**Terms of Reference (ToR) for Developing a Monitoring and Evaluation Application, Dashboard and Website for Nasarawa State Ministry of Agriculture**

**Background**

With funding from AGRA and in collaboration with Jesnoch International, Nasarawa State aims to strengthen its agricultural sector through effective and modern monitoring and evaluation of the agricultural and food system activities in the state. To achieve this, a robust M&E application with dynamic is required to collect, track and manage data therefore positioning the state for data-drive decision making in the agricultural sector and attract investments within the landscape.

**Objective**

The objective of this assignment to design and develop a robust monitoring and evaluation application with interactive real-time dashboard and a front-end website for the Nasarawa State Ministry of Agriculture. The application will inform data-driven decision making, monitor progress in the agriculture sectors, coordinate the results of agriculture projects, and showcase the reality and potential of agricultural and food system in Nasarawa State. Specifically, the M&E dashboard and application will collect farmers and other value chain actors’ data, including input providers, processors, agric service providers, other projects partners and ensure effective management of information and efficient use of data to drive agricultural improvements and investments in the state.

**Scope of Work**

The scope of work for this assignment covers the development of a web-based and mobile application powered M&E dashboard and application for the Nasarawa Ministry of Agriculture to collect, store, analyze and report agricultural data. The consultant will develop an M&E application framework through consultative engagements with relevant stakeholders in the state to inform the application system’s design to meet the intent and goal and aspirations of the Ministry of Agriculture Specifically, the consultant will:

* Conduct stakeholder analysis and requirement gathering session with NADP, MOA and other private and public stakeholders and document the software requirement.
* Design a mobile app will allow users such as ADP field officers, agribusiness firms and other partners contributing the state food system to collect data offline and online using mobile devices.
* Design the overall system architecture including the wire-frames and create user interface (UI) and user experience (UX) design.
* Develop the M&E web and mobile application using PHP + laravel framework and relevant programming languages and tools for the front-end and backend and implement data collection, storage, analysis and reporting functionalities including all integration with tools such as data collection apps and GIS systems and other supporting systems using required APIs
* Develop a comprehensive testing plan and conduct unit testing, integration testing and general system testing to ensure full functionality
* Deploy the M&E application to a production environment on a cloud server, provide training and support for the end-users including public and private stakeholders and carry out regular system maintenance, updates and backups for a period of 12 months after deployment.

**Overview of the Application Requirement**

*Data Collection and Management*

The application will have the ability to collect data online and offline through forms, survey and assessment tools. The data collected will be stored in a robust database on a cloud server. The application should ensure data validation including data completeness and an algorithm in place to automatically remove duplicate data. The application will have an interactive dashboard powered by Microsoft PowerBI for data visualization to inform data analysis and interpretation for decision making. The application will allow data collection using mobile app version running on mobile devices. The mobile app will be integrated to the online database for easy data transmission.

*Data Monitoring features*

The application will allow the MOA to set key performance indicators, targets and milestones for different agriculture related projects in the state. It will also allow for real-time tracking of the progress made against the targets and milestones.

*Security and Compliance features*

Data encryption for secure data storage and transmission will be required

The application will guarantee role-based user access and permission levels to access data on the application. An audit train functionality will be included in the application design for tracking user activity and data changes. The security of the application must comply with relevant data protection and security regulations in Nigeria and internationally.

*Communication*

The application allows for SMS communication to the farmers, partners and other categories of profiles stored in the database.

*Geospartial Analysis*

The platform integrates Geo-spatial data, allowing users to view farmers, partners stakeholders and project locations in the state using Geo-coordinates

*Front-end website:*

The application will have a front-end website mirroring the dashboard that will accessed by public users using a unique url or domain. The website will display the potential and reality of the agriculture and food system landscape of the state that is primarily driven by data to attract agricultural investments into the state. Users can easily search for agricultural value chain actors, public and private partners. The database will hold the database of farmers, agric-led projects, agriculture stakeholder in the state and agric-led NGOs with detailed information on their projects and outcomes.

Application settings:

This will allow the IT to perform basic task for example adding/removal of users, changing user roles, upload data etc.

**Agricultural-Specific Requirements:**

* Crop, Aquaculture, and Livestock Tracking: Ability to track crop yields, aquaculture production, livestock populations, and other agricultural metrics.
* Geospatial Analysis: Ability to integrate with GIS systems and perform spatial analysis.
* Weather and Climate Data Integration: Ability to integrate with weather and climate data sources.
* Supply Chain Management: Ability to track and manage supply chain data (e.g., input usage, output sales).
* Decision Support Systems: Ability to provide decision support tools for farmers, extension agents, and other stakeholders

**Other Requirements:**

* Offline Capability: Ability to collect and store data offline, with synchronization when internet connectivity is available.
* Multi-Language Support: Ability to support multiple languages to accommodate diverse user groups.
* Training and Support: Availability of training and technical support to ensure successful software adoption.
* Interoperability: Ability to interoperate with other systems, tools, and platforms to ensure seamless data exchange.
* Data Collection: Ability to collect data through various methods (e.g., surveys, forms, sensors).
* Data Management: Ability to store, manage, and analyze large datasets.
* Indicator Tracking: Ability to track and monitor key performance indicators (KPIs) and metrics.
* Reporting and Visualization: Ability to generate reports, dashboards, and visualizations to facilitate decision-making.
* Mobile Compatibility: Ability to collect and access data through mobile devices.

