTIFY,** that-

NEXUS ICT LIMITED

having, with the sanction of the SPECIAL RESOLUTION of the said Company, and with the approval of the REGISTRAR OF COMPANIES, changed its name, and is now called:-

VISIBILITY TECHNOLOGY SERVICES LIMITED

and I have entered such new name in the Register accordingly.

Given under my hand at Nairobi this **12 July 2019**

.....

Registrar Of Companies

This is a system generated certificate. To validate this document send the word **BRS** to **21546**

I Certify that this is a true copy of the Original

MURITHI MUKUNGA
Advocate & Commissioner for oaths
P. O. Box 38854-00100,
NAIROBI

L.B.O.

I Certify that this is a true copy of the Original

MURITHI MUKUNGA
Advocate & Commissioner for Oaths
P.O. BOX 39854-00100
NAIROBI

No. CPR/2014/166556

CERTIFICATE OF INCORPORATION

I hereby CERTIFY, that -

NEXUS ICT LIMITED

is this day Incorporated under the Companies Act (Cap. 486) and that the Company is **LIMITED**.

GIVEN under my hand at Nairobi this 5 th day of November Two Thousand and Fourteen

Registrar Of Companies

This is a Certified true copy of the original
JULIET T. KHAMASI
ADVOCATE

L.B.O.

No. **PVT-AJU5DE2**

CERTIFICATE OF INCORPORATION

I hereby **CERTIFY** that,

VILCOM NETWORKS LIMITED

is on this date 11 Nov 2020 Incorporated under the Companies Act, 2015 and that the Company is a **PRIVATE LIMITED COMPANY.**

.....

Registrar Of Companies

This is a system generated certificate. To validate this document send the word **BRS** to **21546**

L.B.O.

KENYA REVENUE AUTHORITY

Tax Compliance Certificate

For General Tax Questions
Contact KRA Call Centre
Tel: +254 (020) 4999 999
Cell: +254(0711)099 999
Email: callcentre@kra.go.ke

www.kra.go.ke

Taxpayer PIN : P051417536G

Certificate Date: 11/03/2025

Name and Address :

The Konza Technopolis Development Authority
1870/VI/181, CAPITAL WEST BUSINESS CENTRE, NAIROBI CITY (WEST),
Westlands District,
PO Box:30519,
Postal Code:00100

Certificate Number:
KRAPSD1459537125

This is to confirm that The Konza Technopolis Development Authority, Personal Identification Number P051417536G has filed relevant tax returns and paid taxes due as provided by Law.

This Certificate will be valid for twelve (12) months up to 10/03/2026.

Caveat: This certificate is issued on the basis of information available with the authority as at the certificate date mentioned above. The Authority reserves the right to withdraw the certificate if new evidence materially alters the tax compliance status of the recipient.

Disclaimer : This certificate is system Generated and therefore does not require signature.You may confirm validity of this certificate on the iTax Portal by using the TCC Checker.This certificate confirms your compliance status for a period of five years preceding the date of issue. The certificate may however be with withdrawn on grounds of outstanding debt affecting periods prior to this.

L.B.O.

KENYA REVENUE AUTHORITY

Tax Compliance Certificate

For General Tax Questions
Contact KRA Call Centre
Tel: +254 (020) 4999 999
Cell: +254(0711)099 999
Email: callcentre@kra.go.ke

www.kra.go.ke

Taxpayer PIN : P051542997U

Certificate Date: 20/02/2025

Name and Address :

Kcb Bank Kenya Limited
KenCom House, Nairobi, Starehe District,
PO Box:48400,
Postal Code:00100

Certificate Number:
KRALTO1452950425

This is to confirm that Kcb Bank Kenya Limited,
Personal Identification Number P051542997U
has filed relevant tax returns and
paid taxes due as provided by Law.

This Certificate will be valid for
twelve (12) months up to 19/02/2026.

Caveat This certificate is issued on the basis of information available with the authority as at the certificate date mentioned above. The Authority reserves the right to withdraw the certificate if new evidence materially alters the tax compliance status of the recipient.

Disclaimer : This certificate is system Generated and therefore does not require signature.You may confirm validity of this certificate on the iTax Portal by using the TCC Checker.This certificate confirms your compliance status for a period of five years preceding the date of issue. The certificate may however be with withdrawn on grounds of outstanding debt affecting periods prior to this.

L.B.O.

Tax Compliance Certificate

आयकर विभाग भारत सरकार

INCOME TAX DEPARTMENT GOVT. OF INDIA

सत्यमेव जयते

Aug 12, 2021

Ref.No.: 88305916825453/TAN/NEW

TO,
DHANUSH SOFTECH PRIVATE LIMITED
6TH FLOOR D NO 1-8-448 4
5
LAKSHMI BUILDINGS, S PROA
RD BEGUMPET,
HYDERABAD, HYDERABAD-500003
TELANGANA
TEL. NO.:9885127192

Sir/Madam,

Sub : Allotment of Tax Deduction Account Number (TAN) as per Income Tax Act,1961

Kindly refer to your application (Form 49B) dated Aug 12, 2021 for the allotment of Tax Deduction Account Number.

In this connection, the following TAN has been issued to you/your organisation:

HYDD11920G

Please quote the same in all TDS challans,TDS Certificates,TDS returns,Tax Collection at Source(TCS) returns as well as other documents pertaining to such transactions.

Quoting of TAN on all TDS returns and challans for payment of TDS is necessary to ensure credit of TDS paid by you and faster processing of TDS returns.

The above TAN should also be used as Tax Collections at Source Account Number under section 206CA.

Kindly note that it is mandatory to quote TAN while furnishing TDS returns, including e-TDS returns. e-TDS returns will not be accepted if TAN is not quoted.

This supersedes all the Tax Deduction / Collection Account Number, alloted to you earlier.

Income Tax Department

Signature valid

Digitally signed by NSDL e-Governance Infrastructure Ltd
Date: 2021.08.12 07:12:22 GMT+05:30
Reason: TDS-TAN Sign
Location: Mumbai

Caution : Income Tax Department does not send e-mails regarding refunds and does not seek any taxpayer information like username, password, details of ATM, bank accounts, credit cards, etc. Taxpayers are advised not to part with such information on the basis of emails.

L.B.O.

