

**The University of Zambia**

Center for Information and Communication Technologies (CICT)

Consultancy and Training Unit

PROPOSAL DOCUMENT

FOR

**CONSULTANCY SERVICES FOR THE DEVELOPMENT OF UNZA LARU HEALTH SCHEME MANAGEMENT SYSTEM**

**Tender Reference NO.:**

**UNZALARU/EOI/01/2022**

**Contact Person: Desire Mudenda**

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**+260966651873**

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# **BID-SUBMISSION FORM (SINGLE-STAGE BIDDING)**

Date: **07/07/2022**

Procurement No: **UNZALARU/EOI/01/2022**

IFB:**CONSULTANCY SERVICES FOR THE DEVELOPMENT OF UNZALARU HEALTH SCHEME MANAGEMENT SYSTEM. UNZALARU/EOI/01/2022**

Contract: *--*

To: Unzalaru*:***University of Zambia, Great East Road Campus**

Dear Sir or Madam: Having examined the Bidding Documents***,*** the receipt of which is hereby acknowledged, we, the undersigned, offer to supply, install, achieve Operational Acceptance of, and support the development of the Unzalaru under the above named Contract in full conformity with the said Bidding Documents for the sum of:

|  |  |
| --- | --- |
| K*wacha One Million, One Hundred and Sixty Six Thousand, One Hundred and Twenty Five* | ZMW 1,166,125.00 |
| Dollar Sixty Six Thousand, Six Hundred and Forty Seven, and Three Hundred and Forty Three Cents | USD 66,647.343.00 |

or such other sums as may be determined in accordance with the terms and conditions of the Contract. The above amounts are in accordance with the Price Schedules attached herewith and made a part of this bid.

We undertake, if our bid is accepted, to commence work on the development of the system and to achieve development, Installation and Operational Acceptance within the respective times stated.

If our bid is accepted, and if these Bidding Documents so require, we undertake to provide an advance payment security and a performance security in the form, in the amounts, and within the times specified in the Bidding Documents.

We hereby certify that the Software offered in this bid and to be supplied under the Contract (i) either is owned by us, or (ii) if not owned by us, is covered by a valid license from the proprietor of the Software.

Until the formal final Contract is prepared and executed between us, this bid, together with your written acceptance of the bid and your notification of award, shall constitute a binding contract between us. We understand that you are not bound to accept the lowest or any bid you may receive.

Dated this 12*th day* of April***,*** *2022.*

Signed:

Date:

In the capacity of *Acting Manager, Consultancy and Training Unit*

Duly authorized to sign this bid for and on behalf of *Consultancy and Training Unit, University of Zambia.*

# **BID-SECURING DECLARATION**

**IFB:** Tender for the provision of Consultancy Services for the Development of UNZALARU System. UNZALARU/EOI/01/2022

**To:** *UNZALARU*

We, the undersigned, declare that:

We understand that, according to your conditions, bids must be supported by a Bid-Securing Declaration.

We accept that we, and in the case of a Joint Venture all partners to it, will automatically be suspended from being eligible for participating in bidding for any contract with you for the period of time of *[****three years****],* in case of, and starting from the date of, breaching our obligation(s) under the bidding conditions due to:

1. withdrawing our bid, or any part of our bid, during the period of bid validity specified in the Bid Submission Form or any extension of the period of bid validity which we subsequently agreed to; or
2. having been notified of the acceptance of our bid by you during the period of bid validity, (i) failing or refusing to execute the Contract Agreement, or (ii) failing or refusing to furnish the performance security, if required, in accordance with the Instructions to Bidders.

We understand this Bid-Securing Declaration shall expire if we are not the successful Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) twenty-eight days after the expiration of the period of bid validity.

If the submission of alternative bids was permitted, and in case we did submit one or more alternative bids, this Bid-Securing Declaration applies to these parts of our bid as well.

**Signed:**

**Name:** *Mr. Desire Mudenda* in the capacity of *Acting Manager, Consultancy and Training Unit under the Center for Information and Communication Technologies (CICT).*

Duly authorized to sign the bid for and on behalf of: *The University of Zambia*

**Dated** on 12th day of April, 2022

# **TECHNICAL PROPOSAL**

**Description of Approach, Methodology, and Work Plan in Responding to the Terms of Reference**

1. **Our Understanding of the Objectives of the Assignment as Outlined in the Terms of Reference (TORs)**

Unzalaru in its 2022 Capital Expenditure Budget made a provision towards the cost of Development of the UNZALARU System that will address existing limitations. The UNZALARU is hereby calling for Expressions of Interest for provision of consultancy services for the Development of the UNZALARU System.

1. **PURPOSE**

The purpose of the assignment is to undertake research design and develop the UNZALARU health scheme management system System that will address existing limitations.

1. **TASKS AND DELIVERABLES**

The scope of the assignment and deliverables include:

1. Liaising with relevant project officers to understand users' needs and identifying corresponding user interface requirements, workflows, and functionalities;
2. Meeting with internal and external stakeholders to gather information about their requirements;
3. Conducting research, including on health management systems and other institutions of a similar nature, and providing a report;
4. Sketching out a range of visual concepts of the proposed system both on paper and using software applications;
5. Creating user personas, user journeys and site maps to further enhance the user experience further;
6. Translating concepts into wireframes, prototypes and user flows using specialist tools such as Axure, InVision, Marvel, OmniGraffle, Visio and Sketch, as well as the Adobe product suite;
7. Developing the system, in collaboration with the business, taking into account existing guidelines and best practices;
8. Delivering a solution that incorporates responsive management system;
9. Integrating the system with selected hospital or health center management systems;
10. Data migration and a report on historical data migrated;
11. Providing technical and user training; and
12. Developing user and technical manuals.

The desired system will include a museum section with interactivity and multimedia capabilities.

