THE REPULIC OF UGANDA

MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES (MAAIF)

Design and Development of an Asset Management System for Agricultural Mechanization

Procurement Ref. No – MAAIF-ACDP/NCONS/18-19/00480

FINAL INCEPTION REPORT

Submitted by:

CONVERGE SYSTEMS
Connect ■ Innovate ■ Transform

Converge Systems Limited | Plot 71, 3rd Floor - SAL House Nkurumah Road – Kampala | Tel: +256 414 237 788, Cell: +256-393 208302
E-mail: sales@convergesystems.ug Website: www.convergesystems.ug

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1. EXECUTIVE SUMMARY

This Inception report is submitted by Converge Systems Ltd (hereafter referred to as Converge) to **Ministry of Agriculture, Animal Industry and Fisheries** (**MAAIF**) as part of its deliverables in the **Design and Development of an Asset Management Systems** under Procurement Ref. No – **MAAIF-ACDP/NCONS/18-19/00480**.

1.1 Background

Government of Uganda received a Credit from the International Development Association (IDA) towards the cost of the Agriculture Cluster Development Project (ACDP), and through the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), intends to apply part of the proceeds of this Credit to support the design and development of an integrated web-based Asset Management Information System (AMIS) for; (1) Agricultural Mechanization Technologies, and (2) Ministry, including project asset acquisition and disposal.

The Agriculture Cluster Development Project, implemented in 42 districts, is intended to support increasing of on-farm production and productivity through provision of critical farms inputs which include Improved seeds, fertilizer, mechanization and pesticide, as well as the provision of post-harvest handling support through a matching grant. The project is also intended to develop institutional capacity to deliver services to various stakeholders.

Against this background, and in line with the ACDP Development Objective, the Ministry seeks to contract services of a competent firm to design and develop integrated web-based Asset Management Information System (IMIS) for; (1) Agricultural Mechanization Technologies, and (2) Ministry, including project asset acquisition and disposal. The system will among other roles;

i. act as a repository for mechanization technologies (hardware);
ii. support the division in tracking implementation, and measuring effectiveness of the sector interventions accrued out of increased access;
iii. utilization and adoption of Agricultural Mechanization Technologies (AMTs);

iv. Support in the management of acquisition and disposal of the ministry assets.

Agricultural mechanization has had a limited uptake in Uganda despite its potential to increase the productivity of land and labor, ensure timeliness of farming operations, enhance post-harvest quality of crops, and generate additional employment. Use of farm machinery currently stands at approx. 2%, below the 20% target envisaged by the country. However, the Ministry does not have a central reference point for guidance on use of AMTs.

Government has had several interventions and has distributed a number of Agricultural Mechanization Technologies to different areas in the country. These include machinery for land preparation, value addition and Agro-processing. Management and provision of technical support for maintenance of these AMTs has been hard because there is no central registry/inventory/information management system for AMTs procured by GOU. Some of the AMTs provided to communities by GOU have gone to waste due to lack sustained management and maintenance. It is against this background that funding was obtained from the ACDP project to facilitate the implementation of an asset management application. The system will also support the ministry in automation of assets acquisition, issuance and disposal.

1.2 **Scope of work**

Converge Systems intends to design and develop a Web based Asset Management Systems for the Agricultural Mechanization under the Ministry of Agriculture Animal Industry and Fisheries.

The key functionalities of the Asset Management System shall include the following:

- Capture details of the various providers that supply, maintain and dispose such assets;
- Capture specifications of different AMTs, their sources, certification details and application guidelines and it must be scalable in nature to allow future adjustments;
- The system should be able to capture, analyse specified data, and as well be able to generates the necessary reports;
- Should be web based – accessed anywhere, any time for as long as there is internet connection.
- Built with various levels for purposes of managing who accesses what;
- Integration with other applications and initiatives with the sector. It should thus be in position to export information required to other portals such as the extension and market systems;
- Automate the various asset acquisition and disposal procedures within the ministry
- Monitor the life of assets towards its disposal
- Capture details of the user, and at any point the asset is withdrawn, a new user should be captured
- Provide asset status reports (register) at the various levels and times

1.3 Objectives for this Assignment

Objectives of the assignment

The main objective of the assignment is to develop a Web Based Asset Management Systems for Ministry of Agriculture Animal Industry and Fisheries

Specific objectives

a) To design and develop an integrated asset management IMIS
b) To provide user training and requisite operational manuals for the system;
c) To provide technical support and maintenance of the portal for a period of 1 year from commissioning.