KENYA REVENUE AUTHORITY

Tax Compliance Certificate

For General Tax Questions
Contact KRA Call Centre
Tel: +254 (020) 4999 999
Cell: +254(0711)099 999
Email: callcentre@kra.go.ke

www.kra.go.ke

Taxpayer PIN : **P051515095Z**

Certificate Date: 18/10/2024

Name and Address :

VISIBILITY TECHNOLOGY SERVICES LIMITED

Embassy House, Nairobi, Westlands District,
PO Box:77928,
Postal Code:00622

Certificate Number:

KRAWON1440836324

This is to confirm that VISIBILITY TECHNOLOGY SERVICES LIMITED,
Personal Identification Number P051515095Z
has filed relevant tax returns and
paid taxes due as provided by Law.

This Certificate will be valid for
twelve (12) months up to 17/10/2025.

Caveat: This certificate is issued on the basis of information available with the authority as at the certificate date mentioned above. The Authority reserves the right to withdraw the certificate if new evidence materially alters the tax compliance status of the recipient.

Disclaimer : This certificate is system Generated and therefore does not require signature.You may confirm validity of this certificate on the iTax Portal by using the TCC Checker.This certificate confirms your compliance status for a period of five years preceding the date of issue. The certificate may however be with withdrawn on grounds of outstanding debt affecting periods prior to this.

L.B.O.

KENYA REVENUE AUTHORITY

Tax Compliance Certificate

For General Tax Questions
Contact KRA Call Centre
Tel: +254 (020) 4999 999
Cell: +254(0711)099 999
Email: callcentre@kra.go.ke

www.kra.go.ke

Taxpayer PIN : P051965841T

Certificate Date: 18/01/2025

Name and Address :

VILCOM NETWORKS LIMITED

209/10515 , RAMCO COURT, NAIROBI, Langata District,
PO Box:24559,
Postal Code:00502

Certificate Number:

KRASON1449946625

**This is to confirm that VILCOM NETWORKS LIMITED,
Personal Identification Number P051965841T
has filed relevant tax returns and
paid taxes due as provided by Law.**

**This Certificate will be valid for
twelve (12) months up to 17/01/2026.**

Caveat: This certificate is issued on the basis of information available with the authority as at the certificate date mentioned above. The Authority reserves the right to withdraw the certificate if new evidence materially alters the tax compliance status of the recipient.

Disclaimer : This certificate is system Generated and therefore does not require signature.You may confirm validity of this certificate on the iTax Portal by using the TCC Checker.This certificate confirms your compliance status for a period of five years preceding the date of issue. The certificate may however be with withdrawn on grounds of outstanding debt affecting periods prior to this.

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KENYA REVENUE AUTHORITY

PIN Certificate

For General Tax Questions
Contact KRA Call Centre
Tel: +254 (020) 4999 999
Cell: +254(0711)099 999
Email: callcentre@kra.go.ke

www.kra.go.ke

Certificate Date : 19/05/2015

Personal Identification Number
P051417536G

This is to certify that taxpayer shown herein has been registered with Kenya Revenue Authority

Taxpayer Information

Taxpayer Name	THE KONZA TECHNOPOLIS DEVELOPMENT AUTHORITY
Email Address	KONZA@KONZACITY.GO.KE

Registered Address

L.R. Number : 1870/VI/181	**Building :** CAPITAL WEST BUSINESS CENTRE
Street/Road : RAPTA/LANTANA	**City/Town :** NAIROBI CITY (WEST)
County : Nairobi	**District :** Westlands District
Tax Area : Westlands	**Station :** West of Nairobi
P. O. Box : 30519	**Postal Code :** 00100

Tax Obligation(s) Registration Details

Sr. No.	Tax Obligation(s)	Effective From Date	Effective Till Date	Status
1	Value Added Tax (VAT)	15/05/2015	N.A.	Active
2	Income Tax - Company	05/04/2012	N.A.	Active
3	Income Tax - PAYE	01/01/2014	N.A.	Active

The above PIN must appear on all your tax invoices and correspondences with Kenya Revenue Authority. Your accounting end month is June unless a change has been approved by the Commissioner-Domestic Taxes Department. The status of Tax Obligation(s) with 'Dormant' status will automatically change to 'Active' on date mentioned in "Effective Till Date" or any transaction done during the period. This certificate shall remain in force till further updated.

L.B.O.

KENYA REVENUE AUTHORITY

www.kra.go.ke

PIN Certificate

For General Tax Questions
Contact KRA Call Centre
Tel: +254 (020) 4999 999
Cell: +254(0711)099 999
Email: callcentre@kra.go.ke

Certificate Date : 23/02/2016

Personal Identification Number

P051542997U

This is to certify that taxpayer shown herein has been registered with Kenya Revenue Authority

Taxpayer Information

Taxpayer Name	KCB BANK KENYA LIMITED
Email Address	KCBBANKKENYAITAX@KCB.CO.KE

Registered Address

L.R. Number :	**Building :** KenCom House
Street/Road : Moi Avenue	**City/Town :** Nairobi
County : Nairobi	**District :** Starehe District
Tax Area : CBD	**Station :** LTO
P. O. Box : 48400	**Postal Code :** 00100

Tax Obligation(s) Registration Details

Sr. No.	Tax Obligation(s)	Effective From Date	Effective Till Date	Status
1	Income Tax - Company	29/05/2015	N.A.	Active
2	Income Tax - PAYE	29/05/2015	N.A.	Active
3	Value Added Tax (VAT)	29/05/2015	N.A.	Active

The above PIN must appear on all your tax invoices and correspondences with Kenya Revenue Authority. Your accounting end month is December unless a change has been approved by the Commissioner-Domestic Taxes Department. The status of Tax Obligation(s) with 'Dormant' status will automatically change to 'Active' on date mentioned in "Effective Till Date" or any transaction done during the period. This certificate shall remain in force till further updated.

Disclaimer : This is a system generated certificate and does not require signature.