1. **Proposed Deliverables, Technical Approach & Methodology**

|  |  |
| --- | --- |
| **Deliverable** | **SOFTWARE REQUIREMENTS SPECIFICATION (SRS) DOCUMENT** |
| This document will:   * Include an outline of the assumptions and dependencies for the UNZALARU system including subsystem integrations * Identify users' needs and identifying corresponding user interface requirements, workflows, and functionalities * Meeting with internal and external stakeholders to gather information about their requirements; * Include an outline of the following system features and requirements:   + Functional Requirements   + Non-functional Requirements   + External Interface Requirements System Features | |
| |  |  | | --- | --- | | **Deliverable No.1** | **AN INCEPTION REPORT DETAILING THE WORK PLAN OF THE CONSULTANCY** | | This report will outline the key areas to be addressed during the consultancy and will:   * Include a detailed work plan including tasks, assignments, and timetable for completion and critical support requirements from the client. | | | **Approach to producing Deliverable No. 1** | We will use two (2) methods to prepare for this output: 1) inception workshop; and 2) team leader preparation of the Report. | | |
| **Deliverable and Task No. 1,2&3** | **Conducting research, including on health management scheme systems and other institutions of a similar nature, and providing a report;**  The client has provided high level requirements for the consultant to understand what the client wants. To develop good, effective and efficient systems there is a need to understand what exactly the client needs by collecting sufficient data from the client and other stakeholders. Therefore, to collect requirements the consultant will use questionnaires, interviews, observation and record inspection.  In addition, literature review will be used to obtain secondary data from similar systems which have been implemented in other parts of the world.   * 1. ***Questionnaires***   Questionnaires as fact finding instruments will be developed and administered to stakeholders such as Market traders, Council employees that deal with markets and any other stakeholders that will be of interest to the system in order to get information regarding the systems currently in use and how the proposed system can be developed to overcome the challenges of the current system.   * 1. ***Interviews***   Interviews will be conducted with stakeholders as a form of validating the data which will be collected through questionnaires. The interview script will be developed, validated and administered.   * 1. ***Observations***   This method of data collection will involve visiting stakeholders like the council, bus stations and airport to appreciate what is involved in the running of Markets, Bus terminus and passenger management. This will also enable the consultant to understand the business rules and process flow better.   * 1. ***Record Inspection***   This method will involve examining and analyzing source documents used by the council at the Markets and Bus stations to understand the business processes of the market and bus stations better.   * After the data has been collected using the four stated methods, the consultant will analyze it in order to determine the requirements. * The SRS document will need approval and sign-off by the client. |

We are proposing to produce 12 tangible deliverables from this assignment based on the scope of work, our understanding of the TORs, and our experience in the development of software systems for business process support. These deliverables fulfil and even exceed the terms of reference.

|  |  |
| --- | --- |
| **Deliverable No. 4, 5 & 6** | **DESIGN SPECIFICATION** |
| The design of the system will be guided by the detailed software requirements specification document. The design document will follow the unified Modelling Language (UML) principles to software design in coming up with Use cases, scenario diagrams, and database design and sequence diagrams, ER diagrams among others.  This phase will include production of specific models and how the system will implement the requirements in the SRS document of deliverable 2. It will include:   * Sketching out a range of visual concepts of the proposed system both on paper and using software applications; * Creating user personas, user journeys and site maps to further enhance the user experience further; * Translating concepts into wireframes, prototypes and user flows using specialist tools such as Axure, InVision, Marvel, OmniGraffle, Visio and Sketch, as well as the Adobe product suite; * *Activity diagrams* to describe the flow of different activities and actions in the Market Sales Management sub-systems modules. * *Interaction Diagrams* to model how the Market Sales Management sub-system modules will handle timing, sequencing and communication of information. * *Deployment diagrams* to visualize the relation between the Market Sales Management sub-system modules and hardware. * Database design diagrams which will include among other ER diagrams and Data Dictionaries. * All other relevant design documents to be outlined in the Inception report. | |

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| **Approach to producing Deliverable**  **No. 7 & 8** | This phase will involve the following deliverables and approaches:   1. Developing the system, in collaboration with the business, taking into account existing guidelines and best practices; 2. Delivering a solution that incorporates responsive web design;   We will use the following methods to prepare this output:   1. ***System development process***   This activity is undertaken using different approaches among the notable ones being prototyping and Agile. In the case of this consultancy we propose to use a combination of prototyping and Agile Software development methodology (Fig 1) due to the need to integrate third party systems and the need to stay in constant contact with the client so as to accommodate any changes in client requirements.  Agile methodology is a type of project management process, mainly used for software development, where demands and solutions evolve through the collaborative effort of self-organizing and cross-functional teams and the customers. It emphasizes collaboration, flexibility, continuous improvement, and high quality results. It aims to be clear and measurable in tracking progress and creating the product. Using the proposed development processes, the consultant is confident of delivering the project on time.    Fig 1: Overview of Agile Methodology     1. ***Deployment Technologies***   To implement the system modules of the UNZALARU, we propose the following technologies to develop the system, among others:   * **Backend daily/weekly archiving system** – Application will perform backend administrative tasks such as taking backups of the database * **A log rotating application** – As it is required for every financial system to keep system logs for some good years and for auditing purposes, this app will be archiving logs on a daily basis.   Fig 2 shows a high level overview of how the proposed systems are related and how they will be integrated.  Fig 2: Proposed systems Architecture  The Secure Bank System Architecture | Download Scientific Diagram  Due to the different proposed applications, different programming languages will be used.   * **Design Concepts and Transformations into wireframes**- Axure, InVision, Marvel, OmniGraffle, Visio and Sketch * For the API and USSD application, Java will be used due to its good performance in high computing systems. * **Framework – The Laravel framework** will be used to avoid traditional architecture used to write HTML and PHP code in a single file. This will provide Easy management and abstracting routing. In addition, this will provide for Queue management for abstracting and queuing unnecessary tasks * **BackEnd** -The backend database will be MySQL as it is open source, secure and cheap hence will not require Market management to pay any recurring subscription fees. * **Project Management and Collaboration -** The development team will use software development tools such as GitHub, Trello and so on for collaborative work and management of assigned task.  1. ***System Testing***   System testing will be important as it will help reveal flaws in the software and reveal any flaws in the proposed software development process thereby enabling us to develop an effective and efficient system. Hence we will use a staged system testing approach to test the proposed system.   1. **Development testing:** Rigorous testing will be done at development stage by the development team majority of the tests being Unit tests to fix bugs. Developer testing is necessary in order to reduce on bugs that may arise during actual testing hence reducing on the amount of time required to do tests and the amount of time required to deliver the project. 2. **Integration testing (System Integration Tests-SITs):** This will also be done by developers to make sure that the system units are properly integrated and the system as a whole is properly integrated with third party systems such as Bus ticketing system, banking and mobile service provider systems. 3. **System Testing:** Testing the system as a whole. This will be done by appointed consultant testers. The testing will involve among other tests;  * Usability testing: Make sure the system is easy to operate and understand. * Documentation testing: Make sure that the system guides explain the features as they will work in real life. * Functionality testing: Make sure everything behave as expected and described in the documentation. * Inter-operability testing: Make sure the system work well with third party systems (different OS, browser, plug-ins, etc.)? * Performance testing: Make sure that the system does not break itself by trying to use too many resources. * Scalability testing: Make sure the system is not affected by user count, user location, or server load. * Stress testing: Understanding the maximum strain the system can take before it breaks  1. **User acceptance testing (UATs):** This will involve client and consultant appointed testers that will make sure that the system is able to do as the consultant claims it can do. This stage will be cardinal when testing integrations with third party financial systems and the Bus Ticketing system. 2. **Post Deployment Testing:** This will involve redoing some of the tests that where done just to make user the system behaves accordingly.   During SITs, UATs and Post deployment testing, a checklist of test cases will be generated for each sub module and all test cases should pass and signed of at all stages before proceeding to the next stage.   1. ***System deployment and configuration***  * After the system is developed and all integrations are done, the system will be deployed at the client’s premises or proposed client system deployment center. * In the case of client premises deployment, the client will have to procure three servers namely application, database and backup server. * To cut on required hardware costs, the system application deployment server will be virtualized with each application deployed in its own virtual machine and system software installed when need arises. * The database will also be installed on its own server which will also be virtualized. * The backup server is needed as a fail over system in case of any failure and as a data archiving server. * After deployment, the system will be operationalized using direct changeover method to the client and support offered for an agreed period of time. |
| **Approach to producing Deliverable**  **No. 9 & 10** | 1. Integrating the system with selected internal Bank systems; 2. Data migration and a report on historical data migrated; |

