

Terms of Reference (TOR)

Development of Electronic Vaccine Logistics Management System

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I. GENERAL

Ministry of Health of the Republic of Uzbekistan with support of UNICEF and WHO began implementation of the project on substantial cold chain improvement – Health System Strengthening (HSS). The project not only includes construction and renovation of cold chain facilities across the country and installation of modern equipment and devices, but also establishing modern electronic data base for vaccine stock inventory at the national, regional and district levels;

Such upgrade of cold chain system requires development and introduction of a comprehensive, precise and professional quality monitoring system – Vaccine Logistics Management Information System (VMIS) to automate the overall supply chain management. The VMIS will connect all cold chain stores located at different levels in Uzbekistan (republican, regional, district and primary) into one network for constant consolidation and analysis of up-to-date information on vaccines stock, its movement and consumption, and possible re-fill.

UNICEF is committed to provide support and help Ministry of Health in establishing the new approach for management of vaccines in terms of logistics and warehouse management.

During a technical mission, the following challenges were identified that led to the development of new approach in managing the stock by using ICT system in vaccine management and cold chain monitoring:

- No stock visibility in warehouses due to manual record keeping at all levels from central, regional district to local;
- Lack of real time data visibility and data quality;
- Paper based management system and HR-dependency work approach;
- No batch management based on FEFO and batch tracing and tracking;
- Limited cold chain assets data availability and cold chain capacity linkage with inventory and its working status;
- Cold chain management issue: No visibility of storage temperatures. No real time alerting in case of emergency. Monitoring activities are carried out manually;
- No personal ID is recorded during the vaccination procedure, which leads further to inaccurate forecasting when using population samples in the process of vaccine supply planning;
- Vaccines have a short shelf life and a long pipeline;
- In the absence of real-time and accurate information, It is difficult to hold system involved people responsible for lack of performance;
- Everything is based on dependency of a certain person, which knows very well his duties, but his absence it is extremely difficult to obtain information on vaccines stock and other working status.
- Paper based recordkeeping makes any calculations difficult and as a result leads to high level of effort for reporting, which is also paper based and represents a burden on medical employees.

2. OBJECTIVES

The primary objective of the procurement is to implement an automated information system for the management of vaccines which includes but not limited to:

- Automating the logistics management information system throughout the supply chain of the vaccines and with the option of interoperability through API allow the exchange of data between Health Management Information System (HMIS), visualization software, mobile data collection platforms, and any other warehouse ERP systems
- Tracking of the procured quantities of vaccines;
- Management of the requisition and purchaser order related to the supply of vaccines in Uzbekistan with the option of requisition business process;
- Tracking the operations related to distribution and re-distribution of vaccines between warehouses and medical institutions;
- Viewing Stock on Hand for a specific item or summary of all vaccines
 - Stock management at **central (regional), regional, and district in Uzbekistan;**
 - Data collecting (reporting) and transferring/consolidating from the regional to central level;
 - Real-time monitoring for the to the verification of availability of vaccines;

The proposed VMIS solution aims to cover the urgent and stringent needs and to reach the strategic objectives of a much broader approach as well:

- To improve the forecasting – the processes of estimating the right vaccines, in the right quantities for a specific procurement period, in a timely and accurate manner;
- To make rational decisions in response to service delivery, budgetary, service providers' competency, institutional capacities, and other attributes;
- To ensure uninterrupted availability of appropriate vaccines at all levels with the option of notification of low stock;
- To decrease stock outs and over stocking, and hence minimize wastage;
- To improve cost-effectiveness.

3. EXPECTED RESULTS

The following results are expected as a result of implementation of VMIS:

- An innovative online vaccine stock management systems made of a modern ICT platform developed and operationalized for further administration by the Ministry of Health of Uzbekistan, and used for further effective organization of the procurement process, ensuring access to real-time information about the vaccines stocks at all levels (regions, districts and local) in Uzbekistan;
- medical institutions and vaccines warehouses covered by the Electronic Stock Management Platform;
- Traceability of vaccines fully ensured at all levels: central, regional, district and local;
- MoH will receive an advanced ICT tool that will facilitate the quantification process by providing all necessary analytics and statistics in order to calculate the demand for vaccines based on real and rapid data;
- The Supply Planning of needed vaccines carried out in a more accurate manner, based on up to date information;
- An advanced Intelligent Reporting Tool with alerting features, that would facilitate the decision-making process in order to act quickly in critical cases (e.g. redistribution of vaccines to a medical institution where the shelf-life of certain vaccines expires or the stock is about to be exhausted).
- The implementation of the Project will lead directly to the improvement and increasing transparency of processes related to the management of vaccines in Uzbekistan.

As part of its support, UNICEF is launching procurement processes for the core component.

Namely, the Vaccine Logistic Management Information Systems (VLMIS) that as a final target needs to be established at all levels in Uzbekistan, meaning central, regional, districts and facility levels. Therefore, VMIS will rely on strategic use of technology and strengthening existing mechanisms concerning the storage, transport and availability of vaccines at different levels.