KENYA REVENUE AUTHORITY

PIN Certificate

For General Tax Questions
Contact KRA Call Centre
Tel: +254 (020) 4999 999
Cell: +254(0711)099 999
Email: callcentre@kra.go.ke

www.kra.go.ke

Certificate Date : 08/10/2021

Personal Identification Number
P051515095Z

This is to certify that taxpayer shown herein has been registered with Kenya Revenue Authority

Taxpayer Information

Taxpayer Name	VISIBILITY TECHNOLOGY SERVICES LIMITED
Email Address	INFO@VISIBILITY.CO.KE

Registered Address

L.R. Number :	**Building :** Embassy House
Street/Road : Harambee Lane	**City/Town :** Nairobi
County : Nairobi	**District :** Westlands District
Tax Area : Westlands	**Station :** West of Nairobi
P. O. Box : 77928	**Postal Code :** 00622

Tax Obligation(s) Registration Details

Sr. No.	Tax Obligation(s)	Effective From Date	Effective Till Date	Status
1	Income Tax - PAYE	01/09/2020	N.A.	Active
2	Value Added Tax (VAT)	05/11/2017	N.A.	Active
3	Income Tax - Company	05/11/2014	N.A.	Active

The above PIN must appear on all your tax invoices and correspondences with Kenya Revenue Authority. Your accounting end month is July unless a change has been approved by the Commissioner-Domestic Taxes Department. The status of Tax Obligation(s) with 'Dormant' status will automatically change to 'Active' on date mentioned in "Effective Till Date" or any transaction done during the period. This certificate shall remain in force till further updated.

Disclaimer : This is a system generated certificate and does not require signature.

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KENYA REVENUE AUTHORITY

PIN Certificate

For General Tax Questions
Contact KRA Call Centre
Tel: +254 (020) 4999 999
Cell: +254(0711)099 999
Email: callcentre@kra.go.ke

www.kra.go.ke

Certificate Date : 04/03/2021

Personal Identification Number
P051965841T

This is to certify that taxpayer shown herein has been registered with Kenya Revenue Authority

Taxpayer Information

Taxpayer Name	VILCOM NETWORKS LIMITED
Email Address	vilcomnetworks2020@gmail.com

Registered Address

L.R. Number : NA	**Building** AFRAA BUILDING
Street/Road RED CROSS ROAD	**City/Town :** NA
County : Nairobi	**District** Langata District
Tax Area Langata	**Station** South of Nairobi
P. O. Box 103609	**Postal Code** 00101

Tax Obligation(s) Registration

Sr. No.	Tax Obligation(s)	Effective From Date	Effective Till	Status
1	Income Tax - PAYE	03/03/2021	N.A.	Active
2	Value Added Tax (VAT)	03/03/2021	N.A.	Active
3	Income Tax - Company	11/11/2020	N.A.	Active

The above PIN must appear on all your tax invoices and correspondences with Kenya Revenue Authority. Your accounting end month is December unless a change has been approved by the Commissioner-Domestic Taxes Department. The status of Tax Obligation(s) with 'Dormant' status will automatically change to 'Active' on date mentioned in "Effective Till Date" or any transaction done during the period. This certificate shall remain in force till further updated.

Disclaimer : This is a system generated certificate and does not require signature.

L.B.O.

BUSINESS REGISTRATION SERVICE
P. O. BOX 30031
NAIROBI
4 APR 2025

To
DORCAS AHENDA ANJICHI
P.O. Box 28637
00200 - CITY SQUARE

THE COMPANIES ACT, 2015

Records relating to the below company held by the Companies Registry as at **4 Apr 2025**

COMPANY	KCB BANK KENYA LIMITED
COMPANY NUMBER	CPR/2015/185698
NOMINAL SHARE CAPITAL	53,986,100,000.00
NUMBER AND TYPE OF SHARES (VALUE PER SHARE)	ORDINARY: 53986100000 (KES 1.00 EACH)
DATE OF REGISTRATION	20TH APR, 2015
REGISTERED OFFICE	P.O BOX 48400 G.P.O NAIROBI TELEPHONE: , EMAIL: COUNTY: , DISTRICT: , LOCALITY: STREET: MOI AVENUE, BUILDING: KENCOM HOUSE
POSTAL ADDRESS	P.O BOX 48400 G.P.O NAIROBI
ENCUMBRANCES	**DESCRIPTION** DEED OF ASSIGNMENT **DATE OF INSTRUMENT:** 9 MAY 2022 **AMOUNT SECURED:** KES 1793255885.0 **DESCRIPTION** DEED OF ASSIGNEMENT **DATE OF INSTRUMENT:** 19 DEC 2024 **AMOUNT SECURED:** KES 614495255.0

Name of Directors and Shareholders of the above company with their particular are as follows

NAME	DESCRIPTION	ADDRESS	NATIONALITY	SHARES
DALPHINE KENDI NTWIGA	DIRECTOR	P.O BOX 62600 CITY SQUARE	KENYAN	
PAUL RUSHDIE RUSSO	DIRECTOR	P.O BOX 7543 G.P.O NAIROBI	KENYAN	
THE CS, NATIONAL TREASURY	DIRECTOR	P.O BOX 14317 WESTLANDS	KENYAN	ORDINARY: 0
ANNASTACIA CHEPTOO KIMTAI	DIRECTOR	P.O BOX 773 KAREN	KENYAN	
CAROLINE AKINYI RABAR	DIRECTOR	P.O BOX 48400 G.P.O NAIROBI	KENYAN	
SIMEON KIPLAGAT RONO	DIRECTOR	P.O BOX 48400 G.P.O NAIROBI	KENYAN	
JANE NJERI NJOKI ONYANGO	DIRECTOR	P.O BOX 48400 G.P.O NAIROBI	KENYAN	
KENYA COMMERCIAL BANK		P.O BOX 48400 G.P.O		
NOMINEES LIMITED	SHAREHOLDER	NAIROBI	KENYAN	ORDINARY: 1
KCB GROUP PLC	SHAREHOLDER	P.O BOX 48400 G.P.O NAIROBI	KENYAN	ORDINARY: 53986099999
ANNE MUTHONI NYONGESA	SECRETARY	P.O BOX P.O BOX 2490 SARIT CENTRE	KENYAN	
JOSEPH WARUIRU MUIGAI	DIRECTOR	P.O BOX 48400 G.P.O NAIROBI	KENYAN	
EUNICE ATIENO NYALA	DIRECTOR	P.O BOX 48400 G.P.O NAIROBI	KENYAN	
			TOTAL	53986100000

Yours Faithfully,
REGISTRAR OF COMPANIES

REF NO: OS-52F57DLD

DISCLAIMER: THIS IS A SYSTEM GENERATED CERTIFICATE AND DOES NOT REQUIRE A SIGNATURE

L.B.O.