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| **Deliverable No.11** | **USER TRAINING** |
| 1. Providing technical and user training; and 2. Developing user and technical manuals. | |
| **Approach to producing Deliverable No. 5** | The following methods will be used to prepare this output:   * **Questionnaires and observations** on the use of the system software at the clients site by would be system users will be used to understand how comfortable the market traders and market trader trainers are when working with a computer and software * **Daily (and upon client request) training workshops** will be held at the client site(proposed client site) for a defined period where users will be trained on the use of the developed system using developed training guides and hands on training on a demonstration platform. Client will be expected to invite selected market traders for the training as well. * **Training of trainers will be done at the client site** (or proposed site) as well which will involve training users that will act as trainers to market traders and buyers using training guides and Test platforms. * **Questionnaires** will used to get an understanding of how comfortable the users are in using the system after training. |

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| **Deliverable No. 12** | **USER MANUALS** |
| The deliverable will be comprehensive user manuals module by module | |
| **Approach to producing Deliverable No. 12** | * We will use software user manual generation techniques and user manual creation software such as Whatfix to create simple but comprehensive manuals * work with folders * work with pages * work with files and images * and how to edit the content |

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| **Deliverable No.12** | **SYSTEM DOCUMENTATION** |
| The deliverable will be comprehensive documentation for the entire system which will make it easy for the clients support team to support the system after handover. This will include:   * API documentation * Module by module documentation * System troubleshooting steps documentation * System configuration documentation | |
| **Approach to producing Deliverable No. 7** | * We will use the appropriate documentation tools to write comprehensive documentation. This will be done throughout the projects duration by the developers responsible for a particular module. |

1. **Work Plan**

* Based on the work plan schedule the first activity to be undertaken will be contract signing and this will be followed by the inception report writing. These two activities will be done in the first one week.
* The second activity, will involve system requirements gathering which should take approximately two weeks (next week on the schedule) depending on the amount of requirements. The deliverables at this stage will be a detailed system specifications document.
* Requirement gathering will be followed by Systems Design. This activity will take a period of two weeks in which a system design document will be written.
* Next to Design is systems development which is estimated to last for 7 weeks. At this stage proposed system sub-modules will be developed. Then System testing will follow. System deployment and configuration which will involve procurement of system servers by client and configuration then deployment of developed software will follow. After deployment post production sign testing and sign off will take place.
* The next activity after development will be the user training which is expected to take approximately two weeks.
* The next activity after user training will be system user manual generation and client user training which is expected to last for two weeks as well.
* System documentation and Project Management will run throughout the duration of the project. After all the activities are done and client is satisfied, the system will be handed over to the client giving the client at least the agreed support duration which should involve system monitoring and troubleshooting. Depending on how quick the contract is signed, the project is estimated to take 4 months (16 weeks) to complete as some of the activities will only take weeks to complete as opposed to several weeks as indicated on the work schedule. The proposed work plan is flexible to changes in terms of timelines based on what the client wants

**Work Schedule and planning for deliverables**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **N°** | **Deliverables** 1 **(D-..)** | **WEEKS** | | | | | | | | | | | | | | | | | |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | | **11** | **12** | **13** | **14** | **15** | **16** | **TOTAL** |
| **D-1** | Inception Report |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  | 1 |
| **D-2** | Software Requirement Specification document(SRS)  1) Data collection  2) Software specification document drafting  3) Final Software specification document delivery |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  | 2 |
| **D-3** | Design Specification Document  1) System design document drafting  2) Final System design document delivery |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  | 2 |
| **D-4** | System development |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  | 7 |
| **D-5** | User training |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  | 2 |
| **D-6** | User manual generation |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  | 2 |
| **D-7** | System Documentation |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  | N/A |
| **Total** | | | | | | | | | | | | | | | | **16** | | | |

# **PRICE SCHEDULES**

**Preamble**

**Note:** Procuring Entities should highlight any special requirements of the System and Contract in a Preamble to the Price Schedules. The following is an example of one such preamble.