The essential elements of the project are divided into three main phases:

1. Development/Customization of the VMIS and implementation at the central and regional levels;
2. Expansion of the system at the level of districts;
3. Implementation of the VMIS at the level of the facilities;

4. TERMS AND ACRONYMS

No.	Abbreviation /Acronym	Description
1	AIS	Automated Information System
2	BPM	Business-Process Management
3	COTS	Commercial Off-The-Shelf
4	DBMS	Database Management System
5	GB	Gigabyte
6	HTTPS	Secured Hypertext Transfer Protocol
7	ISO	International Standards Organization
8	KB	Kilobyte
9	LAN	Local area network
10	VMIS	Vaccine Management Information System
11	MB	Megabyte
12	ODBC	Open Database Connectivity
13	OLE	Object Linking and Embedding
14	OS	Operating System
15	PC	Personal Computer
16	RAM	Random access memory
17	RepCSSES	Republican Center for State Sanitary-Epidemiological Surveillance
18	RegCSSES	Regional Center for State Sanitary-Epidemiological Surveillance
19	DCSSES	District Center for State Sanitary-Epidemiological Surveillance
20	RPO	Recovery Point Objective
21	RTO	Recovery Time Objective
22	SOAP	Simple Object Access Protocol
23	SQL	Structured Query Language
24	UML	Unified Modeling Language
25	UzMedInfo	Center for e-Health Development of Uzbekistan
26	WSDL	Web Services Description Language

5. SCOPE OF SERVICES

5.1. OVERALL REQUIREMENTS

Implementation Approach

As mentioned in the introductory part of the document, the project is planned to be delivered according to three main stages:

1. Development/Customization of the VMIS and implementation at the central and regional levels;
 - Number of Central storages – 1 ;
 - Number of Regional level storages – 14;
2. Expansion of the system at the level of districts;
 - Number of districts level – 209;
3. Implementation of the VMIS at the level of the facilities;
 - Level of facilities will be determined during the third stage of the project.

First Stage consists of the following major tasks:

- Analysis and Design activities in order to produce and deliver the technical documentation for VMIS;
- Development/Customization, supply and installation of VMIS (full solution for all levels: applications, database and related software licenses, if any);
- Configuration of the VMIS applications and database for the central and regional levels in Uzbekistan;
- Piloting of the customized system in one of the Uzbekistan's regions (ru: *Область*)
- Development of a training module on VMIS operationalization including training materials and Standard Operation Procedures (SOPs);
- Provide training of trainers (ToT) and trainings for the involved users at central and regional levels;
- Providing operational support services relating to operation, installation, field management, maintenance, through call-center/helpdesk arrangements for the VMIS.

Second Stage consists of the following major tasks:

- Configuration of VMIS application and database at the level of districts in Uzbekistan;
- Training of users at the level of districts on VLMIS usage.
- Expand the support services relating to operation, installation, field management, maintenance through call-center/helpdesk arrangements for the VMIS to the level of districts.

Third Stage consists of the following major tasks:

- Configuration of VMIS application and database at the level of the facilities in Uzbekistan;
- Training of users at the local level on VMIS usage;
- Expand the support services relating to operation, installation, field management, maintenance, through call-center/helpdesk arrangements for the VMIS to the local level.

5.2. TECHNICAL REQUIREMENTS

The functional and non-functional technical requirements are listed in ANNEX 1.

The option for future scope could cover the use of other capabilities, possible enhancement of functionalities, and growth in number of users.

6. CONTRACT TASKS AND DELIVERABLES

The following Tasks and Deliverables are planned for the FIRST STAGE of the VMIS project “Development/Customization of the VMIS and implementation at the Central and Regional levels”:

PHASE I/MILESTONE 1: Design of the System

The **first phase** shall include the following tasks:

- **Task 1.1:** Hold workshops with the stakeholders (Ministry of Health, Regional Health Departments, Medical Institutions, Warehouses, etc.) and prepare a detailed Software Requirements Specification (SRS) and Software Design Specification (SDS);
- **Task 1.2:** Prepare and get approved the detailed requirements specification for the servers and other hardware infrastructure;
- **Task 1.3:** Defining data sets from other MoH IT Systems (e.g. Accounting System, etc.) needed for the implementation of electronic data exchange;
- **Task 1.4:** Preparation of the detailed plan for software development and implementation of the System;
- **Task 1.5:** Preparation of the final set of priority functional requirements that will be developed and configured for the pilot use of the System.