Copy of CR 12 – List of Share Holders

Baheti Gupta & Co.,
COMPANY SECRETARIES

DHANUSH HEALTHCARE SYSTEMS PRIVATE LIMITED

List of Share Holders as on 31/03/2024

Sl. No	Name of the share holder	Type of Shares	No. of shares held
1	Dendukuri Chandrima	Equity	12,30,000
2	Suryanarayana Murthy Dendukuri	Equity	35,40,000
3	LCGC Chrom Consumables LLP	Equity	19,06,921
4	LCGC Bioanalytic Solutions LLP	Equity	19,06,921
5	First Source Laboratory Solutions LLP	Equity	9,53,461
Total Number of Equity shares			**95,37,303**
Total Paid Up Capital(in Rupees)			**9,53,73,030**

For Baheti Gupta & Co.
Company Secretaries

C. BAHETI GUPTA & CO. HYDERABAD Company Secretary

Shailesh Baheti

(Shailesh Baheti)
(FCS No. 8159)
(CP No. 9017)

#414, 4th Floor, Raghava Ratna Towers, Chirag Ali Lane, Abids, Hyderabad-500001 (T.S.)
Mobile : 92904 45424, 90000 10183 Tel : 040-66415424, 48501152
Email : info@bahetiguptanco.com Website : www.bahetiguptanco.com

L.B.O.

BUSINESS REGISTRATION SERVICE
P. O. BOX 30031
NAIROBI
1 JUL 2025

To
SHABAN NDEGWA ZARIKA
P.O. Box 29375
00100 - G.P.O NAIROBI

THE COMPANIES ACT, 2015

Records relating to the below company held by the Companies Registry as at **1 Jul 2025**

..

COMPANY	VISIBILITY TECHNOLOGY SERVICES LIMITED		
COMPANY NUMBER	CPR/2014/166556		
NOMINAL SHARE CAPITAL	100,000.00		
NUMBER AND TYPE OF SHARES (VALUE PER SHARE)	ORDINARY: 100 (KES 1,000.00 EACH)		
DATE OF REGISTRATION	3RD NOV, 2014		
REGISTERED OFFICE	P.O BOX 77928 JUJA TELEPHONE: +254736189999, EMAIL: ABDUL@KNS.CO.KE COUNTY: , DISTRICT: , LOCALITY: STREET: MAMA NGINA, BUILDING: SALAMA HOUSE		
POSTAL ADDRESS	P.O BOX 77928 JUJA		
ENCUMBRANCES	**DESCRIPTION**	**DATE OF INSTRUMENT:**	**AMOUNT SECURED:**

Name of Directors and Shareholders of the above company with their particular are as follows

NAME	DESCRIPTION	ADDRESS	NATIONALITY	SHARES
BADILOO & ASS.	SECRETARY		N/A	ORDINARY: 0
ABDI IBRAHIM HAJI	DIRECTOR	P.O BOX 55874 G.P.O NAIROBI	KENYAN	
NOOR BASHIR HAMUD	DIRECTOR/SHAREHOLDER	P.O BOX 27476 G.P.O NAIROBI	KENYAN	ORDINARY: 15
VISIBILITY TECH HOLDING LIMITED	SHAREHOLDER	P.O BOX 25079 LAVINGTON	KENYAN	ORDINARY: 85
			TOTAL	100

Yours Faithfully,
REGISTRAR OF COMPANIES

REF NO: OS-QEFLAZV9

DISCLAIMER: THIS IS A SYSTEM GENERATED CERTIFICATE AND DOES NOT REQUIRE A SIGNATURE

L.B.O.

BUSINESS REGISTRATION SERVICE
P. O. BOX 30031
NAIROBI
3 JUL 2025

To
SOLOMON MBITHI MUTUA
P.O. Box 313
90100 - MACHAKOS

THE COMPANIES ACT, 2015

Records relating to the below company held by the Companies Registry as at **3 Jul 2025**

..

COMPANY	VILCOM NETWORKS LIMITED		
COMPANY NUMBER	PVT-AJU5DE2		
NOMINAL SHARE CAPITAL	100,000.00		
NUMBER AND TYPE OF SHARES (VALUE PER SHARE)	ORDINARY: 100 (KES 1,000.00 EACH)		
DATE OF REGISTRATION	11TH NOV, 2020		
REGISTERED OFFICE	P.O BOX 103609 JAMIA TELEPHONE: +254722205165, EMAIL: VILCOMNETWORKS2020@GMAIL.COM COUNTY: NAIROBI, DISTRICT: LANGATA DISTRICT , LOCALITY: LANGATA STREET: RED CROSS ROAD, BUILDING: AFRAA BUILDING		
POSTAL ADDRESS	P.O BOX 103609 JAMIA		
ENCUMBRANCES	**DESCRIPTION**	**DATE OF INSTRUMENT:**	**AMOUNT SECURED:**

Name of Directors and Shareholders of the above company with their particular are as follows

NAME	DESCRIPTION	ADDRESS	NATIONALITY	SHARES
DOROTHY KIPRONO	DIRECTOR	P.O BOX 56832 CITY SQUARE	KENYAN	
PAUL KIPROTICH LIMOH	DIRECTOR	P.O BOX 61872 CITY SQUARE	KENYAN	
CAROLINE JEROBON ROTICH	DIRECTOR	P.O BOX 56832 CITY SQUARE	KENYAN	
KAZINU KENYA LIMITED	SHAREHOLDER	P.O BOX 56832 CITY SQUARE	KENYAN	ORDINARY: 80
AGNES CHEBIWOTT LIMO	DIRECTOR/SHAREHOLDER	P.O BOX 38013 G.P.O NAIROBI	KENYAN	ORDINARY: 11
MILLICENT CHEPKIRUI NGETICH	SECRETARY	P.O BOX 9287 G.P.O NAIROBI	KENYAN	
PETER KIPKOECH ARTHUR	DIRECTOR/SHAREHOLDER	P.O BOX 29010 G.P.O NAIROBI	KENYAN	ORDINARY: 9
			TOTAL	100

Yours Faithfully,
REGISTRAR OF COMPANIES

REF NO: OS-P9F593ZD

DISCLAIMER: THIS IS A SYSTEM GENERATED CERTIFICATE AND DOES NOT REQUIRE A SIGNATURE

L.B.O.