**General**

The Price Schedules are divided into separate Schedules as follows:

1. Grand Summary Cost Table

2. **Development and Implementation**

1. Professional Payments
2. Reimbursable
3. Software Development/Training Costs

**1. Grand Summary Cost Table**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | ***ZMW*** | ***USD*** |
| 1. | Professional Payments |  |  |
| 2. | Reimbursables |  |  |
| 3. | Software Development/Training Costs |  |  |
|  | Grand Totals (to Bid Submission Form) |  |  |

|  |  |
| --- | --- |
|  |  |
| Name of Bidder: | The University of Zambia |
|  |  |
| Authorized Signature of Bidder: |  |

**2. Development and Implementation Summary Table**

**2.1. Professional payments**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  | **Unit Prices / Rate** | **Total prices** |
|  |  |  |  | **Supplied Locally** | **Supplied Locally** |
| **Component  No.** | **Component Description** | **Country of Origin Code** | **Quantity**  **(No of People X No of Days)** | ***ZMW*** | ***ZMW*** |
|  |  |  |  |  |  |
| 1 | Requirements analysis | ZM | **5X 5** | **760** | **19,000** |
| 2 | Design | ZM | **5 X 5** | **760** | **19,000** |
| 3 | Development | ZM | **5X 45** | **760** | **171,000** |
| 4 | Documentation | ZM | **5 X 30** | **760** | **114,000** |
| 5 | Installation | ZM | **5 X 10** | **760** | **38,000** |
| 6 | Project Management | ZM | **2 X 60** | **850** | **102,000** |
| Subtotals (before tax) | | | | - - | **463,000** |
| PAYE @ 37.5% | | | |  | **173,625** |
| Total Professional fees | | | |  | **636,625.00** |

**2.2. Reimbursable**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  | **Unit Prices / Rate** | **Total prices** |
|  |  |  |  | **Supplied Locally** | **Supplied Locally** |
| **Component No.** | **Component Description** | **Country of Origin Code** | **No of Months** | ***ZMW*** | ***ZMW*** |
|  |  |  |  |  |  |
| 1 | Contingency | ZM | 4 | 6,000.00 | 24,000.00 |
| 2 | Support Staff Costs | ZM | 1 | 3,000.00 | 3,000.00 |
| 3 | Transport Costs | ZM | 4 | 10,000.00 | 40,000.00 |
| 4 | Operation costs | ZM | 4 | 8,500 | 34,000.00 |
| 5 | Workshops |  |  |  |  |
| 5.1 | Inception workshop | ZM | 1 | 10,000.00 | 10,000.00 |
| 5.2 | Mid review workshop | ZM | 1 | 10,000.00 | 10,000.00 |
| 5.3 | End of project workshop | ZM | 1 | 10,000.00 | 10,000.00 |
| 5.4 | UNZA Administration Costs | ZM | 1 | 120,000.00 | 120,000.00 |
| Subtotals (to ***2*** of Supply and Installation Cost Summary Table) | | | | **- -** | **251,000.00** |

* 1. **Software Development/Training Costs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  | **Unit Prices / Rate** | **Total prices** |
|  |  |  |  | **Supplied Locally** | **Supplied Locally** |
| **Component No.** | **Component Description** | **Country of Origin Code** | **Days** | ***ZMW*** | ***ZMW*** |
|  |  |  |  |  |  |
| 1 | Software development Weekly review Meetings | ZM | **10** | **850** | **8,500** |
| 2 | On site system implementation | ZM | **7** | **6,250** | **43,750** |
| 3 | On site system testing | ZM | **5** | **6,250** | **31,250** |
| 4 | On site user training workshops | ZM | **5** | **25,000** | **125,000.0** |
| 5 | Post deployment system support | ZM | **132** | **2,500** | **70,000.00** |
| Subtotals | | | |  | **278,500.00** |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Name of Bidder: |  | The University of Zambia |
|  |  |  |
| Authorized Signature of Bidder: |  |  |

# **SOFTWARE LIST**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | (select one per item) | | | (select one per item) | |
| Software Item | System  Software | General-purpose  Software | Application Software | Standard  Software | Custom  Software |
| WinForms |  |  | √ |  | √ |
| Web Application |  |  | √ |  | √ |
| Mobile Application |  |  | √ |  | √ |
| USSD app |  |  | √ |  | √ |
| API |  |  | √ |  | √ |
| Linux OS | √ |  |  | √ |  |
| MYSQL |  |  | √ | √ |  |
| NetBeans IDE |  |  | √ | √ |  |
| Eclipse IDE |  |  | √ | √ |  |
| PHP |  |  | √ | √ |  |
| JAVA | √ |  |  | √ |  |
| Python |  |  | √ | √ |  |
| Android | √ |  |  | √ |  |
| JavaScript |  |  | √ | √ |  |
| Apache HTTP Server | √ |  |  | √ |  |
| Windows 10 | √ |  |  | √ |  |
| Google Chrome |  |  | √ | √ |  |
| Mozilla Firefox |  |  | √ | √ |  |
| Internet Explorer |  |  | √ | √ |  |
| Microsoft Edge |  |  | √ | √ |  |
| Safari |  |  | √ | √ |  |
| Opera |  |  | √ | √ |  |
| Laravel |  |  | √ |  |  |

# **GENERAL INFORMATION FORM**

|  |  |  |
| --- | --- | --- |
| 1. | Name of firm : The University Of Zambia |  |
| 2. | Head office address: Great East Road Campus |  |
| 3. | Telephone: +26 021 125 1593 | Contact: |
| 4. | Fax: +26 021 125 3952 | Telex |
| 5. | Place of incorporation / registration: Established by an Act of Parliament | Year of incorporation / registration: 1966 |

|  |  |  |
| --- | --- | --- |
| Nationality of owners¹ | | |
| Name | | Nationality |
| 1. |  |  |
| 2. |  |  |
| 3. |  |  |
| 4. |  |  |
| 5. |  |  |
| ¹/ To be completed by all owners of partnerships or individually owned firms. | | |

# **GENERAL INFORMATION SYSTEMS EXPERIENCES RECORDS**

Name of Bidder: University Of Zambia

|  |  |  |
| --- | --- | --- |
| Annual turnover data (applicable activities only) | | |
| Year¹ | ZMW Turnover | US$ equivalent |
| 1. 2018 | 459,206.13‬ | 41,746.01 |
| 2. 2016 | 140,000.00 + (ZAR300) | 25,000.00 |
| 3. 2016 | 83,000.00 | 6,000.00 |
| 4. 2016 | 90,000.00 | 8181.82 |
| 5. 2014 | 300,000.00 | 23,000.00 |
| 6. 2014 | 100,000.00 | 10,000.00 |
|  |  |  |
| 8. |  |  |
| 9. |  |  |
| 10. |  |  |
|  | | |
| ¹/ Commencing with the partial year up to the date of submission of bids | | |

