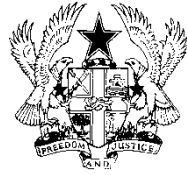


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Our Ref. No: GSS/GSDP/IT2/2015

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REPUBLIC OF GHANA
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Terms of Reference (ToR)

Consultancy to build Ghana's Indicator Tracking Platform (as part of the Data Consolidation and Business Intelligence System)

1. Background

Ghana Statistical Service (GSS) is the government agency mandated to oversee the production of official statistics in the country including conducting censuses and major household surveys. GSS is also the coordinating body of the National Statistical System (NSS) which includes all major data producers in the country, most notably other government Ministries, Departments and Agencies (MDAs) who generate data through targeted surveys and the collection of administrative data. The NSS thus produces data on a wide variety of topics.

In recent years, Ghana has agreed to monitor a number of national, regional and global level agendas. Most notable among these are Ghana's national development strategies, the African Union's Agenda 2063, and the Sustainable Development Goals (SDGs), Agenda 2030. Since the adoption of the SDGs, an Implementation Coordinating Committee has been formed and GSS has been the primary data champion on the SDGs in the Committee. GSS has responsibility to ensure that the indicators to track progress against the SDGs and other agendas are produced and satisfactorily disseminated to users.

As part of the Data Consolidation and Business Intelligence System, the GSS intends to engage the services of a Consulting Firm to build an Indicator Tracking and Interactive Visualisation Platform for Ghana. This platform will be a single window for tracking Ghana's performance against the SDGs, AU Agenda 2063, Sendai Framework for Disaster Management and Ghana Development Framework.

2. Goal

The overall goal is to seek the services of a consulting firm to build an interactive intelligent system that has a Statistical Data and Metadata Exchange (SDMX) module and clearly communicates statistically, Ghana's progress against national, regional, and international agendas via a web-portal.

3. Objectives

The objective of this consultancy is to build an integrated web portal platform that has an SDMX module for data exchange and enhanced data visualisation tools that will enable reporting of Ghana's performance against key national, regional and global agendas. The platform will be the primary means of communication of core development data for the country to all stakeholders including government, the private sector, development partners, civil society organisations, the media and the general public.

4. Activities/Scope of Services

The consulting firm shall carry out the following activities in close coordination with the GSS IT Directorate, Co-ordination and Programme Management Directorate, and the SDGs Co-ordinator at GSS. The scope of activities will involve requirement analysis and building a scalable platform as well as building the capacity of GSS staff.

4.1. Discovery Phase:

- Engage forty key stakeholders in data production and use for need assessment to enable the contractor have an in-depth understanding of the project expectation.
- Assess the data producers (MoH, MoE, MoFA, MoELR and MSWR) IT capacity and available systems, especially in the area data and metadata dissemination systems.
- Access and review US and UK SDG online platforms for general understanding of Ghana expectation. (link for US: <https://sdg.data.gov/>) and (link for UK: <https://datasciencecampus.github.io/sdg-indicators/>).
- Download and study the source code of the US/ UK National Reporting Platforms on Github
- Design the platform architecture to align with the national, regional, global and other statistics reporting agendas.
- Design a front-end prototype based on the platform architecture for review to guide the platform development.

4.2. Development Phase

- Clone the US/ UK platform using their open source codes at Github.com Build on the US/ UK adopted platform to adapt a scalable data dissemination platform where performance indicators on key national, regional, and global agendas can be accessed and tracked.