1.4 Detailed Activity Scope and Deliverable Milestones

Task 1: Prepare Inception Report
Output: Inception Report That Includes Methodology of Delivery, Project Plan and Work Schedule.

Task 2: Detailed Systems Study and Requirement Gathering
Output: Signed SRS/FRD

Task 3: Development
Output: Prototype and User Comments

Task 4: Testing of the web based Asset Management System
Output: UAT Sign Off

Task 5: Training the MAAIF Team
Output: Signed Training Report

Task 6: Commissioning and Go Live
Output: Signed Closure Report

Task 7: Maintenance and Support
Output: 1 Year Support

2. PROJECT TEAM

2.1 Contractor Consultant Team

NAME	POSITION
Kayumbu George	Project Manager
Okello Farrel	Documentation and Project Status Reporting
Herbert Musoke	Systems Developer

2.2 MAAIF Stakeholder Team

NAME	POSITION
Rashid Ssebyala	Project Manager
Nazziwa Madrine	Process Owner/End User
Ekadu Silas	Process Owner/End User
Kasibante Andrew	Process Owner/End User
Okwanga Reagan	Process Owner/End User

3. METHODOLOGY

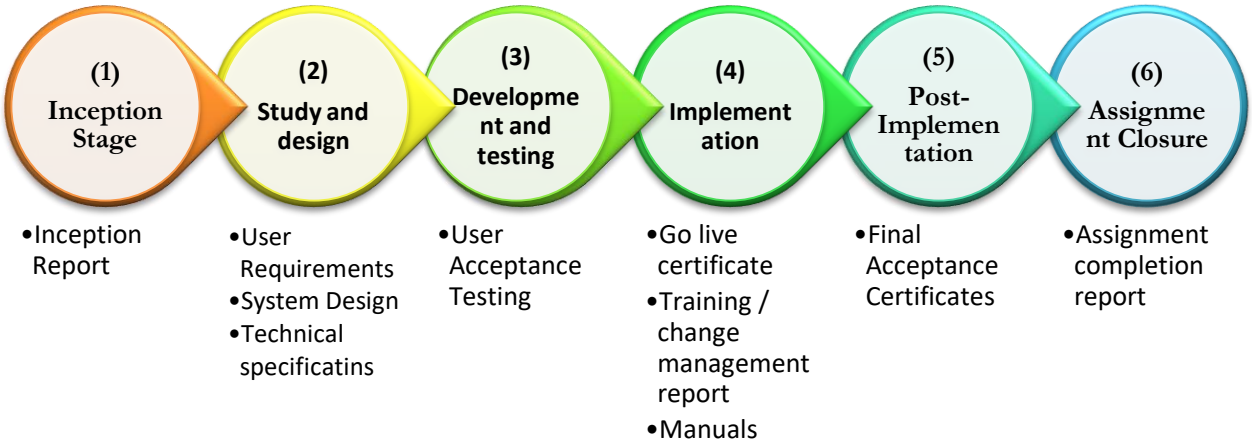
In this section, we present a detailed account of our approach to implementing the web base Asset Management system. We believe in a phased approach, allowing us to first evaluate and document the exact software development requirements of the project in the abstract, and then future phases of implementing and testing the system.