LICENCE NO...CBK/BSD/01/17...

Central Bank of Kenya

THE BANKING ACT
(Cap 488)

LICENCE TO CONDUCT BANKING BUSINESS

THIS LICENCE *is granted to*.....KCB Bank Kenya Limited.....*(name of Bank)* *of*.....P. O. Box 48400 - 00100 Nairobi.....*(address) and authorizes the said bank to conduct or carry on banking business in Kenya .*

L.B.O.

This Licence is issued subject to the provisions of the Central Bank of Kenya Act, the Banking Act and Central Bank of Kenya Prudential Guidelines and to the conditions endorsed hereon.

CONDITIONS

THIS LICENCE SHALL REMAIN VALID UNLESS REVOKED

The Central Bank of Kenya may at anytime revoke, amend, suspend or restrict this licence or any term or condition imposed thereon.

Issued under the common seal of
CENTRAL BANK OF KENYA

CENTRAL BANK OF KENYA SEAL

This...7th.....day of...April.....2016

Patrick Njoroge
GOVERNOR
CENTRAL BANK OF KENYA

REPUBLIC OF KENYA

OFFICE OF THE DATA PROTECTION COMMISSIONER

Serial N0.: 05593

CERTIFICATE OF REGISTRATION

REGISTERED

This certificate is awarded to

Konza Technopolis Development Authority

Identification

387-094B-3349 as a

Data Processor

for a period of two (2) years starting from the date indicated below.

Data Commissioner

Place of Issuance: Kenya. Certif 27/05/2024 to 27/05/2026

*NOTE: This an online generated certificate

L.B.O.

REPUBLIC OF KENYA

OFFICE OF THE DATA PROTECTION COMMISSIONER

Serial N0.: 04915

CERTIFICATE OF REGISTRATION

REGISTERED

This certificate is awarded to

Konza Technopolis Development Authority

Identification

387-094B-3349 as a

Data Controller

for a period of two (2) years starting from the date indicated below.

Data Commissioner

Place of Issuance: Kenya. Certif)9/04/2024 to 09/04/2026

*NOTE: This an online generated certificate

L.B.O.

REPUBLIC OF KENYA

OFFICE OF THE DATA PROTECTION COMMISSIONER

Serial N0.: 00456/1

CERTIFICATE OF REGISTRATION

REGISTERED

This certificate is awarded to

KCB BANK KENYA LIMITED

Identification

740-1331-6988 as a

Data Processor

for a period of two (2) years starting from the date indicated below.

Data Commissioner

Place of Issuance: Kenya. Certificate Valid from 30/09/2024 to 30/09/2026

*NOTE: This an online generated certificate

L.B.O.

REPUBLIC OF KENYA

OFFICE OF THE DATA PROTECTION COMMISSIONER

Serial N0.: 00435/1

CERTIFICATE OF REGISTRATION

REGISTERED

This certificate is awarded to

KCB BANK KENYA LIMITED

Identification

740-1331-6988 as a

Data Controller

for a period of two (2) years starting from the date indicated below.

Data Commissioner

Place of Issuance: Kenya. Certificate Valid from 30/09/2024 to 30/09/2026

*NOTE: This an online generated certificate

L.B.O.

SECTION:9

TECH-8: -Self-Declaration Forms

L.B.O.

FORM TECH 8: SELF-DECLARATION FORMS

FORM SD1

SELF DECLARATION THAT THE PERSON/BIDDER IS NOT DEBARRED IN THE MATTER OF THE PUBLIC PROCUREMENT AND ASSET DISPOSAL ACT 2015.

I, Lewis Ogundo....., of Post Office Box 1 – 90150 Konza Technopolis, Kenya. being a resident of .....Kenya..... in the Republic of Kenya do hereby make a statement as follows: -

1. THAT I am the Ag, Chief Manager IT and Smart City Solutions for **Konza Technopolis Development Authority** who is a Bidder in respect of **Request for Proposal for Provision of Integrated KENYA EDUCATION MANAGEMENT INFORMATION SYSTEM (KEMIS** for Ministry of Education Kenya and duly authorized and competent to make this statement.

2. THAT the aforesaid Bidder, its Directors and subcontractors have not been debarred from participating in procurement proceeding under Part IV of the Act.

3. THAT what is deponed to here in above is true to the best of my knowledge, information and belief.

Lewis Ogundo

Ag, Chief Manager IT and Smart City Solutions		28/7/25
.....	.....	.....
(Title)	(Signature)	(Date)

Konza Technopolis Development Authority
P. O. Box 30519 - 00100, Nairobi

Bidder's Official Stamp

FORM SD2

SELF DECLARATION THAT THE PERSON/BIDDER WILL NOT ENGAGE IN ANY CORRUPT OR FRAUDULENT PRACTICE.

I **KONZA TECHNOPOLIS DEVELOPMENT AUTHORITY** of P. O. Box 1 – 90150 Konza Technopolis, Kenya.....being a resident of in the Republic of do hereby make a statement as follows: -

1. THAT I am the Ag, Chief Manager IT and Smart City Solutions, KoTDA of **KONZA TECHNOPOLIS DEVELOPMENT AUTHORITY** who is a Bidder in respect

of **Tender No. TENDER NO: MOE/SDBE/SSS/01/2024-2025 PROVISION OF INTEGRATED KENYA MANAGEMENT INFORMATION SYSTEM (KEMIS)**

for **MINISTRY OF EDUCATION STATE DEPARTMENT FOR BASIC EDUCATION of .O. BOX 300400– 00100 NAIROBI** and duly authorized and competent to make this statement.

2. THAT the aforesaid Bidder, its servants and/or agents /subcontractors will not engage in any corrupt or fraudulent practice and has not been requested to pay any inducement to any member of the Board, Management, Staff and/or employees and/ or agents of Ministry of Education which is the procuring entity.

3. THAT the aforesaid Bidder, its servants and/or agents /subcontractors have not offered any inducement to any member of the Board, Management, Staff and/or employees and/or agents of Ministry of Education.

