FORUM FOR AGRICULTURAL RESEARCH IN AFRICA

TERMS OF REFERENCE

Development of an automated repository and analytical framework for data and information on African Agricultural Science, Technology, and Innovation – Upgrade the FARADatInformS and implement Artificial Intelligence Support Systems (Phase 4)

Reference: FARA/DRI/KMLC/CAADP-XP4 4.1.3, 2.1.5 and 2.2.2

A. INTRODUCTION

The Forum for Agricultural Research in Africa (FARA) is the apex organization for agricultural research for development in Africa. The completion of the implementation of the first Medium Term Operational Plans (MTOP 1 and 2) in December 2018, heralded the development of a new strategy to consolidate the significant gains of MTOPs. Key about the deliverables is the development and implementation of the FARA Data and Information Systems as part of the observatory for the Science Agenda for Agriculture I Africa and Africa AR4D.

Based on lessons learnt from implementing the MTOP, and an analysis of current challenges, opportunities and emerging trends in the agriculture sector and the AR&D arena, the new ten year strategy (2019-2028) and 5 years business plan identified knowledge management as a strategic driver for improved and sustainable agriculture.

Africa’s contribution to the global knowledge system continues to be the lowest in the world. This is mainly due to the low institutional and individual knowledge generation capacity on one hand, and the weak institutional capacity and infrastructure for collecting, storing, and managing the data and information being generated on the other. Informed decision-making processes at all levels are weak due to low availability and accessibility of reliable data, information, or knowledge.

To effectively provide science, technology, and innovation (STI) knowledge support to the CAADP country processes and for the implementation of the Malabo Declaration for 2025, FARA is collaborating with the CAADP-XP4 Consortium (AFAAS, AFAAS, ASARECA, CCARDESA and CORAF) to establish the FARA Data and Information System (FARADatInformS) in the year 2018; as a repository of relevant STI metrics at country level and the observatory for Africa agriculture, linking all relevant knowledge hubs and databases for easy access by stakeholders. Over the past 5 years, the FARADatInformS has been serving its purpose as the one-stop-shop for relevant agricultural knowledge and information.
However, with the rapid advancement in technological applications, the need to integrate modern applications and the important role of artificial intelligence, it is good practice to upgrade the FARADataInformS to address the following:

a. Upgrade the current Drupal 7 to the latest version of Drupal or as appropriate.
b. Align/Integrate existing databases in FARA to the overall functionality of the FARADataInformS.
c. Develop relevant APIs to support the interoperability agenda of the CAADP-XP4 consortium.
d. Develop new tools and services based on feedback from users and in line with best practice.
e. Integrate FARA social media to the redesigned FARADataInformS to strengthen sharing, outreach, and engagement.
f. Introduce recommender systems and artificial intelligence functionalities that deliver the right solutions and add value to users.
g. Redesign the FARA Corporate website in alignment with the revised FARA 5-year business plan (2024-2028) of the 10 year strategy.
h. Integrate the DSpace online library facility to provide relevant resources to users and experts within the FARADataInformS.

B. OBJECTIVES OF ASSIGNMENT

The primary objective of this consultancy is to upgrade the existing knowledge hub (FARADataInformS) to enhance its functionality, usability, and effectiveness in disseminating knowledge and information to our stakeholders. The FARA Data and Information System (FARADataInformS); a repository of relevant Science and Technology Indicators (STI) metrics at the country level serving as the basic resource from which various information products will be derived, is a component of the FARA Observatory on the Science Agenda and Africa AR4D. The upgrade of FARADataInformS will entail integrating existing databases, linking relevant data sources, integrating recommender systems and introducing artificial intelligence functionalities.

C. SCOPE OF ASSIGNMENT

Based on the structure of the existing Knowledge hub and other relevant references, the Consultant will be expected to liaise with the Knowledge Management Specialist of FARA, to undertake the following tasks:

a. **Assessment and Needs Analysis:** - Conduct a comprehensive assessment of the current knowledge hub platform (DataInformS.faraafrica.org) and FARA Corporate Website (faraafrica.org), identifying strengths, weaknesses, opportunities, and threats. - Engage with stakeholders to gather feedback and requirements for the upgraded knowledge hub.

b. **Technical Recommendations:** - Provide a detailed report outlining technical recommendations for upgrading the knowledge hub platform. This should include but not be limited to: - Software/hardware requirements. - User interface and experience improvements. - Security and data protection measures. - Compatibility with existing systems. - Scalability options. – artificial intelligence
c. **Content Management**: - Review and assess the current content structure and provide recommendations for improvements. - Advise on best practices for content curation, organization, and updating.

d. **Integration and Interoperability**: - Evaluate potential integrations with other systems or platforms for seamless data exchange and functionality. - Provide recommendations for APIs or middleware solutions if necessary. Some of these include the FARAAfrica Community (Dgroups), the continental experts directory with regional alignment, the FARA online library (DSpace), the Innovation Platform Portal, the technologies database, the e-marketspace (taken lessons from WikiFarmer), the KM4AgD platform with e-learning functionalities, Social media, FARA Corporate website, amongst others.

e. **Actual upgrade/Development of the new platform**: - Lead the development of the upgraded knowledge hub based on points a, b, c and d.

f. **Training and Capacity Building**: - Develop a training plan for staff and FARA Forum members to ensure they can effectively use and manage the upgraded knowledge hub. - Conduct training sessions as needed.

g. **Testing and Quality Assurance**: - Oversee the testing phase to ensure all functionalities work as expected. - Identify and rectify any bugs or issues that may arise during testing.

h. **Documentation**: - Provide detailed documentation of the upgraded knowledge hub, including technical specifications, user manuals, and troubleshooting guides.