The following will be the major tasks in our project management methodology for this project:

- **Project Management Plan**: At the time of project initiation, a Project Management Plan will be created, which will be maintained during all phases of the project. The plan will include information related to project schedule, deliverables, milestones, project team details, risks, etc.
- **Project Tracking and Reviews**: The Project Manager will conduct regular project reviews with the Project Team. Various critical aspects like status of tasks, project schedule, issue/risks, QA activities, etc. will be reviewed in these review meetings. The project plan will form the basis for all project reviews. Project team will also submit their timesheets and status reports on a weekly basis.
- **Status Reporting**: A detailed status report will be maintained for this project. This report will be updated and shared with Customer on a weekly basis. The report will include status on project progress, issues, pending deliverables, and goals for the next reporting period, etc.
- **Risk Management Plan**: At the time of project initiation, the key project risks will be identified. A Risk Management Plan will be prepared and maintained during all the phases of the project. The plan will identify risks, their impact, mitigation and contingency actions. All risks will be tracked closely every week.
- **Communication**: Customer is expected to provide a Point of Contact (PoC) that can provide relevant information, timely feedback and also organize QA and review activities at Customer's end. Customer PoC can escalate any issue to our Project Manager.

We have proposed a classical and proven approach to executing this assignment. The steps we propose in this approach are listed here below

The section below elaborates these steps further



3.1 Inception Stage

We will use the inception phase to clarify further our understanding of the objectives and scope of the assignment and to complete preparatory activities for the assignment. Most of the work at this stage will focus on consultations with MAAIF and gathering more facts about the assignment from existing materials.

Confirm the scope of the assignment

It is important to clarify with MAAIF in detail, the objectives of the assignment, the scope of the functions that will be automated using the new Asset Management System Tools and all institutions which will be involved with the implementation. We will seek early meetings with the MAAIF, access to the current Asset Management Process, documents and materials that will support the clarifications

Confirm coordination and operational arrangements with the Client

Since this project will involve other outside stake holders, there is need to confirm early the Project Team under the MAAIF and focal points within the ministry and stakeholders. Modalities for relating with the Client project team will need to be clarified. It is our view that a Project Charter clarifying roles and responsibilities of parties, operational modalities, channels of communication and reporting arrangements between the MAAIF and ourselves is submitted along with the Inception Report and cleared early in the project

Draft and present an inception report

We will prepare and present the inception report (IR). The IR will confirm the methodology and approach to the study, staff deployment by MAAIF and ourselves, as well as the detailed work plan

Output or deliverables:

- **Inception Report** that includes methodology of delivery, governance arrangements, and reporting risk management, project plan and work schedule.

3.2 System Study and Design

This stage is very critical as it provides the basis for the new system. It is important to get the study correct ensuring it addresses the specific needs of the MAAIF under the project. There three key elements of ToRs which are executed under this stage

We will specifically undertake the following activities at this stage

a) Reviewing the current Systems If any.

CSL will seek to obtain the current System and to undertake its review. The review will provide the necessary background and detailed understanding of context and to inform the design process. Our focus will be on understanding and documenting the following elements;

- the reasons for its conception, its purpose, its users and the services it provides
- process of key activities in the agricultural data collection cycle being served by the System
- its design architecture
- data classification and data stored on the System
- the technologies on which it is built
- security management and operations for integrity management

- management and maintenance arrangements for the System

b) Undertaking preliminary study of the system

CSL will use this step to generate a conceptual design of the system to facilitate strategic decisions and agreement on how the new system should work. Accordingly, we will undertake the following;

- *Detailed process mapping*; we will undertake a detailed process map; key process for automation have been identified. Process mapping will clarify detailed steps, building on the draft requirements that have been provided and confirm the flows and sharing of data within these processes and the volumes of data involved. Process mapping will also clarify the interactions on data and reporting between the System processes and related processes which will remain manual or which are or will be implemented by other system.
- *Functional responsibilities* for automation; based on process map above, we will identify and document functions for institutions and officials in the execution of these processes which need to be automated
- *Technology architecture*. We will review our technology strategy at this point to align with the process map, data volumes and functional responsibilities above. At this point, we should be able to confirm our technology architecture

c) Undertaking a detailed analysis

Once the Client approves the system concept in (b) above, we will embark on detailed design of the system. This step will validate the User requirements covering the functional needs, communication, hardware and software specifications. User interfaces, security and access restrictions will also be specified at this point. We will undertake the following;

Prepare a statement of user requirements

A set of requirements have been provided with the RFP. These will be validated before they can be used. We will review these requirements and update them on the basis of information obtained at this stage and agreements reached in the system design concept on (b) above. An updated statement of user requirements will be the basis for consultations through meetings with the stakeholders following the strategy identified earlier

During the Analysis phase, the requirements shall be documented in the Functional Requirements Document (FRD).