# **PARTICULAR INFORMATION SYSTEMS EXPERIENCE RECORD**

Name of Bidder: The University Of Zambia

Use a separate sheet for each contract.

|  |  |  |
| --- | --- | --- |
| 1. | Number of contract: 1 |  |
|  | Name of contract: Development of the disability management information system | |
|  | Country: Zambia | |
| 2. | Name of Procuring Entity: ZAPD/ILO | |
| 3. | Procuring Entity address: | |
| 4. | Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued: It was dealing with system integrations, had card reader and card printers integration and was to be deployed in all provinces | |
| 5. | Contract role (check one)  Prime Supplier | |
| 6. | Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts)  ZMW 459,206.13‬ | |
| 7. | Equivalent amount US$  Total contract: $ 41,746.01 | |
| 8. | Date of award/completion: 7th August 2018 | |
| 9. | Contract was completed one months ahead of original schedule (if behind, provide explanation). | |
| 10. | Contract was completed US$ 41,746.01 equivalent original contract amount (if over, provide explanation). | |
| 11. | Special contractual/technical requirements. | |
| 12. | Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System. | |

|  |  |  |
| --- | --- | --- |
| 1. | Number of contract: 2 |  |
|  | Name of contract: A System Augmenting Agricultural Activities in Marginalised Rural Areas of South Africa and Zambia by using Cloud Computing and Sensor Networks. | |
|  | Country: South Africa and Zambia | |
| 2. | Name of Procuring Entity: Join funding from the National Science and Technology Council (NSTC) - Zambia and National Research Foundation (NRF) - South Africa | |
| 3. | Procuring Entity address: Haile Sellasie Avenue,Curriculum Development Centre Building,  Longacres Lusaka | |
| 4. | Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued: The system included components of registrations which is needed in the systems | |
| 5. | Contract role (check one)  Prime Supplier | |
| 6. | Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts)  ZMW 140,000.00 from Zambia **Plus** ZAR300,000 from the South African Government | |
| 7. | Equivalent amount US$  Total contract: $ 25,000 | |
| 8. | Date of award/completion: January 2015 | |
| 9. | Contract was completed one month ahead of original schedule (if behind, provide explanation). | |
| 10. | Contract was completed US$ 10,000 equivalent original contract amount (if over, provide explanation). | |
| 11. | Special contractual/technical requirements. | |
| 12. | Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System. | |

|  |  |  |
| --- | --- | --- |
| 1. | Number of contract: 3 |  |
|  | Name of contract: SARIMA Researcher Database. | |
|  | Country: Zambia | |
| 2. | Name of Procuring Entity: Southern African Development Community (SADC). | |
| 3. | Procuring Entity address: SADC House Plot No. 54385 Central Business District  Gaborone Botswana | |
| 4. | Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued: System had information management components and good reporting components which are relevant to this project | |
| 5. | Contract role (check one)  Prime Supplier | |
| 6. | Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts)  ZMW 83,000.00 | |
| 7. | Equivalent amount US$  Total contract: $ 6,000 | |
| 8. | Date of award/completion: February 2016 | |
| 9. | Contract was completed one month ahead of original schedule (if behind, provide explanation). | |
| 10. | Contract was completed US$ 6,000 equivalent original contract amount (if over, provide explanation). | |
| 11. | Special contractual/technical requirements. | |
| 12. | Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System. | |

|  |  |  |
| --- | --- | --- |
| 1. | Number of contract: 4 |  |
|  | Name of contract: Contract for the review, Design, Development and maintenance of the Rural Electrification Project Information Database(REPID) | |
|  | Country: Zambia | |
| 2. | Name of Procuring Entity: Rural Electrification Authority | |
| 3. | Procuring Entity address: Plot no. 5033 Longolongo Road, Lusaka | |
| 4. | Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued: Had system integration components such as integrations with accounting systems, nationwide deployment. | |
| 5. | Contract role (check one)  Prime Supplier | |
| 6. | Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts)  ZMW 90,000.00 | |
| 7. | Equivalent amount US$  Total contract: $ 8181.82 | |
| 8. | Date of award/completion: 25th September 2014 | |
| 9. | Contract was completed one month ahead of original schedule (if behind, provide explanation). | |
| 10. | Contract was completed US$ 8181.82 equivalent original contract amount (if over, provide explanation). | |
| 11. | Special contractual/technical requirements. | |
| 12. | Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System. | |

|  |  |  |
| --- | --- | --- |
| 1. | Number of contract: 5 |  |
|  | Name of contract: Clinic Management System | |
|  | Country: Zambia | |
| 2. | Name of Procuring Entity: University of Zambia Medical Services department(Clinic) | |
| 3. | Procuring Entity address: UNZA Great East Road Campus | |
| 4. | Nature of Information Systems and special features relevant to the contract for which the Bidding Documents are issued: The system was made of several sub-modules which needed to be integrated | |
| 5. | Contract role (check one)  Prime Supplier | |
| 6. | Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts)  ZMW 300,000.00 | |
| 7. | Equivalent amount US$  Total contract: $ 23,000.00 | |
| 8. | Date of award/completion: January 2014 | |
| 9. | Contract was completed within the original schedule (if behind, provide explanation). | |
| 10. | Contract was completed US$ 23,000.00 equivalent original contract amount (if over, provide explanation). | |
| 11. | Special contractual/technical requirements. | |
| 12. | Indicate the approximate percent of total contract value (and US$ amount) of Information System undertaken by subcontract, if any, and the nature of such Information System. | |

# **PERSONNEL CAPABILITIES**

Name of Bidder: University Of Zambia

|  |  |
| --- | --- |
| 1. | **Lead Consultant** |
|  | Dr. Faustine Banda |
|  | Mr. Danny Leza |
|  | **Coordinator** |
|  | Mr. Desire Mudenda |
| 2. | **Technical Lead** |
|  | Mr. Floyd Sheke |
| 3. | **Technical Team** |
|  | Manasseh Mwansa |
|  | Mr. Martin Musonda |
|  | Mr. Simon Chiwamba |
|  | Mr. Francis Chulu |