D. **OUTPUTS AND DELIVERABLES**
The Consultant is expected to deliver the following:

1. Assessment Report
2. Technical Recommendations Report
3. Content Management Recommendations
4. Integration, Interoperability and AI Recommendations
5. Implementation plan and actual development of Knowledge Hub & Corporate Website
6. Training Plan and Materials
7. Testing and Quality Assurance Report
8. Documentation Package
9. Current priorities of research areas of National agricultural research systems (NARS) and countries

E. **DURATION OF THE ASSIGNMENT**
The duration of the assignment will be 65 working days spread over February 2024 to July 2024. These are divided as follows:

- 20 days for user experience assessment, technical recommendations, technical recommendations, content management and integration. To be completed by March 20, 2024
 ➢ 30 days for actual development and upgrade of knowledge hub including FARA corporate website – by April 30, 2024
 ➢ 10 days for testing, training, and quality assurance – By May 17, 2024
 ➢ 5 days for documentation/manuals finalization and handover – June 21, 2024

F. LOCATION OF THE ASSIGNMENT
The assignment will mostly be home-based but will require a minimum of 10 days on location at FARA Secretariat in Accra, Ghana or a designated location decided by FARA.

G. PERFORMANCE AND EVALUATION CRITERIA
The Consultant is expected to undertake the services with the highest standards of professional and ethical considerations, competence, and integrity. He/she is expected to deliver the outputs listed in Section C and D in a most effective and efficient manner within the assignment period stated in Section E of this document.

Evaluation and Selection Criteria: The selection of the consultant will be based on the following criteria:
- Relevant experience in upgrading complex knowledge hubs or similar platforms (15%).
- Technical expertise in the relevant technologies and systems (30%). This assignment requires a Lead Consultant, One (1) Web and Database Expert, and One (1) User Interface Expert. Please include the CV of each team member.
- Demonstrated ability to communicate effectively and work collaboratively with stakeholders (10%).
- Proposed approach and methodology for the upgrade (35%).
- Language Experience in English, French and/or other AU-certified languages (5%)
- Knowledge of AR4D and operations of the NARS in Africa (5%)

H. REPORTING
The Consultant will report to the Director of Research and innovation through the Knowledge Management, Learning and communications Cluster Leader. Regular progress updates are expected, along with a final presentation of findings and recommendations.

I. FACILITIES TO BE PROVIDED BY FARA
FARA will provide the following information and facilities to the consultant:
- Information about systems and tools underpinning the existing knowledge hub – FARADatabaseInformS, including backend access
- Relevant Mock up report or prototype of the current FARADatabaseInformS
- Concept Note and ToR about the FARADatabaseInformS
- Information about relevant stakeholders and network
v. Logistics/travel information
vi. Honorarium and per-diem
vii. Any other relevant information required

J. QUALIFICATION AND EXPERIENCE

The following qualifications are required:
i. Minimum of a Masters or B.Sc., Information Technologies, Information and knowledge management system, Computer Science, Data Science, Artificial Intelligence or any related social science and development fields.
ii. A minimum of 5 years’ professional experience in conceptualizing, designing, and developing agricultural research for development related information systems (Proof will be required) for large multi-national organizations like FARA.
iii. Proven ability to design and develop information management systems including collection, storage and analysis of multivariate data sets.
iv. Good knowledge and understanding of existing similar information and knowledge management systems
v. Good knowledge of African agricultural policies, research, advisory services, education, science and technology.
vi. Understanding of issues relating to food security and agricultural productivity on the continent
vii. Familiarity with FARA’s role in African agricultural research and development. Knowledge about the sub-regional organizations and the NARS will be an advantage.
viii. Experience working in Agricultural Research for Development (A4RD) and international development in general.
ix. Experience with the development and/or implementation of Knowledge Graph could be a plus
x. Fluent in English Language and proficient writing and communication skills in English language. Ability to speak another UN language (preferably French) will be added advantage.

K. CONFIDENTIALITY

The consultant is required to treat all information obtained during the assignment as confidential and should not disclose it to any third party without prior written consent.

L. APPLICATION PROCEDURES AND DEADLINE

Kindly send via e-mail, your expression of interest detailing your methodology and a comprehensive curriculum vitae to the address below, not later than January 15, 2024:

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