The CSL training team will also conduct the solution overview, capture the training requirements and create the core team training plan, while the consulting team shall capture the development standards,

quality and testing standards, interface and integration requirements and the data migration requirements. The technology team will also capture the non-functional requirements, assess the infrastructure and provide recommendations on the environments to be setup.

After the requirements are documented, they will be analyzed and reviewed with the GOU team to obtain final approval. This forms the basis of the scope for the implementation.

A tollgate review is conducted at the end of the phase to ensure that milestones and deliverables are provided per the quality standards and that any risks and issues are proactively addressed going into the next phase.

d) Carry out a System Design

The Design phase builds on the previous Analysis phase by acting on the deliverables that result from the requirements gathering conducted for Analysis. The specific goals of the Design phase include, but are not limited to:

- Documentation of the "Fits - Configurations" in the Functional Design Document (FDD).
- Functional design specifications in the FDD for each system modification, custom processing and custom report.
- Functional design specifications and mapping for data migration in the FDD, and development of Data Migration plan.
- Technical Design Documents for the "Gaps" based on the Functional designs approved by the MAAIF.
- MAAIF sign-off on the overall implementation design, specific modification designs, data migration design, and estimates for all the above mentioned activities.

CSL may also present estimates to the MAAIF for the proposed modifications, integrations and data migration programs.

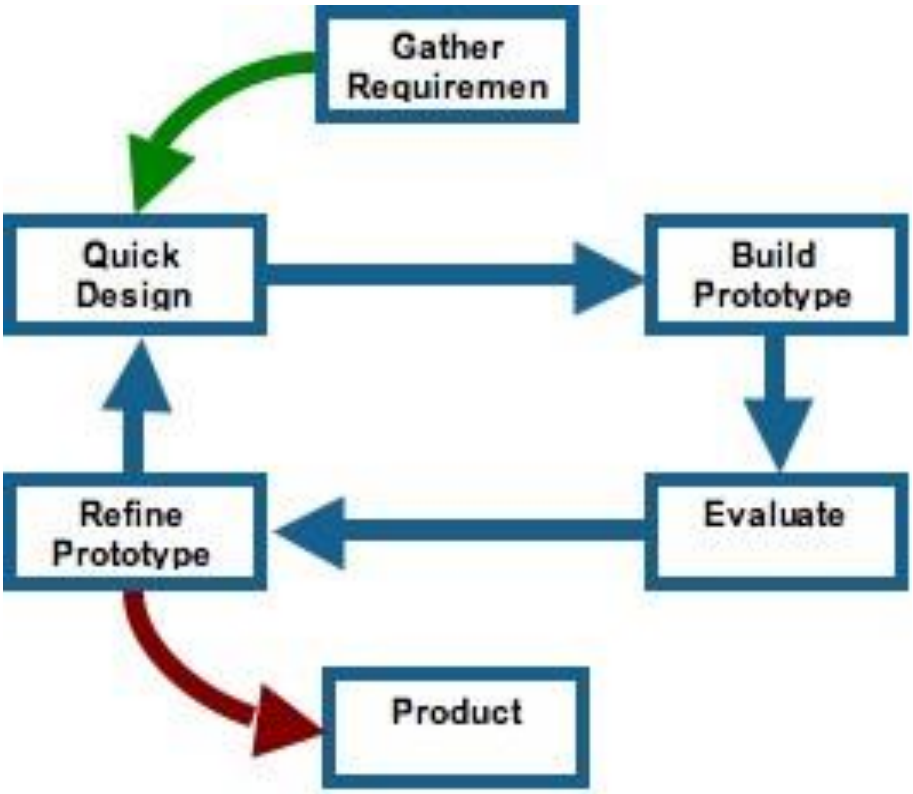
Deliverables

- Functional Design Documents (FDD) for Fits (Configurations) - SRS, technical Requirements Document, Project schedule, implementation approach for the solution

3.3 System development, testing, and go live

The upgrade concept is already in place using prototyping modal. Due to this fact, our resource shall work closely with the stakeholders.