PHASE II/MILESTONE 2: Development of the Pilot version

- **Task 2.1:** Establishment of the configuration/development and test environments either on the MoH’s, UzMedInfo or any cloud infrastructure approved by MOH and UNICEF.
- **Task 2.2:** Development/Configuration of the System’s priority functionalities according to the prepared detailed requirements specification.
- **Task 2.3:** Configuring the priority functionalities and workflows in the System
- **Task 2.4:** Integration with other MoH IT Systems where need, according to the specification and identified data sets.
- **Task 2.5:** Integration with the official website of MoH and ensure public access to the availability of vaccines in medical institutions and the immunization calendar
- **Task 2.6:** Development of the training material and other documentation
- **Task 2.7:** Training of users that will be involved in the piloting phase.
- **Task 2.8:** Launch the system in the pilot mode for the determined priority regions.
- **Task 2.9:** Provide access to any ticketing/helpdesk system to receive feedback and reporting from the users

PHASE III/MILESTONE 3: Development of the Pilot version

- **Task 3.1:** Monitoring of the piloting phase
- **Task 3.2:** Preparation and submission of the Report on pilot period
- **Task 3.3:** Resolve any identified issue/bug in the system

PHASE IV/MILESTONE 4: Final Development and Users’ training

- **Task 4.1:** Analyze the results of the piloting period and apply corrective changes were needed.
- **Task 4.2:** Implementation of all, functionalities established during the preparation of the detailed design of the System.
- **Task 4.3:** Implementation of the reporting module agreed with the MoH of Uzbekistan
- **Task 4.4:** Final Training on using the System for Vaccines Logistics and Warehouse Management functionalities according to the train-the-trainer approach (all users of the System, including Systems Administrators);

PHASE V/MILESTONE 5: Quality Assurance

- **Task 5.1:** Preparation of the Test Scenarios and detailed Testing Plan with clear KPI approved by MOH
- **Task 5.2:** Performance testing (Load and Stress testing) as per the ICT standard, iterative (including corrective activities)
- **Task 5.3:** Security Testing including the data protection, iterative (including corrective activities)
- **Task 5.4:** Deployment and acceptance of the new System in the “production” environment of MOH or other cloud infrastructure according to the project plan

PHASE VI/MILESTONE 6: Support and Maintenance

- **Task 6.1:** Technical support to correct any shortcomings related to the System functionalities or the System software configuration for a period of 24 months after the acceptance of the final version (warranty period hereinafter).
- **Task 6.2:** Troubleshooting of problems related to the development/configuration of the System functionalities not identified during testing and acceptance phases in a warranty period
- **Task 6.3:** Additional knowledge transfer if it is deemed necessary by the MoH staff and staff in the regions in the warranty period.
- **Task 6.4:** Post-implementation support according to the requirements and the SLA
- **Task 6.5:** Provide any available updates and upgrades to the installed IT solution, including DBMS, other third-party software
- **Task 6.6:** Implementation of the minor additional functionalities that will be identified by the MoH during the post-implementation phase and modifications in the existing workflows.

Milestones and Deliverables Inventory Table

Identifier	Description
Milestone 1	Design of the System
DRQ001	<p>Deliverable 1.1: Detailed Software Requirements Specifications and System Design Specification (SRS+SDS) of the VMIS including the analysis and design documentation and requirements specification (business-process flowcharts related to the management of vaccines, data flow diagrams, etc.) in a form needed either for an offered COTS configuration/upgrade or for a complete development of the VMIS. Also the Detailed Design documents must include the following:</p> <p>The System Architecture describing the models in UML language to include at least the following (with sufficient level of detail):</p> <ul style="list-style-type: none"> ○ Analysis Model, including: <ul style="list-style-type: none"> ▪ Requirements model and/or Use Cases model;

Identifier	Description
	<ul style="list-style-type: none"> ▪ Domain Model, fully specifying the Entities and the relations between them; ○ Component Model, including narrative description of all components, the links between them and integration interfaces with other systems/external components; ○ Logical Model; ○ Deployment Model, including UML diagrams and narrative description of all nodes and the links between them. This model will also contain the precise specifications of equipment and operation environments for the operation of the System at normal parameters, as well as specifications for a minimal configuration; ○ Dynamic Model, including diagrams and narrative description of the states and transitions of the key entities;
DRQ002	Deliverable 1.2: Specification of the data exchange automation interfaces (APIs) with other external information systems, if any.
DRQ003	Deliverable 1.3: Detailed specifications of the required virtual servers and other needed hardware infrastructure.
DRQ004	Deliverable 1.4: Provide technical specifications for the end-user's hardware (e.g. Laptops, PCs, printers, etc.) for the implementation of the proposed solution.
DRQ005	Deliverable 1.5: Detailed implementation plan of the VMIS.
DRQ006	Deliverable 1.6: Project Management Monthly Status Reports.
Milestone 2	System development/configuration of the Pilot version
DRQ007	Established development and test environments on either MOH's or other cloud infrastructure.
DRQ008	Developed and configured VMIS priority functionalities (Pilot version) according to the prepared detailed requirements specification.
DRQ009	Pilot version integrated with the identified relevant external information systems according to the detailed software requirements specifications
DRQ010	Initial versions of Training materials: Training curricula;
DRQ011	Initial version of the User's and Administrator's Manuals.
Milestone 3	Piloting phase
DRQ012	Report on Piloting Period, which includes discovered bugs, concerns, proposals on how to fix them and conclusions.
Milestone 4	Final Development/Adjustments and Users' Training
DRQ013	Report on corrective changes of the software as a result of piloting

Identifier	Description
DRQ014	Report on implemented functionalities (all functionalities according to SRS document), including compiled and documented source-code.
DRQ015	System Reporting requirements and implemented reports
DRQ016	Final Training curricula, Training presentations;
DRQ017	Final versions of User's Manual and Administrator's manual,
Milestone 5	Quality Assurance (Testing)
DRQ018	Testing scenarios;
DRQ019	Reports on performed testing (functional testing, performance (Load and Stress) testing and Security Testing).
Milestone 5	Support and Maintenance
DRQ020	Report on provided support and maintenance services during an agreed period of time.