# **CANDIDATE SUMMARY**

Name of Bidder: University Of Zambia

|  |  |  |
| --- | --- | --- |
| Position: Business Analyst | | Candidate : Alternate |
| Candidate information | Name of candidate: Faustine Banda | Date of birth: 29/12/63 |
|  | Professional qualifications: PhD Machine Vision, MSc Data Comms, Networks & Distributed Systems, MSc Remote Sensing & Photogrammetry, BEng Geomatics Engineering | |
|  |  |  |
| Present employment | Name of Employer: University Of Zambia |  |
|  | Address of Employer : P.O Box 32379, Great East Road Campus | |
|  |  |  |
|  | Telephone: 0971628708 | Contact (manager / personnel officer) |
|  | Fax | Telex |
|  | Job title of candidate: Head of Department, Geomatics Engineering | Years with present Employer: 4 |

|  |  |  |
| --- | --- | --- |
| From | To | Company/Project/ Position/Relevant technical and management experience |
| 2015 | Present | Head of department Geomatics Engineering UNZA |
| 2013 | 2015 | Senior Software Engineer Petroleum Geo-Services UK |
| 2012 | 2013 | WebMethods Integration/Java Consultant DHL |
| 08/2012 | 10/2012 | Modelling Consultant IBM Sweden |
| 2011 | 2012 | Software Consultant Liberty Mutual Insurance |
| 04/2011 | 09/2011 | Software consultant IF Insurance |
| 2010 | 2011 | Software Consultant Arcelor Mittal France |
| 01/2010 | 02/2010 | Technical Consultant Wall Street systems |
| 2008 | 2009 | AVP-Technical lead JPMorganChase |
| 08/2007 | 12/2007 | Senior Developer/Architect Avenue A-RazorFish |
|  |  |  |
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| --- | --- | --- |
| Position: Lead Consultant | | Candidate: Prime |
| Candidate information | Name of candidate: Danny Leza | Date of birth: |
|  | Professional qualifications: MSc Computer Science, BSc Computer Science | |
|  |  |  |
| Present employment | Name of Employer: University of Zambia | |
|  | Address of Employer: P.O Box 32379, Great East Road Campus | |
|  |  |  |
|  | Telephone: 0977617777 | Contact (Director / personnel officer) |
|  | Fax | Telex |
|  | Job title of candidate: HOD Consultancy and Training Unit | Years with present Employer: 8 |

|  |  |  |
| --- | --- | --- |
| From | To | Company/Project/ Position/Relevant technical and management experience |
| 2014 | Present | Manager Consultancy and Training Unit UNZA |
| 2011 | 2014 | Senior Instructor UNZA |
| 2007 | 2011 | IT Administrator Evelyn Hone College |
| 2013 | 2015 | Rural Electrification Authority Projects Information System Lead Consultant |
| 3/2013 | 8/2015 | Lead Consultant for database for the Hilton Survive and Thrive Project Aided by the ELIZABETH GLASER PEDIATRIC AIDS FOUNDATION. |
| 8/2014 | 7/2019 | Disability Management Information System- Lead Consultant - Zambia Agency for Persons with Disability Sponsored by ILO |
| 2/2018 | 8/2019 | World Bank Group Consultant-BRRA E-Registry and Notice Comment System. |
| 12/2011 | 02/2012 | Lead Consultant for Africa Direction Database Information System project funded by ELIZABETH GLASER PEDIATRIC AIDS FOUNDATION. |

|  |  |  |
| --- | --- | --- |
| From | To | Company/Project/ Position/Relevant technical and management experience |
| 2014 | Present | Manager Consultancy and Training Unit UNZA |
| 2011 | 2014 | Senior Instructor UNZA |
| 2007 | 2011 | IT Administrator Evelyn Hone College |
| 2013 | 2015 | Rural Electrification Authority Projects Information System Lead Consultant |
| 3/2013 | 8/2015 | Lead Consultant for database for the Hilton Survive and Thrive Project Aided by the ELIZABETH GLASER PEDIATRIC AIDS FOUNDATION. |
| 8/2014 | 7/2019 | Disability Management Information System- Lead Consultant - Zambia Agency for Persons with Disability Sponsored by ILO |
| 2/2018 | 8/2019 | World Bank Group Consultant-BRRA E-Registry and Notice Comment System. |
| 12/2011 | 02/2012 | Lead Consultant for Africa Direction Database Information System project funded by ELIZABETH GLASER PEDIATRIC AIDS FOUNDATION. |

|  |  |  |
| --- | --- | --- |
| Position: Project Coordinator /Contact Person | | Candidate: Prime |
| Candidate information | Name of candidate: Desire Mudenda | Date of birth: |
|  | Professional qualifications: BSs Computing, MeNG in ICTs (dissertation) | |
|  |  |  |
| Present employment | Name of Employer: University of Zambia | |
|  | Address of Employer: P.O Box 32379, Great East Road Campus | |
|  |  |  |
|  | Telephone: | Contact (A/Manager / personnel officer) |
|  | Fax | Telex |
|  | Job title of candidate: HOD Consultancy and Training Unit | Years with present Employer: 10 |

|  |  |  |
| --- | --- | --- |
| From | To | Company/Project/ Position/Relevant technical and management experience |
| 2013 | 2016 | Lecturer, ITC – Developer, Systems Admin |
| 2017 | 2022 | Senior Instructor – University of Zambia |
| 2021 | 2022 | Acting Manager – Consultancy and Training Unit,UNZA |
| 2020 | 2021 | Administration and Logistics Coordinator, Chalimabana University SIS project |
| 2017 | 7/2019 | Disability Management Information System- Assistant Lead Consultant - Zambia Agency for Persons with Disability Sponsored by ILO |

|  |  |  |
| --- | --- | --- |
| Position: Technical Support Staff | | Candidate: Alternate 2 |
| Candidate information | Name of candidate: Francis Chulu | Date of birth: 1989/12/28 |
|  | Professional qualifications: MSc Computer Science(Ongoing), BSc Computer Science | |
|  |  |  |
| Present employment | Name of Employer: University Of Zambia |  |
|  | Address of Employer: Great East Road Campus |  |
|  |  |  |
|  | Telephone: 260978981576 | Contact (manager / personnel officer) |
|  | Fax | Telex |
|  | Job title of candidate: Staff Development Fellow | Years with present Employer: 2 |

|  |  |  |
| --- | --- | --- |
| From | To | Company/Project/ Position/Relevant technical and management experience |
| 2017 | Date | Lead developer and support engineer for PaEase FinTech Solution at Starlabs Zambia Limited |
| 2018 | Date | Lead developer and support engineer for the ADC FinTech Solution at Africa Development Connect (ADC) Malawi. |
| 2017 | 2018 | Software development consultant for USSD applications at Lima Links Zambia |
| 2016 | 2017 | Lead product development Executive at Airtel Zambia Limited |
| 2015 | 2016 | Software Engineer at Cellulant Zambia Limited |
|  |  |  |

# **TECHNICAL CAPABILITIES**

The Consultancy and Training Unit Department of the Center for Information Communication Technologies in conjunction with The Department of Computer Science in the School of Natural Sciences work with at the University of Zambia in the development of software systems. Have worked on the following relevant technical documents.