The requirements gathering phase shall be continuous while keeping the scope in mind.



The consultant achieves understanding of the requirements by segregating the requirements as functional, non-functional, interface, etc. The user needs are then articulated and translated into each of these groups.

System requirements specifications (SRS) are prepared and shared with the customer as a framework for the basis of design

The design framework and system architecture will be in line with the scalability and flexibility needs. We will create a solution design document, which will include a high level architecture of the proposed solution and detailed flowcharts for business process and data. The features and functions laid down in the requirements document will be translated into integral components of a comprehensive solution for the new application. These details along with sequential diagrams, etc., will also be captured in the design document and share it with Customer for approval. .

Deliverables

- Training Guides/Documentation
- Final Process Models
- Final System Configuration
- Final Custom Code Development
- Data Acceptance, Process and Integration Testing complete
- Performance Test and User Acceptance Test Scripts
- Production Environment Specification
- Final Integration and Interface Code Development
- Final Data Migration Code Development

Development will take place off-site by our teams. The first stage of testing will take place within our labs. The second level of testing will take place on-site using randomly selected sets of user data. This step will involve the use of the MAAIF's current Assets in a test environment. Working with MAAIF officials, we will prepare test script for the functionality provided in the user requirements and apply them to systems.

3.4 Post Implementation Support

Post implementation support is critical for the new system. CSL believes that, to the extent possible, MAAIF should acquire early the capability to support and maintain the system with significantly reduced dependency on us. This will be our goal in the choices of technologies during design and implementation and post-implementation activities. Handover of support and maintenance activities to MAAIF will be guided by the extent to which this goal is achieved.

After go-live, the consulting team will provide additional support to assist MAAIF in using the new solution. This activity includes resolving issues that are reported, which may be related to setup or configuration in the system, adding fields into a report or assisting users in going through the new work procedures. During this period, as issues surface, it is the Application Consultant's responsibility to monitor those items and make sure that the Project Managers on both sides are well informed.