7. CONTRACT SERVICE LEVEL AGREEMENT (SLA)

The following five (5) categories of SLAs must be measured in an auditable fashion by the Contractor, and compliance levels must be reported to the Beneficiary on a periodic basis (defined above):

- **Uptime SLAs:** The Contractor will take all reasonable measures to ensure system and application availability for all users. System “uptime” is a metric measured by subtracting scheduled maintenance window time from the number of hours in the current month. The “uptime” is then calculated as the percentage of hours in the given month for which the system is fully available (users can carry out all work in the application as defined in application requirements without any degradation in service). The target required uptime for VMIS is 99.9%.
- **Response Time SLAs:** The Contractor will be responsible for ensuring application page load time/system response times meet acceptable industry standards for usable, responsive web applications. Given the distributed nature of the VMIS and multiple integration points with external systems, page load times will by necessity depend on the responsiveness of the external applications. During the implementation, the Contractor will collect metrics on the response times from external systems and response times of pages depending on those external services. Based on this data, the Contractor and Beneficiary will develop a set of agreed-upon acceptable response times, given different scenarios of user connectivity, to support a reasonable user experience.
- **System Monitoring SLAs:** The Contractor will be responsible establishing procedures for monitoring system resources, such as server CPU utilization, memory utilization, disk space and any other metrics needed to ensure *System* uptime, and fast response times to service interruptions. These measurements should also provide adequate notice that system hardware resources are approaching exhaustion, so that mitigating steps may be taken.

Contractor must notify Beneficiary that any thresholds crossed by system utilization will require system configuration and hardware changes with a three (3) month notice.

Contractor must notify Beneficiary that metrics have exceeded set limits (proposed by the Contractor and agreed to by Beneficiary) that will affect application accessibility, behavior and stability within one (1) hour of such thresholds being breached.

Contractor must notify Beneficiary within thirty (30) minutes of monitoring services indicating that the application is unreachable.

- **System Enhancement Estimate SLAs:** If within the period of performance, Beneficiary and system stakeholders identify new required functionality not originally specified in the technical requirements, the Contractor will work with Beneficiary to define functional requirements for any new features. Once a functional specification for new functionality has been developed and agreed upon, the Contractor must deliver an estimate for developing and delivering the *System* additions within one (1) week.
- **Customer Support SLAs**

Table 2.2 Proposed Classification of support services requests

Severity Level	Description	Response time	Resolution Time
Severity One (Critical)	A severity one (1) issue is a catastrophic production problem which may severely impact the Solution Availability, In such case, part or all Solution components are down or not functioning; loss of production data and no procedural work around exists. Examples of Severity one cases: DB becoming corrupted or inaccessible.	2 hours	1 business days (any required outage to resolve will count against system availability metrics)
Severity Two (High)	A severity two (2) issue is a problem where the Solution is functioning but in a severely reduced capacity. The situation is causing significant impact to portions of business operations and productivity of Solution. The system is exposed to potential loss or interruption of service. Example of Severity two cases: one node of cluster becomes down or unavailable, inability to update DB by entities representatives or solution administrators, or inability to synchronize data between DB nodes.	2 hours	2 business days (any required outage to resolve will count against system availability metrics)
Severity Three (Ordinary)	A severity three (3) issue is a medium-to-low impact problem which involves partial non-critical functionality loss one which impairs some operations but allows the Solution users/administrators to continue to function. This may be a minor issue with limited loss or no loss of functionality or impact to the Beneficiary's operation and issues in which there is an easy circumvention or avoidance by the end user.	1 business day	3 business days (any required outage to resolve will count against system availability metrics)
Severity Four (Low)	Important problem but it can wait, no loss of functionality or impact to the Beneficiary's operation, and issues in which there is an easy circumvention or avoidance by the end user.	1 business day	5 business days (any required outage to resolve will count against system availability metrics)

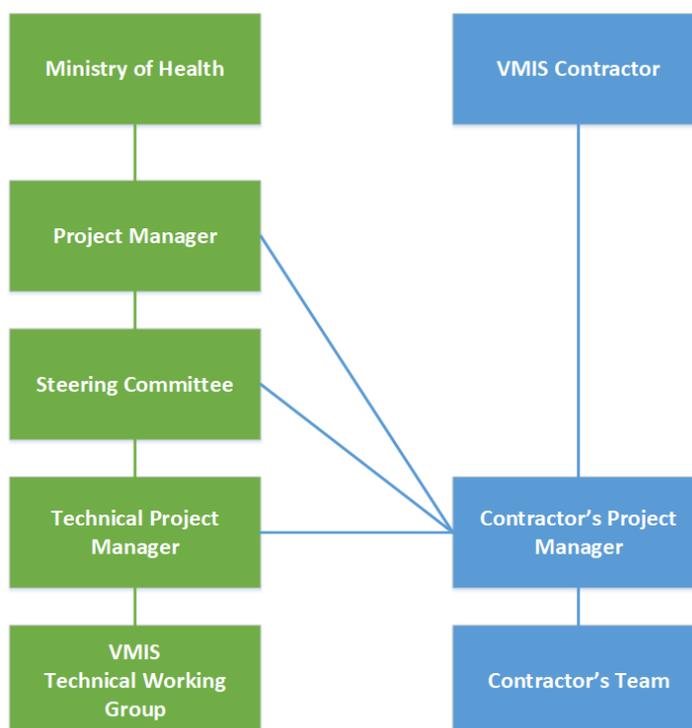
The Contractor will provide to the Beneficiary all monitoring reports, system uptime reports, system response time reports, and customer service and issue tracking reports on a monthly basis.