4. THAT the aforesaid Bidder will not engage /has not engaged in any corrosive practice with other bidders participating in the subject tender.

5. THAT what is deponed to herein above is true to the best of my knowledge information and belief.

Lewis Ogundo

Ag, Chief Manager IT and Smart City Solutions 28/7/25

....

(Title) (Signature) (Date)

Konza Technopolis Development Authority
P. O. Box 30519 - 00100, Nairobi

Bidder's Official Stamp

FORM SD3 DECLARATION AND COMMITMENT TO THE CODE OF ETHICS

I LEWIS OGUNDO(person) on behalf of (Name of the Business/ Company/Firm **KONZA TECHNOPOLIS DEVELOPMENT AUTHORITY of P. O. Box 1 – 90150** declare that I have read and fully understood the contents of the Public Procurement & Asset Disposal Act,2015, Regulations and the Code of Ethics for persons participating in Public Procurement and Asset Disposal Activities in Kenya and my responsibilities under the Code.
I do here by commit to abide by the provisions of the Code of Ethics for persons participating in Public Procurement and Asset Disposal.
Name of Authorized signatory LEWIS OGUNDO.

Sign.....

Position.....Ag,,Chief manager IT and Smart City Solutions

Office address...Konza Technopolis.....Telephone +254 111 121 100 /.....

E-mail.....logundo@konza.go.ke.....

Name of the Firm/Company..... **KONZA TECHNOPOLIS DEVELOPMENT AUTHORITY**

Date.....28-07-2025.....

Konza Technopolis Development Authority
P. O. Box 30519 - 00100 Nairobi

(Company Seal/ Rubber Stamp where applicable)

Witness

Name .....John Paul Okwiri.....

Sign.....

Date..28-7-2025.....

FORM SD3

DECLARATION AND COMMITMENT TO THE CODE OF ETHICS

I, **ANNASTACIA KIMTAI** on behalf of **KCB BANK KENYA LIMITED** declare that I have read and fully understood the contents of the Public Procurement & Asset Disposal Act,2015, Regulations and the Code of Ethics for persons participating in Public Procurement and Asset Disposal Activities in Kenya and my responsibilities under the Code.

I do here by commit to abide by the provisions of the Code of Ethics for persons participating in Public Procurement and Asset Disposal.

Name of Authorized signatory:

ANNASTACIA KIMTAI (MRS.)
MANAGING DIRECTOR
KCB BANK KENYA LIMITED
TEL: +254 711 012329
E-MAIL: mdkenya@kcbgroup.com

Sign: 

Date: 29.07.2025

WITNESS:

BONNIE OKUMU
GROUP GENERAL COUNSEL
KCB BANK KENYA LIMITED

Sign: 

Date:

L.B.O.

FORM SD2

SELF DECLARATION THAT THE PERSON/BIDDER WILL NOT ENGAGE IN ANY CORRUPT OR FRAUDULENT PRACTICE.

I, **ANNASTACIA KIMTAI, OF KCB BANK KENYA LIMITED** and of P.O. Box48400-00100 NAIROBI being a resident of NAIROBI in the Republic of KENYA do hereby make a statement as follows: -

1. **THAT** I am the Managing Director of **KCB BANK KENYA LIMITED** who is a Bidder (jointly with others) in respect of **Tender No. RFP No. MOE/SDBE /SSS/01/2025 2026** for **PROVISION OF INTEGRATED KENYA EDUCATION MANAGEMENT INFORMATION SYSTEM (KEMIS)** for the MINISTRY OF EDUCATION - STATE DEPARTMENT FOR BASIC EDUCATION and duly authorized and competent to make this statement.

2. **THAT** the aforesaid Bidder, its servants and/or agents /subcontractors will not engage in any corrupt or fraudulent practice and has not been requested to pay any inducement to any member of the Board, Management, Staff and/or employees and/ or agents of the Ministry of Education which is the procuring entity.

3. **THAT** the aforesaid Bidder, its servants and/or agents /subcontractors have not offered any inducement to any member of the Board, Management, Staff and/or employees and/or agents of Ministry of Education.

4. **THAT** the aforesaid Bidder will not engage /has not engaged in any corrosive practice with other bidders participating in the subject tender.

5. **THAT** what is deponed to herein above is true to the best of my knowledge, information and belief.

ANNASTACIA KIMTAI (MRS.)
MANAGING DIRECTOR

Date:

L.B.O.

FORM SD1

SELF DECLARATION THAT THE PERSON/BIDDER IS NOT DEBARRED IN THE MATTER OF THE PUBLIC PROCUREMENT AND ASSET DISPOSAL ACT 2015.

I, **ANNASTACIA KIMTAI**, of Post Office Box **48400-00100 NAIROBI** being a resident of **NAIROBI** in the Republic of **KENYA** do hereby make a statement as follows: -

1. **THAT** I am the Managing Director of **KCB BANK KENYA LIMITED** who is a Bidder (jointly with others) in respect of Request for Proposal for Provision of Integrated **KENYA EDUCATION MANAGEMENT INFORMATION SYSTEM (KEMIS)** for the Ministry of Education Kenya and duly authorized and competent to make this statement.
2. **THAT** the aforesaid Bidder, its directors and subcontractors have not been debarred from participating in procurement proceeding under Part IV of the Act.
3. **THAT** what is deponed to here in above is true to the best of my knowledge, information and belief.



ANNASTACIA KIMTAI (MRS.)
MANAGING DIRECTOR

Date:

L.B.O.

FORM SD – 1: SELF DECLARATION THAT THE PERSON/BIDDER IS NOT DEBARRED IN THE MATTER OF THE PUBLIC PROCUREMENT AND ASSET DISPOSAL ACT 2015

I, **Karan Christie**, of Post Office Box 792-00600, Ngara Nairobi, Kenya being a resident of Jenid Court, Soit Ololol Rd Opposite Nairobi Gymkhana Club, Desai Road in the Republic of Kenya do hereby make a statement as follows:

1. THAT I am the Delivery Manager of M/s Dhanush Softech Private Limited, who is a Bidder in respect of **Request for Proposal for Provision of Integrated KENYA EDUCATION MANAGEMENT INFORMATION SYSTEM (KEMIS)** for Ministry of Education Kenya and duly authorized and competent to make this statement.
2. THAT the aforesaid Bidder, its Directors and subcontractors have not been debarred from participating in procurement proceeding under Part IV of the Act.
3. THAT what is deponed to here in above is true to the best of my knowledge, information and belief.