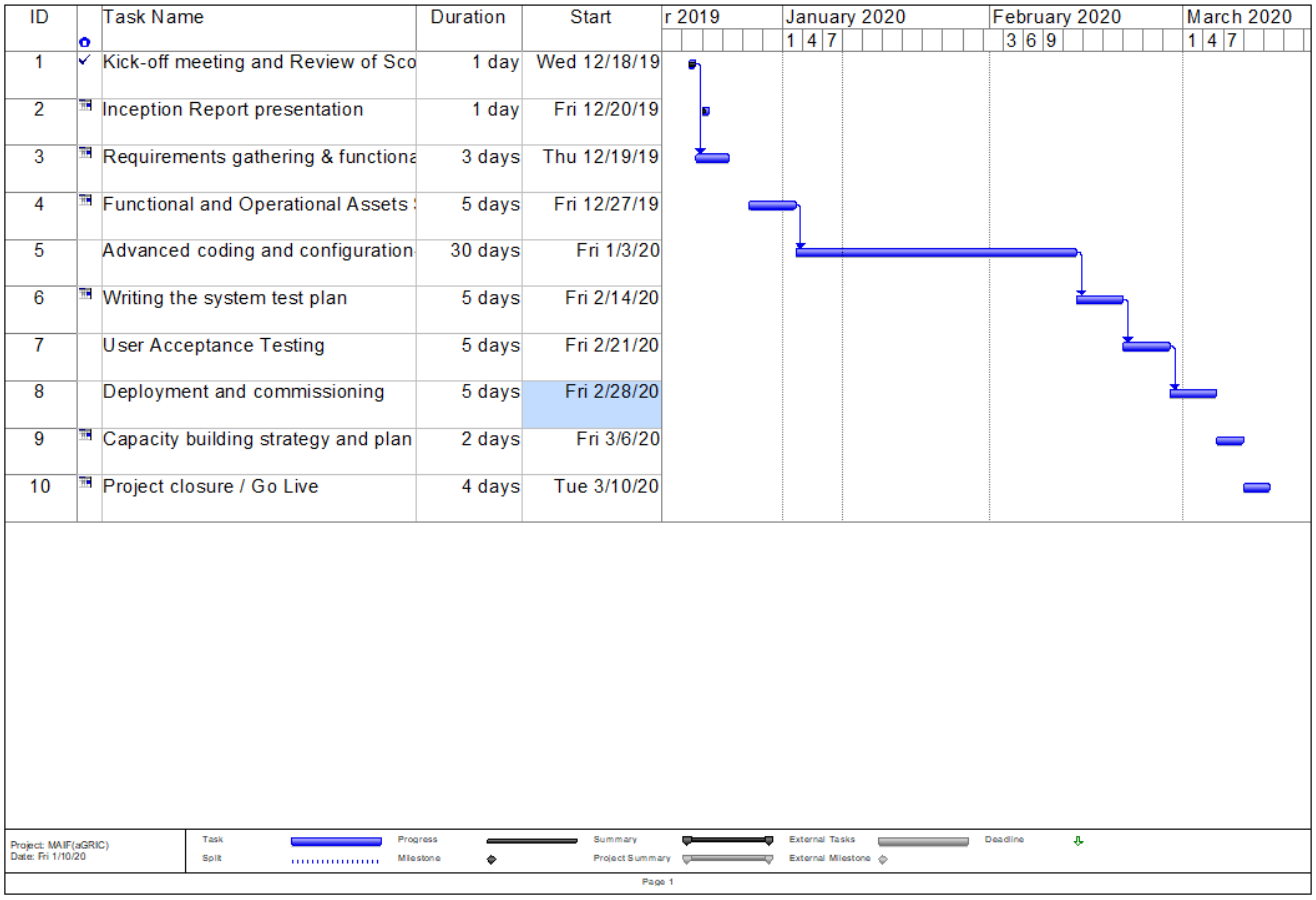
4. ACTIVITY (WORK) SCHEDULE AS PER CONTRACT

The project is expected to take **90 working** days. This estimate is based on actual RFP requirement and actual contractual obligation, however, after the inception meeting, converge systems Limited suggested to deliver the above project within 60 days. The revised Project plan is provided as below

Activity	Days	Start Date	End Date
Project Time Lines	60	December 18 2019	March 13, 2020

The table below highlights the dates within which the tasks shall be completed during the implementation

Activity	Days	Start Date	End Date



5. PLAN FOR THE DESIGN

Project Field Creation

- Users shall be able to add new fileds on top of the already existing ones
- All fields use the same structure as observed in process design
- Helping users create new projects when needed

Creating Data Forms

- Forms shall capture fields of various data types

Adding Thematic Sections to Forms

- Thematic Sections come along with the forms.

Presenting Data forms to Users

- The designed forms are presented on the portal and copied for use by different system users to capture data

Data Entry

- Easy to use forms improve on capture of data

Reports and Graphs

- Plotting objects on graphs fr Analystics

6. REPORTS, CONTROLS AND RESPONSIBILITIES

6.1 Project Responsibilities

The following table lists down the various project activities that will be undertaken by both the contractor and the client. Activity responsibility has been defined within the table for clarity.

Activity	**Responsible**
Develop Project Kick-off Presentation	CSL
Organize Meetings with Process Owners / Users	MAAIF
Study and Analyze Requirements	CSL
Develop Concept Upgrade	CSL
Review and Acceptance/Signoff of inception report	MAAIF
Design, Development and Testing	CSL
Testing and deployment	CSL/MAAIF
User Acceptance Testing	CSL/MAAIF
Go Live	CSL/MAAIF
Project Signoff	MAAIF

6.2 Project Reports and Documentation

The following reports will be submitted to the client as per the frequency stated below. The client contact person will acknowledge copy of the reports and will be tabled during the regular project meeting covered in the next section.

