APPENDIX A

Background

The Government of Lao PDR (GoL) has received Loan from IDA in the amount of USD 23 million, and Grant from Global Fund to Fight AIDS, Tuberculosis and Malaria (GF), and Department of Foreign Affairs and Trade of Australia (DFAT) in the amount of USD 10 million and USD 3 million respectively to improve access to quality healthcare and nutrition services, and increase the utilization of primary care and improving efficiency of public spending the particular focus of TB in Lao PDR.

Scope of work

|  |  |  |
| --- | --- | --- |
| Required | Proposed | Remarks |
| All data owned by the Ministry of Health and housed within the Ministry’s network. |  |  |
| 1. Dynamic Notification Engine as per user needs (On Desktop Program: Web Application) | Yes | Customization |
| * Results based notification 🡺 **Results based are contain?** | Yes | Customization |
| * Offline notification 🡺 **It’s mean: Program can’t connect analyzer (Y or N)?** | Yes | Customization |
| * Report notification 🡺 **It’s mean: Report was sent from analyzer or Report was approved by User** | Yes | Customization |
| * Low inventory notification | Yes | Customization |
| * Calibration (Control) due within X days | Yes | Customization |
| * Test updated notification | Yes | Customization |
| * Modules marked as “Do not use” | Yes | Customization |
| * Critical errors by module 🡺 Critical errors are contain? | Yes | Customization |
| 2. Implement an automated Real Time notification system via **WhatsApp and email** based on triggers |  |  |
| * Surveillance officers can receive notifications of new TB positive cases, HIV VL, etc | Yes | Customization |
| * Patient: receive a notification that their results are available, and they should return to the clinic | Yes | Customization |
| * Clinician: send the patient details, the result, and their contact number | Yes | Customization |
| * MDR Centre send a daily/weekly/monthly summary of what patients have been diagnosed with suspected MDR TB for follow up testing | Yes | Customization |
| * Central Medical Stores: notify of facilities with less than 21 days stock to prevent stockout as well as notify which facilities have low utilization & high stock. | Yes | Customization |
| * Broken modules: receive notifications when a module breaks down | Yes | Customization |
| 3. Report generation downloadable in Excel or Pdf |  |  |
| * All device: an overview of all devices in the system. Includes aggregated test results per device and cartridges inventory data | Yes | Customization |
| * All results: all test result in the system. One row per result | Yes | NexLabs |
| * Usage statistics: summary report about usage total, user activity and tests by sites in the country | Yes | NexLabs |
| * **Error rate**: report error rates per quarter, break them down by modules and users 🡺 **Error rate is mean?** | Yes | Customization |
| * Results notification: a report that includes al log of all result-based notifications 🡺 **Event Log(Y / N)?** | Yes | NexLabs |
| * Device report: shows device along with error rates and combined invalid/error rates. Displays comment if errors/invalid > 5% : **Device report is mean report was sent by Analyzer (Y/N)?** | Yes | Customization |
| * List of errors: includes error code, category, and description | Yes | Customization |
| * “Do not use” Modules: list of modules unusable with device name and module serial | Yes | Customization |
| * No stock inventory report: showing all facilities and the number of days which they had no stock in the last month | Yes | Customization |
| * Inventory accounting: shows the amounts of inventory drilling down the different movements reasons | Yes | Customization |
| * MTB detected RR detected: contains all RR cases in the selected time frame | Yes | Customization |
| * Unused modules: shows all devices that haven’t used all available modules in the selected period | Yes | Customization |
| * Utilization per facility: calculated daily utilization rates based on the number of functional modules. Ranked lowest to highest | Yes | Customization |
| * Inventory log by location: shows the log of inventory by facilities | Yes | Customization |
| * Error by devices: includes error counts by device as well as a list of error codes by device | Yes | Customization |
| * FIND tracking tool: excel based tool for tracking Xpert implementation | Yes | Customization |
| * Critical errors by module: list of modules that had at least 2 critical errors in the selecte4d time frame | Yes | Customization |
| * Rif resistance rate: listing Rif resistance rate (as a % of the positive results) for all facilities, ranked highest to lowest | Yes | Customization |
| * Inventory log by Xpert site: shows the log of inventory beaks out by site | Yes | Customization |
| 4. Dashboard for |  |  |
| * data reporting for visualizing field laboratory data (operational, diagnostic, epidemiological, and demographic data of patients) and aggregating epidemiological data by different administrative levels national/regional/district) to aid in decision-making and response by program stakeholders | Yes | Customization |
| * enabling manufacturers and health systems to understand any number of metrics from the field, including diagnostic information, use of resources, human error rates, and device malfunctions; | Yes | Customization |
| * Displaying valuable statistics and reports of epidemiological data (e.g new TB/HIV cases) for surveillance officers. Clinicians can access patient medical records, and update treatment plans on the platform. | Yes | Customization |
| * It provides aggregate and case-based views. | Yes | Customization |
| 5. Supply chain management |  |  |
| * Manage inventory of vital laboratory consumables to avoid stock-outs and ensure optimization | Yes | Customization |
| * Sends dynamic alerts, notifications, and reports | Yes | Customization |
| * Inventory Management | Yes | Customization |