Beneficiary and the Contractor will meet quarterly to review the Beneficiary levels identified in the following chapter, and revise them as necessary to meet evolving system requirements.

Please also see Annex. 2 Service Level Agreement.

8. PROJECT RESPONSIBILITIES (Proposed)

In order to ensure a successful implementation of the VMIS, a project governance team with clear roles and responsibilities has to be in place.



Service oversight will be required to ensure that the organizations responsible for delivering the service are provided with the appropriate direction from the service recipients. The diagram above depicts the recommended governance structure for the project.

Each of the groups shown in the organizational chart is described below.

Ministry of Health of the Republic of Uzbekistan

Provides overall coordination of the project, takes main decisions and is responsible for the implementation of the project. The MoH has accountability for achieving the project's objectives against the resources allocated.

Project Manager

UNICEF will appoint a Project Manager to coordinate all activities in the Project and support Contractor's Project Manager, technical project manager to plan and implement each VMIS phases and provide overall management and oversight of the project. The Project Manager will ensure that project phases/sub-phases receive all of the necessary logistical support to ensure timely implementation.

The Project Manager will approve the payment for the deliverables according to the deliverables defined in the contract.

Project Steering Committee

The Project Steering Committee will guide the execution of the VMIS Project and support the Project Manager. The Steering Committee will serve as a decision making body to ensure that any decisions made respect the goals of the project. The member of the Steering Committee are the relevant representatives of all Project stakeholders. They must ensure the stakeholders are informed and committed as the project progresses. The committee also needs to proactively monitor, mentor, challenge and support the project coordinator, project technical coordinator, project manager and project team on the project's progress: asking the right questions, offering alternatives and making timely decisions. The members of the committee will have decision making power in the organization that they represent. The Project Steering Committee will have regular meetings each month.

Technical Project Manager

The Technical Project Manager will be appointed by the Ministry of Health of the Republic of Uzbekistan. Technical Project Manager will act as the agent of the Steering Committee on a day-to-day basis and informs the Steering Committee about the progress of the project implementation. He/she is responsible for empowering the Contractor's project manager to discharge the manager's responsibilities. The Technical Project Manager provides the Contractor's Project Manager with the specialist resources and skills necessary to develop and/or deliver the VMIS deliverables to an agreed scope, quality and aligned with the Uzbekistan's e-Health policies and regulations. The Technical Project Manager will be a member of the Steering Committee.

The Technical Project Manager will accept each deliverable before the deliverable could be paid by the Project Manager. Also, will act as main contacting person and manager of all involved parties on behalf of MoH and Project Manager.

The Project Technical Manager will manage the project outputs after project closure, including the change management processes for effective implementation and sustainability:

- contributing to the project to ensure deliverables are developed satisfactorily and sustainably to meet business and operational needs (this involvement is ongoing from the VMIS detailed design phase through to approving the deliverables together with the Contractor's Project Manager);
- ensuring that the project deliverables are aligned with the MoH and UzMedInfo framework and other interconnected projects;
- ensuring the project is planned with the end in mind (to meet the desired outcomes) with an adequate change management and capacity building to ensure the sustainability after the project closure;
- ensuring each output is delivered fit-for-purpose and managing project outputs for their operational use;
- participating in negotiating contractual arrangements related to the IT issues with the VMIS Contractor;
- ensuring that resources for the ongoing maintenance and support after the project closure are timely communicated to the Steering Committee; and
- being accountable to the Steering Committee for the measuring and reporting project outcomes.

Technical Working Group

The Technical Working Group will be comprised of IT and domain representatives from each involved stakeholders (MoH, Centers for State Sanitary-Epidemiological Surveillance, UNICEF, etc), who are knowledgeable on the business processes within their organization/department. The Technical Working Group members must have a thorough understanding of the processes for vaccines management (supply planning, procurement, shipping, inventory, etc), functions, and organization structure within their department. They must have decision making authority with regards to how the VMIS should function as well as any potential change to their organization. Their responsibilities will be to:

- Provide technical and business oversight and guidance;
- Assist in resolving business risks and issues;
- Review and provide feedback on business process;
- Provide all the necessary inputs to the vendor necessary for implementing the VMIS.