- Inception Reports
- System Requirement Specification - SRS
- Functional Systems
- User Acceptance Report – UAT
- Project Closure Report

6.3 Project Control

Keeping the project on track involves:

- Scheduling status meetings to agree on:
  - Current schedule status
  - Current and new issues and risks
  - Attended client stakeholders by Implementation Team and Consultants
  - The contractor to provide Status Report for each meeting
- Scheduling a monthly steering committee meeting to look at:
  - Risk identified
  - Approvals if any
  - Scope changes
- Early communication if assigned tasks can't be completed by their due dates.
- Communication with the Project Sponsor if risks and issues arise within the implementation team.

6.4 **Project Meetings**

Below is a list of meeting that will be held during the course of the project. Meetings will have a Minute of Meeting (attached below) that will be circulated and acknowledged by all members present during the meeting.

1. Project Kick-off Meeting
2. Requirements Gathering Meeting
3. Monthly Project Status Meetings
4. UAT Meeting
5. Go-live Meeting
6. Project Sign-off Meeting

7. KEY MILESTONES

Project Milestones are listed below. This will be translated into a work plan and deliverables will be signed off at each of stages:

TASK	OUTPUT
TASK 1: INCEPTION: The vendor shall provide a detailed inception report which describes the vendors understanding of the ToRs/ assignment, methodology of delivery (how), governance arrangements and reporting, risk management, critical success factor, Project Implementation Plan (PIP) and work schedule	*Inception report* that includes methodology of delivery, governance arrangements, and reporting risk management, project plan and work schedule.
TASK 2: SOFTWARE REQUIREMENT SPECIFICATIONS Documentation of Software Requirements Specifications (SRS), technical requirements for the solution, hosting requirement and approaches required to complete the assignment.	*Report with SRS*, technical Requirements Document, Project schedule, implementation approach for the solution
TASK 3: DEVELOP, SETUP, CONFIGURE AND DEPLOY THE WEB BASED ASSET MANAGEMENT PORTAL The vendor will perform the following tasks; Develop the system and its capabilities as will be detailed in the SRS Report Install and set up the Asset Management system at MAAIF.	*An operational Asset Management portal with all components integrated* A document (As Built) detailing all components, technologies used and diagrammatic layout of the solution
TASK 4: TEST THE WEB BASED ASSET MANAGEMENT PORTAL The vendor shall perform the following tasks; Prepare a test plan and test cases for the solution	Asset Management System UAT document

Carry out System and User Acceptance Tests on the solution Prepare a test report and fix all identified bugs Deploy the final accepted version to production	
TASK 5: TRAIN THE MAAIF TEAM The consultant shall develop a training plan, assess the skills level of relevant system users, design and prepare appropriate training materials and manuals, deliver training sessions and materials to users.	Training plan Conduct training sessions and prepare test reports Prepare training manuals for the solution

8. ACCEPTANCE SIGNATURES

The signatures below indicate approval of the **Inception Report** and acceptance of the scope, the approach, and the responsibilities outlined within. Signatures also indicate acceptance of the resourcing requirements and imply management commitment towards ensuring that resources are provided when necessary.

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<tr><td colspan="2" rowspan="4">Converge Systems Limited
Plot 71 3rd Floor, SAL House – Nkurumah Road – Kampala
Tel: +256 414 235788
Tel: +256 393 208302,
Cell:+256-759 925860
sales@convergesystems.ug | www.convergesystems.ug</td><td>Document Ref.:</td><td>N / A</td></tr>
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<tr><td colspan="2">Prepared By:</td><td colspan="2">Reviewed by</td></tr>
<tr><td>Okello Farrel</td><td>Documentation and Reporting</td><td>Rashid Sebyala</td><td>IT Specialist / Project Manager</td></tr>
<tr><td></td><td></td><td>Kayumbu George</td><td>Project Manager</td></tr>
<tr><td colspan="2"><u>CONVERGE SYSTEMS LIMITED</u>

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Position:
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