**Experience in similar conditions**

**Table 1: Projects and their corresponding focus areas**

|  |  |  |
| --- | --- | --- |
| **Project** | **Project Summary** | **Focus Area** |
| Digital Archiving of the University records | Designed to enhance the governance and management support functions the system provides an easy way for managing student files, quick access and retrieval, better storage and preservation of files and a better records infrastructure. This has involved research in scanning technologies to bring in all the old records so they can be referenced in future. | Digitization |
| The Digital Bleek and Lloyd Collection | The project aim was to digitised manuscripts and archive. Special tools were built to pre-process the metadata and images to create a portable digital library system that would work for locally-hosted collections as well as collections distributed over the Internet or on CDROM. |  |
| OpenSALDRU repository platform | The project was aimed at promoting open access paradigms as a means of making the scholarship of Sub-Saharan researchers more visible, and was largely focused on the exploration of new affordable business models for open online scholarly publishing as well as the establishment of infrastructure such as repositories to promote open content sharing. The project had three central pillars to its project activity and institutional engagement: policy and infrastructure for open access publishing; economic aspects of open access publishing (sustainability, licensing models); and modalities for developing scholarly performance metrics | Software development |
| A System Augmenting Agricultural Activities in Marginalised Rural Areas of South Africa and Zambia by using Cloud Computing and Sensor Networks. | This was the computerisation and automation of the Grain Marketing and Farmer Support Input Programme using Cloud based Technologies | Software development, Software integration |
| The Use of Mobile Phone Technology to Improve the Food Supply Chain in Zambia. | This project used Mobile Phone Technology to Improve the Food Supply Chain in Zambia. It gathered and analysed the needs of various agriculture stakeholders - - cooperatives, transporters, Small scale Traders and Small scale farmers. It also included a Mobile Marketing Tool Specifically Targeting Small Scale Farmers and Traders dealing in Agri-Products. | Software development |
| Southern African Development Community (SADC) | Developed the Researcher Database for SARIMA within SADC Group. Integrated Language interpretation for three (3) Languages (English, Portuguese and French), facilitated linkages of Researchers in SADC.The System generates key reports regarding all the universities, research areas, and collaborations. | Software development |
| Clinic Management System | Gathered and analysed the needs of various stakeholders – clinic personnel, UNZA management, patients, etc. Designed and implemented the following working and deployed modules Enquiries Module, Queuing Module, Medical Diagnostic Module, Lab Module and Pharmacy Module | Software development |
| Chainama College Students Record System | Gathered and analysed the needs of various stakeholders – administrators, students and IT practitioners. Designed and implemented the following working and deployed modules: Student Registration; Finance management; Accommodation module; Results management module; Exam Timetabling module; Class Timetabling; and Announcements (emails and SMS’s to students and staff members) | Software development |
| Rural Electrification Project Information Database | The system was developed using Cake PHP and MySQL. It has API’s that connect to ZRA and the Social Cash Transfer system for the Ministry of Community Development and Social Services. The system integrates card readers and it has been installed in all provincial offices | Software Development |
| Disability Management Information System | The system was developed using Cake PHP, MySQL and it was integrated with the procurement, accounting and other systems from the donators. The aim of the project was to enable management to track project execution timelines so as to provide gauge on which to pay the contractors based on terms stipulated in the contract. | Software Development |

The project team is uniquely placed besides having the expertise and equipment, we have a pool of knowledgeable research students who we are capable of supplementing the experts in carrying out some tasks to high standards at the required accuracy and deliver on time and budget.

**Experience and Qualifications**

The project team is highly experienced and all team members are qualified with postgraduate and graduate qualifications in Computer Science Software Engineering, Database Design, Security, Encryption and Geographic Information Systems. The staff have considerable work experience gained in both the public and private sector.

The following list of members make up the project team and will play key roles:

# **FUNCTIONAL AND NON-FUNCTIONAL REQUIREMENTS COMPLIANCE**

**12.1. FUNCTIONAL REQUIREMENTS**

*These functional requirements or system features are to be seen as a minimum required of the various functions and should not be interpreted as exhaustive. Each requirement will require a response of either Fully Compliant (FC), Partially Complaint (PC), or Non-Complaint (NC) depending on how the proposed system addresses a requirement.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **System Features** | **M/D** | **RESPONSE**  **(FC/PC/NC)** | **COMMENTS** |
|  |  |  |  |  |
| 1. |  | M | FC | This will be the developed module |
| 2. | that is fully functional in line with the scope specified |  | FC | The system will be fully compliant with the scope specified |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**12.2. NON-FUNCTIONAL REQUIREMENTS**