Contractor's Project Manager

The Contractor's Project Manager will be responsible for overall management of implementation of VMIS software solution according to the current document on behalf of the Contractor, acting as contact person on behalf of the Contractor. Contractor's Project Manager will work with the Technical Project Manager and will report both to the Steering Committee and Project coordinator.

9. FORMAT OF THE TECHNICAL PROPOSAL

The Tenderer must provide detailed descriptions of the essential technical, performance, or other relevant characteristics of all key Information Technologies, Materials, other Goods, and Services offered in the Proposal (e.g., version, release, and model numbers). Without providing sufficient clear detail, Proposal Contractors run the risk of their Proposals being declared non-responsive.

To assist in the Proposal evaluation, the detailed descriptions should be organized and cross referenced in the same manner as the Proposal Contractor's item-by-item commentary on the Technical Requirements described below. All information provided by cross reference must, at a minimum, include clear titles and page numbers.

9.1. ITEM-BY-ITEM DESCRIPTION ON THE TECHNICAL REQUIREMENTS

The Tenderer must provide an item-by-item description on the requirements described in this ToR/RfP, demonstrating the substantial responsiveness of the overall design of the System and the individual Information Technologies, Goods, and Services offered to those Requirements.

In demonstrating the responsiveness of its Proposal, the Tenderer is strongly urged to use the Technical Responsiveness Checklist. Failure to do so, increases significantly the risk that the Proposal Contractor's Technical Proposal will be declared technically non-responsive. Among other things, the checklist should contain explicit cross references to the relevant pages in the Proposal Contractor's Technical Proposal.

9.2. PRELIMINARY PROJECT PLAN

The Tenderer must prepare a Preliminary Project Plan describing, among other things, the methods and human and material resources that the Tenderer proposes to employ in the design, management, coordination, and execution of all its responsibilities, if awarded the Contract, as well as the estimated duration and completion date for each major activity. The Preliminary Project Plan should also state the Proposal Contractor's assessment of the major responsibilities of the Beneficiary and any other involved third parties in System supply and installation, as well as the Proposal Contractor's proposed means for coordinating activities by each of the involved parties to avoid delays or interference.

In addition to the topics and points of emphasis, the Preliminary Project Plan MUST address the Implementation Schedule.

9.3. PROJECT MANAGEMENT METHODOLOGY

Project Management activities must be conducted in accordance with internationally recognized methodology by specific Project Management professional bodies.

In the technical proposal the Tenderer shall submit detailed description of Project Management methodology that will be used in the project and will describe how the proposed experts will be involved.

- In the technical proposal, the Tenderer shall submit the detailed plan for provision of services for the entire term of the contract. The service provision plan should contain all requested services, by stages.
- In the technical proposal, the Tenderer shall describe how the progress in project activities will be reported. The Tenderer shall describe in detail the reporting procedure in terms of reporting periods, forms used, the information to be contained in reports, and the progress report approval circuit.
- The Tenderer shall describe in the project how communication between project participants will be ensured.
- The Tenderer will describe in the technical proposal how problems that may arise during the project will be solved. The procedures and forms to be used for management of problems, their escalation and resolution will be presented.
- The Tenderer will present in the technical proposal the plan of acceptance to be used in the project for partial receptions / acceptances and the final reception/acceptance. The plan divided by staged and the forms for partial and final reception/acceptance shall be submitted.
- The Tenderer will describe in the technical proposal how changes during project implementation will be treated (within the Terms of Reference). The procedure related to change management and the forms to be used in this process will be described.
- The Tenderer has to size the project management team so that, for the entire duration of the contract, the people responsible for carrying out this activity are available on-site to ensure the best implementation of the project.
- Given the complexity and duration of the project, Tenderers should consider the need for provision of adequate number of man-days for Project Management activities by allocating key and non-key experts. The key experts for these activities are Project Managers.
- The Proposal must include an initial project plan, with as many details as possible, to meet the requirements of staging and the project deadline.
- The implementation of the entire System should cover the following steps:
 - Analysis
 - Design
 - Development /configuration, including internal testing
 - Implementation
 - Acceptance Tests
 - Training of users
 - Production entering
 - Maintenance and support

Technical assistance and support during the initial plan required to be submitted with the Proposal must cover all the steps mentioned above.

9.4. ANALYSIS AND DESIGN

- The Tenderers should describe in detail the methodology by which analysis and design activities will be conducted.
- The Tenderers must submit along with the Proposal the procedures and work instructions for analysis and design implemented within their organizations. The Tenderers must describe the tools that they use so that to ensure:

- collection and record of requirements
 - full coverage of the project theme
 - requirement changes tracking
 - traceability of requirements from project objectives to technical specifications
 - modeling of processes and activities in accordance with recognized modeling and representation standards (UML or equivalent)
 - The Tenderers should specify the details of standards for digital health solutions and the APIs for interoperability with other health systems as per the WHO guidelines and strategy for digital health solutions.
- The Tenderers must submit detailed deliverables that will result from appropriate service delivery at the stages of development and design. The description should include at least the following information:
 - form/forms to be used for each deliverable
 - description of the contents of each deliverable
 - how the content of deliverables will be interpreted

9.5. DEVELOPMENT / CONFIGURATION AND INTERNAL TESTING

- The Tenderer should describe in detail the methodology by which they will conduct development/configuration and internal testing activities and demonstrate the integration of these procedures for analysis and design procedures. Agile development approach will be preferred.
- The Tenderer s must submit with the Proposal the procedures and work instructions for development/configuration and internal testing implemented within their organization
- The Tenderer s must submit detailed deliverables that will result from appropriate service delivery at stages of development / configuration and internal testing.