Name of the Bidder: Dhanush Softech Private Limited

Name of the Authorized Signatory: Karan Christie

Title: Delivery Manager

K.R. Christie

Signature:

Date: 08th July 2025

Bidder's Official Stamp

DHANUSH SOFTECH PVT. LTD. HYDERABAD

FORM SD – 2: SELF DECLARATION THAT THE PERSON/BIDDER WILL NOT ENGAGE IN ANY CORRUPT OR FRAUDULENT PRACTICE

I, **Karan Christie**, of Post Office Box 792-00600, Ngara Nairobi, Kenya being a resident of Jenid Court, Soit Ololol Rd Opposite Nairobi Gymkhana Club, Desai Road in the Republic of Kenya do hereby make a statement as follows:

1) THAT I am the Delivery Manager of M/s Dhanush Softech Private Limited, who is a Bidder in respect of **Tender No.** MOE/SDBE/SSS/01/2024-2025 for **Provision of Integrated KENYA EDUCATION MANAGEMENT INFORMATION SYSTEM (KEMIS)** for Ministry of Education Kenya and duly authorized and competent to make this statement.

2) THAT the aforesaid Bidder, its servants and/or agents /subcontractors will not engage in any corrupt or fraudulent practice and has not been requested to pay any inducement to any member of the Board, Management, Staff and/or employees and/ or agents of Ministry of Education which is the procuring entity.

3) THAT the aforesaid Bidder, its servants and/or agents /subcontractors have not offered any inducement to any member of the Board, Management, Staff and/or employees and/or agents of Ministry of Education.

4) THAT the aforesaid Bidder will not engage /has not engaged in any corrosive practice with other bidders participating in the subject tender.

5) THAT what is deponed to herein above is true to the best of my knowledge information and belief.

Name of the Bidder: Dhanush Softech Private Limited

Name of the Authorized Signatory: Karan Christie

Title: Delivery Manager

K.R. Christie

Signature:

Date: 08th July 2025

Bidder's Official Stamp

DHANUSH SOFTECH PVT. LTD. HYDERABAD

FORM SD – 3: DECLARATION AND COMMITMENT TO THE CODE OF ETHICS

I, **Karan Christie** on behalf of M/s Dhanush Softech Private Limited, declare that I have read and fully understood the contents of the Public Procurement & Asset Disposal Act,2015, Regulations and the Code of Ethics for persons participating in Public Procurement and Asset Disposal Activities in Kenya and my responsibilities under the Code.

I do here by commit to abide by the provisions of the Code of Ethics for persons participating in Public Procurement and Asset Disposal.

Name of Authorized Signatory: Karan Christie

K.R. Christie

Signature

DHANUSH SOFTECH PVT. LTD. HYDERABAD

Position: Delivery Manager

Office address: #1-8-448, Lakshmi Building, 6th Floor, Begumpet, Hyderabad.

Telephone:

E-mail: info@dhanushsoftech.com

Name of the Firm/Company: M/s Dhanush Softech Private Limited

Date: 08th July 2025

(Company Seal/ Rubber Stamp where applicable)

Witness

- **Name**
- **Sign**
- **Date**

FORM TECH 8: SELF-DECLARATION FORMS

FORM SD1

SELF DECLARATION THAT THE PERSON/BIDDER IS NOT DEBARRED IN THE MATTER OF THE PUBLIC PROCUREMENT AND ASSET DISPOSAL ACT 2015.

I, **Ali Hassan**……., of Post Office Box …**29375-00100**…….
being a resident of ……**Nairobi**……... in the Republic of **Kenya**

do
hereby make a statement as follows: -

1. THAT I am the Company Secretary/Chief Executive/Managing Director/Principal Officer/Director of
Visibility Technology Services Limited…….. (Insert name of the Company) who is a Bidder in respect of **Request for Proposal for Provision of Integrated KENYA EDUCATION MANAGEMENT INFORMATION SYSTEM (KEMIS** for Ministry of Education Kenya and duly authorized and competent to make this statement.
2. THAT the aforesaid Bidder, its Directors and subcontractors have not been debarred from participating in procurement proceeding under Part IV of the Act.
3. THAT what is deponed to here in above is true to the best of my knowledge, information and belief.

Chief Operating Officer (COO)	……	**30/07/2025**
(Title)	(Signature)	(Date)

Bidder's Official Stamp



L.B.O.

FORM SD2

SELF DECLARATION THAT THE PERSON/BIDDER WILL NOT ENGAGE IN ANY CORRUPT OR FRAUDULENT PRACTICE.

I, ... **Ali Hassan** ..... of P.O. Box..... **29375-00100** .....being a

resident of **Nairobi** in the Republic of **Kenya** do hereby make a statement as follows: -

1. THAT I am the Chief Executive/Managing Director/Principal Officer/Director of [**Visibility Technology Services Limited**] who is a Bidder in respect of **Tender No.** **MOE/SDBE/SSS/01/2024-2025** for ***[tender name] f***or [procuring entity] and duly authorized and competent to make this statement.
2. THAT the aforesaid Bidder, its servants and/or agents /subcontractors will not engage in any corrupt or fraudulent practice and has not been requested to pay any inducement to any member of the Board, Management, Staff and/or employees and/ or agents of Ministry of Education which is the procuring entity.
3. THAT the aforesaid Bidder, its servants and/or agents /subcontractors have not offered any inducement to any member of the Board, Management, Staff and/or employees and/or agents of Ministry of Education.
4. THAT the aforesaid Bidder will not engage /has not engaged in any corrosive practice with other bidders participating in the subject tender.
5. THAT what is deponed to herein above is true to the best of my knowledge information and belief.

Chief Operating Officer (COO)		**30/07/2025C**
(Title)	(Signature)	(Date)

Bidder's Official Stamp

VISIBILITY TECHNOLOGY SERVICES LIMITED
Date: 30/07/2025
INFO@visibility.co.ke
P.O. Box 29375 - 00100, NAIROBI.

L.B.O.