| * Broken Modules | Yes | Customization |
| * Offline devices and reporting | Yes | Customization |
| 6. Schedules and record service, warranty, and maintenance events (calibration schedules) | Yes | Customization |
| 7. System Architecture |  |  |
| * Develop an API to allow automatic integration of test results to other existing information management systems such as DHIS2 or LIS | Yes | NexLabs |
| * software platform is designed to work with Cepheid's GeneXpert® mainly. The system must be able to be connected to other platform such as Roche Cobas, Abbott m2000, Alere PIMA, Alere Q Abbott mPIMA, BD MGIT (but not required yet) | Yes | NexLink |
| * LIS computer networking program developed on **Window Application.(Web Application)** | **No** | **Cloud based app** |
| * It can link more than 1 client computer running on Window 7 or Window 10. | Any OS which can run Chrome browser ex: Mac, Windows, Linux, iOS | Cloud based app |
| * The system should be a multi-layer application, i.e., Database, application server and client. | Yes | NexLabs architecture |
| * The system should provide an automatic backup database every day and able to copy backup to the other path as the Hospital needs in case the contingency plan. | Yes | 3rd party back up solution included in cloud |
| * Provide direct analyzer interfaces to system (without any middleware) by means of native drivers developed in the LIS and connect via RS-232 serial port or LAN are depending on Analyzer specification. | Yes | NexLink |
| * LIS provide driver interface with GeneXpert (list of system interfaces protocol will be provided) | Yes | NexLabs |
| * Able to set username / password to set usage rights Access to individual information and able to perform user traceability. | Yes | NexLabs |
| * Able to view result on cloud. | Yes | NexLabs |
| 8. Pre-Analytical phase: |  |  |
| * Custom Data Capture Tool: Matched to Lab Request Form Data for Custom Fields | Yes | Customization |
| * Capture and report custom fields for enhanced integration and reporting. | Yes | Customization |
| * Can create a patient database within the LIS system and cloud server. | Yes | NexLabs |
| * Able to print barcode stickers by specifying information Format on the sticker, such as name, surname, ID, time / date of order, check list Test group name list. | Yes | NexLabs |
| * Able to specify package inspection as needed. | Yes | NexLabs |
| * Able to reject specimens that cannot be tested and can specify the reason for rejection and the name of the informant. | Yes | NexLabs |
| 9. Analytical phase |  |  |
| * Captures and extract Patients’ HIV and TB test results from diagnostic machines e.g GeneXpert and or Abbott and sends it in near real time to national servers via internet and WhatsApp. | Yes | NexLink |
| * Able to retrieve the history of all patient's examination reports (History result). | Yes | NexLabs |
| * Report names and confirmation results can be recorded by inserting user ID when releasing or approving to suit the operating policy of the laboratory. | Yes | NexLabs |
| * Able to print a test report | Yes | NexLabs |
| * Able to show the difference of patient results in each checklist (Delta check). | Yes | NexLabs |
| * Able to show running on each day on both the program page and on the barcode sticker. | Yes | NexLabs |
| * Able to find all previous result. | Yes | NexLabs |
| * It works well offline. 🡺 **Offline is Manual input data (Y / N)?** | Yes | NexLabs |
| 10. Post-Analytical phase |  |  |
| * Custom Result Notifications | Yes | Customization |
| * Able to print the work report as needed. | Yes | NexLabs |
| * Able to export report in hard copy or PDF or Excel format. | Yes | NexLabs |
| * Able to support statistics report depending on several criteria that user need. | Yes | NexLabs |
| * Report can be retrieved according to the time of each day (Shift time). | Yes | NexLabs |
| * Separate report every lab test. | Yes | NexLabs |
| 11. Scope of IT Services |  |  |
| * IT Planning (LIS, Hardware, Infrastructure) | Yes | NexIT |
| * IT Project Management (LIS, Hardware, Infrastructure) – KPG to follow PM’s instructions and attend meetings and provide reports when required | Yes | NexIT |
| * IT Installation on Site (Hardware and Software and Interface with GeneXpert) | Yes | NexIT |
| * Manufacturer’s certifications, if required | Yes | NexIT |
| * Testing and Commissioning | Yes | NexIT |
| * System Integration Test and User Acceptance Test (UAT) for LIS | Yes | NexIT |
| * Hardware | Yes | NexIT |
| * On Site Support implementation (for LIS, Hardware, Infrastructure) | Yes | NexIT |
| * Training as per Training Plan | Yes | NexIT |
| 12. Provide a quotation with following breakdown annually |  |  |
| * Customization of software | Yes | NexIT |
| * Installation | Yes | NexIT |
| * Inter-connectivity with DHIS | Yes | NexIT |
| * Training | Yes | NexIT |
| * Support and Maintenance | Yes | NexIT |
| * Cost for connectivity | Yes | NexIT |
| * Other | Yes | NexIT |

Remarks:

Customization:

1. Function customization need to be clarify between vendor and purchaser.
2. 3rd party API such as WhatsApp, SMS, Email must be provided by purchaser in order to connect NexLabs API.
3. GeneXpert connectivity (interfacing) document(from GeneXpert distributor) must be required for testing interface that is developed by NexIT prior to testing phase.

Budget:

1. Cloud server
2. Customization of software 4 MB.
3. Installation 0.5 MB persite
4. Inter-connectivity with DHIS 0.5 MB
5. Training 0.2 MB per site
6. Yearly Support and Maintenance 15% of project budget
7. GeneXpert connectivity 0.3 MB per connection per analyzer
8. Hardware (Client and GeneXpert connectivity)

Project Phase:

Phase I : Install, configure, training and submit base feature to purchaser within 90 days after date signed in contract.

Phase II : Customization solution will be submitted within 365 days after date signed in contract.