9.6. IMPLEMENTATION

- The Tenderer should describe in detail the methodology by which they will conduct implementation activities.
- The Tenderer must submit with the Proposal the procedures and the instructions for implementation within their organization and will demonstrate the integration of these procedures with procedures related to development/configuration and internal testing.
- The Tenderer must submit detailed deliverables that will result from the provision of appropriate services in the implementation phase. The description should include at least the following information:
 - form/forms to be used for each deliverable description, description of the contents of each deliverable, description of how the content of deliverables will be interpreted
 - The Tenderer s shall describe the procedure of user training. The procedure should include at least the following information:
 - description of courses and expected results
 - course assessment method
 - trainee assessment method

- forms to be used

9.7. ACCEPTANCE TESTS

The Tenderers will present in detail the methodology and procedures by which specific acceptance testing activities will be conducted. The methodology will be adapted to the project.

The Tenderers shall demonstrate that the proposed methodology and procedures they will use fully cover the topic of the project so that it is possible to test all the functionalities identified in the analysis and design phase.

9.8. TRAINING OF USERS

Below are listed the requirements regarding the training of users:

Identifier	Type	Description
TRN001	M	<p>The Contractor will prepare the detailed training program, including the training materials for training of the target groups.</p> <p>The program and training materials shall be approved by the MOH and UNICEF before commencement of the training. Training materials used during training sessions shall be prepared in Uzbek and Russian languages, printed and filed.</p> <p>In addition, one set of the documents should be presented on CD/flashdisk.</p>
TRN002	M	<p>The Contractor shall prepare, print and deliver training materials in form of manuals for each target group, persons attended on the training. Format and number of the copies shall be coordinated with the UNICEF.</p>
TRN003	M	<p>The curriculum for IT Technical Staff group will contain the entire set of components and controls used for the configuration of the System, The final test/knowledge check shall be conducted after the trainees will implement an individual task of configuration of the VMIS to be ready for the new admission session (simple but covering main components and functions).</p>
TRN004	M	<p>The Contractor will conduct the training for the following target groups:</p> <ul style="list-style-type: none"> - IT Technical Staff group at least for 2 Administrators; - Up to 15 users at the central level; - 14 users, one per each region, designated by the Beneficiary or UNICEF, which will further train other users at the level of warehouses in the regions (oblast); - 209 users, one per each district (rayon), designated by the Beneficiary or UNICEF, which will further train other users at the level of warehouses in the districts; <p>The Contractors official certification is mandatory for those users who proved satisfactory achievement of the necessary level of the knowledge and skills.</p>

Identifier	Type	Description
		Detailed description about training methodology and provided outputs shall be provided by Contractor's Proposal as part of their offers. The Beneficiary has the right to make changes in the Training Program and request repetition of the courses in case of unsatisfactory performance without any change of the Contract price.
TRN005	M	The curriculum for IT Technical Staff Group shall contain description of administration tools provided by the VMIS.
TRN006	M	The Contractor will provide hands-on training to the users appointed by the Beneficiary, considered as target group, aimed to deliver skills in future maintenance of the provided solution. Along with it a curriculum for formal training will be developed, including relevant System maintenance questions, and help desk maintenance aspects.
TRN007	M	The training curriculum for VMIS front-end users – shall contain but not limited to a detailed explanation of the use of the VMIS; detailed responsibilities of each user role, system's functionalities, reporting and other appropriate information. The training will also contain a practical user guide for easier understanding of training materials. The Contractor shall examine and provide relevant proof about results for the users to be able to work with the <i>System</i> .
TRN008	M	Training for all groups must be conducted in Russian or Uzbek.
TRN009	M	Training materials shall be in Russian and/or Uzbek language.

9.9. PRODUCTION ENTRY

The Tenderers must submit the plan to be used upon System's transition from development to production version . The submitted plan must take into account the logical links between subsystems so as to ensure a coherent production entry.

10. SUPPORT SERVICES

The support services in the warranty and post-implementation period will be provided by the Contractor and included in the proposal, regardless of causes that led to the occurrence of the incident (e.g. errors in application, problems at level of third-party software). For this purpose, depending on the specificity of each incident case, the Contractor shall include but not limit to the following activities:

- A. Reception and recording all information and complaints about the incident produced and the context from the Beneficiary through online platform/ticketing system;
- B. Localization/replication of the incident and identification of immediate activities which must be carried out to reduce the impact of the problem or incident;
- C. Identification of the causes of the incident and establishment of the actions needed to be carried out to remove the incident;
- D. Guidance of the Beneficiary in view of performing actions for the reduction of the impact of the incident and its resolution in the time limit established;
- E. Presentation of detailed information to the designated product owner/project Manager of the *System* regarding the causes of the incident, reasoning of actions carried out and planned actions to prevent the repetition of similar incidents.
- F. Examination of the need for registration of a new problem in relation to the *System*. In case of the problem registration, the selected Tenderer will manage it according to the requirements for the support services for problem resolution.