FORM SD3

DECLARATION AND COMMITMENT TO THE CODE OF ETHICS

I ……Ali Hassan……..……
(person) on

behalf of (Name of the Business/ Company/Firm) ……Visibility Technology Services Limited…….

declare that I have read and fully understood the contents of the Public Procurement & Asset Disposal Act,2015, Regulations and the Code of Ethics for persons participating in Public Procurement and Asset Disposal Activities in Kenya and my responsibilities under the Code.

I do here by commit to abide by the provisions of the Code of Ethics for persons participating in Public Procurement and Asset Disposal.

Name of Authorized signatory……Ali Ahmed Hassan……

Sign……

Position……Chief Operating Officer (COO)……

Office address……Laiboni Centre, 4th Floor, Lenana Road……Telephone……0112968438……

E-mail……info@visibility.co.ke……

Name of the Firm/Company
……Visibility Technology Services Limited……

Date……30/07/2025……

(Company Seal/ Rubber Stamp where applicable)

Witness

Name ……Fatma Ahmed……

Sign……

Date……30/07/2025……

VISIBILITY TECHNOLOGY SERVICES LIMITED
Date: 30/07/2025
INFO@visibility.co.ke
P.O. Box 29375 - 00100, NAIROBI.

L.B.O.

FORM TECH 8: SELF-DECLARATION FORMS

FORM SD1

SELF DECLARATION THAT THE PERSON/BIDDER IS NOT DEBARRED IN THE MATTER OF THE PUBLIC PROCUREMENT AND ASSET DISPOSAL ACT 2015.

I, ……AGNES LIMO……., of Post Office Box …24559-00502…….
being a resident of ……NAIROBI……... in the Republic of KENYA

do
hereby make a statement as follows: -

1. THAT I am the Company Secretary/Chief Executive/Managing Director/Principal Officer/Director of
VILCOM NETWORKS LIMITED…….. (Insert name of the Company) who is a Bidder in respect of **Request for Proposal for Provision of Integrated KENYA EDUCATION MANAGEMENT INFORMATION SYSTEM (KEMIS** for Ministry of Education Kenya and duly authorized and competent to make this statement.
2. THAT the aforesaid Bidder, its Directors and subcontractors have not been debarred from participating in procurement proceeding under Part IV of the Act.
3. THAT what is deponed to here in above is true to the best of my knowledge, information and belief.

CHIEF EXECUTIVE OFFICER	…….	24/07/2025
(Title)	(Signature)	(Date)

Bidder's Official Stamp

VILCOM NETWORKS LTD.
★ 24 JUL 2025 ★
P.O. Box 24559-00502
NAIROBI, KENYA

L.B.O.

FORM SD2

SELF DECLARATION THAT THE PERSON/BIDDER WILL NOT ENGAGE IN ANY CORRUPT OR FRAUDULENT PRACTICE.

I, AGNES LIMO ..... *insert bidding firm name*..... VILCOM NETWORKS LIMITED ..... of P.O. Box 24559 ..... *insert postal address*..... 00502 ..... being a

resident of NAIROBI in the Republic of KENYA do hereby make a statement as follows: -

1. THAT I am the **Chief Executive**/Managing Director/Principal Officer/Director of [VILCOM NETWORKS LIMITED] who is a Bidder in respect of **Tender No.** MOE/SDBE/SSS/01/2024-2025 for ***[tender name]*** PROVISION OF INTEGRATED KENYA MANAGEMENT INFORMATION SYSTEM (KEMIS) *f*or [procuring entity] MINISTRY OF EDUCATION (MOE) - STATE DEPARTMENT FOR BASIC EDUCATION and duly authorized and competent to make this statement.
2. THAT the aforesaid Bidder, its servants and/or agents /subcontractors will not engage in any corrupt or fraudulent practice and has not been requested to pay any inducement to any member of the Board, Management, Staff and/or employees and/ or agents of Ministry of Education which is the procuring entity.
3. THAT the aforesaid Bidder, its servants and/or agents /subcontractors have not offered any inducement to any member of the Board, Management, Staff and/or employees and/or agents of Ministry of Education.
4. THAT the aforesaid Bidder will not engage /has not engaged in any corrosive practice with other bidders participating in the subject tender.
5. THAT what is deponed to herein above is true to the best of my knowledge information and belief.

CHIEF EXECUTIVE OFFICER		24/07/2025
(Title)	(Signature)	(Date)

Bidder's Official Stamp

VILCOM NETWORKS LTD.
★ 24 JUL 2025 ★
P.O. Box 24559-00502
NAIROBI, KENYA

L.B.O.

FORM SD3

DECLARATION AND COMMITMENT TO THE CODE OF ETHICS

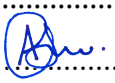
I AGNES LIMO ……..……. (person) on

behalf of (Name of the Business/ Company/Firm) VILCOM NETWORKS LIMITED …….

declare that I have read and fully understood the contents of the Public Procurement & Asset Disposal Act,2015, Regulations and the Code of Ethics for persons participating in Public Procurement and Asset Disposal Activities in Kenya and my responsibilities under the Code.

I do here by commit to abide by the provisions of the Code of Ethics for persons participating in Public Procurement and Asset Disposal.

Name of Authorized signatory.....AGNES LIMO.....

Sign……  .....

....

Position…CHIEF EXECUTIVE OFFICER.....

....

Office address…BLOCK B, RAMCO COURT, MOMBASA ROAD NAIROBI, KENYA.....Telephone…0111 028800……

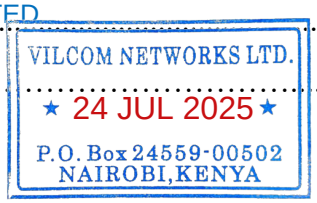
E-mail…AGNES@VILCOM.CO.KE…

Name of the Firm/Company

……VILCOM NETWORKS LIMITED.....

Date…24/07/2025……

....



(Company Seal/ Rubber Stamp where applicable)

Witness

Name …PETER KIPKOECH.....

Sign……  .....

Date…24/07/2025……

L.B.O.

SECTION:10

TECH 9: Comments/proposed amendments

L.B.O.

FORM TECH 10: BIDDER'S COMMENTS/ MARKUP TO PROPOSED FORM OF CONTRACT

L.B.O.