**Methodology**

1. *Planning:* Define the project's scope, goals, and deliverables, while identifying the needs of MOA. A detailed project plan and timeline will be developed, including tasks, dependencies, and timelines, and identifying potential risks, assumptions, and constraints. Present the Business Requirements Documents (BRDs), and Gantt charts
2. *Requirements Gathering:* Collecting and document software requirements from stakeholders and users. Defines both functional requirements (what the software should do) and non-functional requirements (how the software should behave). The key output of this stage is a comprehensive Software Requirements Specification (SRS) document, which serves as a blueprint for the software development.
3. *Design*: Create a detailed blueprint for the software. This includes developing architecture, components, and user interface designs that meet the requirements gathered earlier. Additionally, the database schema and data models are defined to ensure data integrity and efficiency. Develop a detailed prototype to visualize and test the design, gather feedback, and make necessary iterations before proceeding with development.
4. *Implementation (Coding):* Write the software code based on the detailed design specifications. This involves building software components, modules, and features that meet the required functionality. As the code is developed, unit testing and integration testing are conducted to ensure that individual components work correctly and integrate seamlessly with other parts of the software.

5. *Testing and Quality Assurance*: Conduct various types of testing, including functional, performance, and security testing, to ensure the software meets the required quality standards. Defects and bugs are identified and fixed, and user acceptance testing (UAT) is conducted to validate that the software meets the user's expectations and requirements. This stage ensures that the software is reliable, stable, and secure before it is deployed.

6. *Deployment:* Plan and execute the roll out of the software to the production environment. This will includes setting up the necessary infrastructure, configuring the software for production, and conducting deployment testing to ensure a smooth transition. Once deployment is complete, the software is made available to end-users, and any necessary training or support is provided to ensure successful adoption

7. *Maintenance and Support: Provide* ongoing care for the software to ensure it continues to meet user needs and expectations. This includes fixing defects and bugs, implementing new features and enhancements, and providing technical support to users. Regular updates and patches are also applied to ensure the software remains secure, stable, and performance, and that it adapts to changing user requirements and technological advancements

Documentation: Create and maintain comprehensive records of the software development process, including requirements gathering, design decisions, implementation details, testing procedures, deployment steps, and maintenance procedures. This ensures knowledge transfer, facilitates future maintenance and updates, and provides a valuable resource for stakeholders and users.

**Deliverables**

* A fully functional M&E web and mobile application with real-time dashboard
* A dynamic website for the Ministry of Agriculture
* Deploy application and website on a dynamic cloud server
* Application documentation including description document, user/training manual and source code
* Final report detailing the entire process for the assignment.

**Timeline**

**The LOE for this assignment is 5 months between April 25 and September 15, 2025. The consultant will submit a detailed work plan and timeline as part of the inception report.**

**Qualification of the firm**

*Technical Qualifications*

* Programming skills: Proficiency in programming languages such as Java, Python, C++, or .NET.
* Database expertise: Experience with database management systems such as MySQL, Oracle, Microsoft SQL Server, or PostgreSQL.
* Data modeling: Knowledge of data modeling techniques and data warehouse design.
* Cloud computing: Experience with cloud-based technologies such as Amazon Web Services (AWS), Microsoft Azure, or Google Cloud Platform (GCP).

*Business Qualifications*

* Relevant experience: Proven track record of developing database management systems for similar industries or clients.
* Domain expertise: Knowledge of the industry or domain for which the database management system is being developed.
* Project management: Experience with project management methodologies such as Agile, Scrum, or Waterfall.
* Communication skills: Ability to communicate effectively with stakeholders, including technical and non-technical personnel.

*Resource Qualifications*

* Resource allocation: Ability to allocate sufficient resources, including personnel, equipment, and infrastructure.
* Scalability: Ability to scale up or down to meet changing project requirements.

Reputation and References

* Client references: Positive references from previous clients or partners.
* Industry reputation: Good standing within the industry, with a reputation for delivering quality solutions.
* Awards and recognition: Recognition or awards for excellence in software development or database management.

**Evaluation Criteria**

The consultant's performance will be evaluated based on:

1. Technical Quality: The technical quality of the deliverables, including the inception report, draft report, final report, and policy brief.
2. Timeliness: The consultant's ability to meet the deadlines and timelines outlined in the work plan.
3. Stakeholder Engagement: The consultant's ability to engage with diverse stakeholders, including government officials, farmers, private sector actors, and civil society representatives.
4. Experience: The consultants experience working or consulting for the government.

**Location of the assignment.**

The consultancy will be carried out in Lafia, Nasarawa State.