The maintenance services to be provided by the Contractor for maintaining the normal operation of the System. For this purpose, the Contractor shall provide updates and changes in the System without additional costs during the post-implementation period. The owner of the System may request 3-5 days of the training for staff to be updated about changes introduced in the update of the System without additional costs.

The Level (performance criteria's) of provision of support services is determined by parameters these services must be provided by the Contractor. The Tenderer shall describe in his offer the methodology how needed/requested support services will be provided (location of the certified support center, mobile support center, etc.).

The parameters which characterize the level of support services are:

- **Response Time (TR)** – is the time in which the selected Tenderer will react to a support request, will diagnose the situation and will establish the actions that must be carried out for resolution.
- **Resolution Time (TS)** – is the objective time in which it is expected that the selected Tenderer will carry out the actions in his area of responsibility for the complete resolution of the Beneficiary's request.

The classification of severity of incidents is identified in the following table.

Table 2.1 Classification of incidents

Classification	Impact on the quality parameters for the operation of applications
Critical	The application is unavailable for all or the majority of business users. The important transactions need to be made as soon as possible (in hours).
High	The application is unavailable for good part of users. Important transactions and operations need to be made until the beginning of the next day.
Ordinary	The application is unavailable for part of users. There are transactions and operations that need to be made in the next three days.
Low	The application is unavailable for a limited number of users. There are no transactions and operations to be made in the next three days.

The Contractor shall be able to provide support services in the working days in accordance with the legislation of the Uzbekistan, between 09:00 – 17:00. It is expected that the support and maintenance services from the Contractor shall not require more than twenty (20) hours/week.

II. Warranty and System Maintenance

The Tenderer has to describe in the technical proposal the activities which will be carried out by him in order to meet these requirements. The Tenderer has to present the way in which he intends to provide the services required at the required level and his technical, organizational capacities and competences which confirm his capacity to provide services at the required level.

As part of the initial agreement for the delivery and implementation of VMIS, the Contractor will provide a post-implementation Warranty, which implies the provision of support services and maintenance services for the VMIS provided, for a period of 24 months from the date of final acceptance of the System.

The support services and post-implementation maintenance during the Warranty Period shall be provided by the Contractor and shall assure the removal of incidents and problems, which occurred in the use of the System, which will be addressed and solved in due course, with minimum impact on the activity of the users.

The price for the warranty services included in the initial agreement shall include all the support and post-implementation maintenance services.

After the expiry of the warranty period, the owner of the System may request the extension of services provision based on the cost specified in the Price Schedules. The Contractor shall accept the subsequent provision of services for the period required by the owner of the System.

12. FORMAT OF THE TECHNICAL PROPOSAL

Note to Tenderers: The following Checklist is provided to help the Tenderer organize and consistently present its Technical Proposal. For each of the following Technical Requirements, the Tenderer must describe how its Technical Proposal responds to each Requirement. In addition, the Tenderer must provide cross references to the relevant supporting information, if any, included in the Proposal. The cross reference should identify the relevant document(s), page number(s), and paragraph(s). The Technical Responsiveness Checklist does not supersede the rest of the Technical Requirements (or any other part of the Proposal Documents). If a requirement is not mentioned in the Checklist, that does not relieve the Tenderer from the responsibility of including supporting evidence of compliance with that other requirement in its Technical Proposal. One- or two-word responses (e.g. “Yes,” “No,” “Will comply,” etc.) are normally not sufficient to confirm technical responsiveness with Technical Requirements. The Tenderers can add other standard functionalities based upon their experience in supporting/developing similar systems.

Identifier of the Requirement (if available)	Technical Requirement	Type	Tenderer’s technical reasons supporting compliance	Tenderer’s cross references to supporting information in Technical Proposal
FRQ000	<i><description of the requirement according to the ToR></i>	M		

13. SCOPE OF PRICE PROPOSAL AND SCHEDULE OF PAYMENTS

The contract payment terms will be milestone-based stage payment, i.e., payments shall be done upon successful completion of specified contract deliverables that needs to be confirmed by Acceptance Reports signed by UNICEF and the Contractor. Tenderers must include all costs anticipated to accomplish the deliverables using the table formats provided under RfP Section: Financial Proposal Form.

I4. REPORTING REQUIREMENTS

The selected Tenderer will be requested to provide monthly reports to UNICEF with description of the status of completion of tasks and deliverables. The format of such report will be communicated to the selected Tenderer at the contracting stage.

The Tenderers are requested to confirm whether such report can be provided.

The selected tenderer can propose the template/format of the monthly progress report according to its adopted project management methodology. However, at least the following aspects must be approached by the aforementioned report:

- General provisions about the project;
- Project's milestones – Key Dates and Duration(s);
- Current status of the project activities;
- Financial status to Date;
- Activities planned for next reporting period;
- Risks and proposals for mitigation;
- Other issues