*These non-functional requirements are to be seen as a minimum required of the various functions and should not be interpreted as exhaustive. Each requirement will require a response of either Fully Compliant (FC), Partially Complaint (PC), or Non-Complaint (NC) depending on how the proposed system addresses a requirement.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **System Features** | **M/D** | **RESPONSE**  **(FC/PC/NC)** | **COMMENTS** |
|  |  |  |  |  |
| 7. | The system MUST operate as an integrated unit with all the sub-systems as one core system | M | FC | System will be developed as an integrated system |
| 8. | The system should guarantee comprehensive reporting and data logs for thorough user activity monitoring. | M | FC | The system will have a reporting module that will comprise of all aspects of reports including adhocs reports and all system submodules will be logging each and every system activity. |
| 9. | The system MUST provide functionalities and APIs to link with other stakeholder systems (e.g. partner payment providers,  UNZALARU systems for employer and member validation enquiries, etc.) | M | FC | The system will have a Core API to which all external systems will connect and will have external system wrappers that will be able to invoke external systems as and when the external connection is needed |
| 10. | Information safety protection measures should be addressed to protect customer’s privacy including strong encryption, fault tolerance architecture, disk mirroring, automated database backups, and disaster recovery option | M | FC | All security critical user information will be encrypted before storage in the database/file. The system will be deployed in a load balanced and replicated mode to increase access speed and prevent faults. The system will have a backup module that will also backup the database. A fail over server will be setup which will be a replica of a live system. |
| 11. | The system MUST be on-line and real-time as well as able to work in an off-line but within the terminus LAN | M | FC | The system be deployed on the server connected to the Bus Terminus LAN meaning that even if there is no internet connection, the system will be accessible offline. |
| 12. | The system MUST have a graphical user interface and be menu driven with screen navigation and screen selection facilities for all user screens and displays | M | FC | All system modules that will require navigation i.e. web and mobile apps will have easy to use user friendly graphical interfaces |
| 13. | The system MUST be able to support multiple concurrent users. | M | FC | The system will allow multiple users to login using different sessions. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 14. | The system MUST have capability to be accessed from multiple locations seamlessly with a centralized database synchronization. | M | FC | The system will provide a seamless access from any location within and outside the bus terminus LAN. |
| 15. | The system MUST have facility to archive data after a predefined period. A facility to enable enquiry on archived data and retrieval of archived records should be made available. | M | FC | We will put up a system archiving servers |
| 16. | The system MUST have an online help facility for each user screen. | M | FC | The system will have a help tab on every screen with addressed FAQs. |
| 17. | The system MUST have a multi-level approach to system security based on the recognized audit controls of ‘authentication’, ‘verification’ and ‘data encryption’. | M | FC | The system will have a maker/checker approval process and will provide a multi-factor authentication |
| 18. | The system MUST have the facility to control user/group access at userdefined functions/roles including the following: username/password/biometric access control, systems Administration and Control, Function/Sub-Function, forms (screens) and Reports | M | FC | The system will be user access role based system |
| 19. | The system MUST have a facility to log out the user after specified time of inactivity. | M | FC | System will track user session activities and log users out after noticing inactivity for a set period of time |
| 20. | System passwords MUST be user defined based on the UNZALARU ICT password policy. e.g.: Complex and alpha numeric; Minimum 8 characters in length held in an encrypted form. | M | FC | The UNZALARU ICT password policy will be followed to the later. |
| 21. | The system MUST require periodic password changes at regular intervals defined by the UNZALARU ICT policy. | M | FC | The UNZALARU password change policy will be followed |
| 22. | The system MUST lockout an account or block access after user-defined unsuccessful attempts. | M | FC | System will count system failure login attempts. |
| 23. | The system MUST provide for a clear audit trail for **ALL** transactions with a time and user account stamp. Authorized | M | FC | The system will log all transactions using timestamp with all users’ details. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Staff/roles must be able to view audit trail logs online or print hardcopy. |  |  | The system will provide a log viewing module that will enable users to print the audit logs. |
| 24. | The system MUST support automatic archiving of audit trail logs per user configurable intervals. Audit trail logs must be read-only and security-enabled to prevent unauthorized access or modifications. | D | FC | The system will have a log archiving module for auto log archiving and will provide a read only access to the archived logs |
| 25. | The solution MUST have an easy-to-use report generator facility, which must allow for the generation of ad-hoc reports and must provide a facility to convert an ad-hoc report into a standard report. | M | FC | The system will have a reporting module that will include adhoc report conversion to standard reports |
| 26. | The solution MUST have facility for output/reports to be directed to either printer, screen or file and reports must be user-defined characteristics including: title/ description, detail the period/ date, page numbering, end of report message, nil report message where appropriate | M | FC | The reporting module will provide direct report printing to file or printer and will also provide multiple report formats i.e. excel, csv, plain text, json, xml |
| 27. | The solution MUST be able to print an exact duplicate of a previously generated document or other reports. | M | FC | The reporting module will be designed in such a way that a user will be able to define the parameters of a report just like a previously printed report. |
| 28. | The system MUST be able to running on stable and recognized operating system (to be determined by the application requirements). The system must be based on a proven reliable and tested relational database management system. | M | FC | The system will be developed using platform independent technologies to accommodate most of the operating systems. |
| 29. | The system MUST have capability to meet the Minimum Tolerable Mean Time between Failures (MTBF) in any one calendar year to achieve an uptime of 99% with clear BCP configurations. | M | FC | The system will be deployed in a load balancing/replicated mode to provide maximum up time |
| 30. | The system suppliers MUST provide the users and the Authority with copies of all documentation pertaining to the software including user manuals, technical specifications as well as the customized source code. | M | FC | The developed system will have comprehensive documentation done and the source code will be well documented and archived. |
| 31. | The system suppliers MUST commit to providing on-going technical support for the first 12 months after go-live. | M | FC | Support will be provide for the first 12 months. |
| 32. | The solution suppliers MUST test all the solution functions with signed off evidence of the tests done before implementation/rollout. | M | FC | The system will be tested comprehensively |
| 33. | The system MUST have scalability capabilities that can allow for its extension to other bus terminus among others. | M | FC | The system will be scalable enough to enable extension to other BTMS modules |
| 34. | The system MUST provide for a development/testing, quality assurance/training, disaster recovery and production environments. | M | FC | The system will be replicated on a disaster recovery server. |
| 35. | The system supplier MUST ensure end users are adequately trained in the use of the system as well as technical training for administrators and second level support staff. | M | FC | Users will be trained on the user of each and every module of the system |
| 36. | The system supplier MUST specify and document all the required pieces of hardware, software and any other utilities with their respective costs required to run all the components of the system. All the software and hardware and associated utilities installed MUST be well documented and presented to the  Authority. | M | FC | All documents associated to every system component will be submitted to the authority |
| 37. | The supplier should provide 3D dummy presentations of how they will setup the system with its hardware in the terminus. | M | FC | 3D plus sketch maps on system setup will be provided |

# **SKETCH MAP**

The sketch map gives a high-level overview of the operation of the UNZALARU System to be developed.

# **ATTACHMENT 1: SAMPLE CONTRACTS**

# **ATTACHMENT 2: CURRICULUM VITAE**