- Build mechanisms for interactive data visualisations based on selected indicators (SDGs, AU Agenda 2063 and National Development Framework) to improve communication and enhance data use for evidence-based decision making. This should include all relevant disaggregation.
- Data visualisations will be based on thematic areas that will be agreed on by the key stakeholders.
- Build mechanisms to allow for tracking of indicators over time. Most indicators will be monitored annually, however, some indicators have other data production cycles that will be used to monitor such as 5 years for GDHS, MICS etc.
- Incorporate a tracking tool to document activities undertaken to monitor each of the agendas, e.g. meetings, forums, workshops etc.
- Design tools that establish linkage with government policies and programmes being implemented to achieve the agendas’ aims.
- Platform with **inbuilt mechanisms that allow automatic pulling of pre-existing databases into the GITP platform such as NADA, EMIS, DHMIS etc for periodic pattern discovery and periodic analysis of time series.**
- Also include a tool to showcase activities undertaken by the data ecosystem.
- Provide a backend service (SDMX, API) that allow the pulling of pre-existing databases directly in the platform, e.g. NADA, EMIS, DHMIS
- Provide an option that will allow data providers to upload data online for validation and publish by the data manager.
- Liaise with agencies regarding data sources, formats etc.
- Develop data architectural plan for the functioning of the platform
- Develop and deliver iterative front and back ends of platform in consultation with GSS IT Directorate and other identified stakeholders.
- Develop a mobile application to interact with the platform.
- Include a social media functionality to disseminate information about the data ecosystem.

4.3. Capacity Building Activities

- Develop online training tools/ curricula and user manual
- Conduct technical training for identified members of GSS IT Directorate to enable them to maintain, update, scale up and change the platform as necessary
- Conduct user training for identified focal persons in key agencies who may perform manual updates
- Conduct training for identified focal persons in key agencies who may perform updates to feed the developed database

5. Key Deliverables

- Inception report
- A robust and secure SDMX-compatible architecture for the Indicator Tracking platform including mechanisms for machine-to-machine data transfer and mechanism for manual online upload
- Designed “front and back ends” or “look and feel” of the platform that meet user needs

- An interactive data visualization platform
- A platform compatible with mobile devices and existing web browsers
- Developed a mobile app for the platform
- A functioning web analytics
- On-line training tools and manual

6. Input provided by Implementing Agency

Aside from providing office space when necessary, GSS will provide the Contractor with administrative support and assistance in organising meetings and other provisions necessary to facilitate the work. GSS IT Directorate will coordinate and supervise the work of the consultant.

7. Supervision and Quality Assurance

The IT Directorate and the SDGs Co-ordinator will work together with the Contractor for quality assurance. A performance review and feedback will be given on various deliverables and iterative user testing will be carried out.

8. Assurance of Confidentiality

The consulting firm shall sign a non-disclosure agreement and maintain strict confidentiality on any information accessed from or provided by GSS and/or other agencies. This condition shall apply even after the end of the contract.

9. Performance criteria

The contract performance will be assessed based on the following:

- Quality of inception report
- Feedback from data producers and users on the functionality of the platform
- Detail application software architectural design and data modelling
- Develop prototype application base on agreed architectural design and data modelling
- Final testing and performance report
- Quality of User manuals
- Quality of Technical manuals
- User and technical training
- Application commission report

10. Implementation arrangements

The consulting firm will work in close collaboration with the IT Directorate and with the GSS SDGs Co-ordinator.

11. Assignment period (Time frame)

The assignment is expected to take 6 months from the date of contract acceptance.

12. Terms of payment

Payment will be done on the following contract performance:

- 5% Inception report
- 20% data architectural design
- 30% after platform front-end is fully functional.
- 25% after platform back-end and mobile application are fully functional.
- 20% after testing and acceptance.

13. Qualifications and experience requirement of the contracting firm

The consulting firm must have experience in the following areas:

- Minimum of 5 years' experience in software engineering and IT
- Minimum of 5 years' experience in application and database integrated development
- Minimum 5 years' experience of data visualization and Dashboard development
- Proven track record of building data visualization platforms (at least 3 similar assignments to have been undertaken in the last 5 years)
- Availability of appropriate skills among staff to undertake and complete the project
- Demonstrated capacity/resources to carry out the assignment
- Knowledge of context of national, regional, and global development agendas would be an advantage
- Knowledge of operation of national statistical systems would be an advantage

The Developers Skills and Experience

- Proficiency in git and GitHub
- Advanced web development skills, e.g. HTML, PHP, CSS.
- JavaScript
- Ruby

Team Leader

- A postgraduate degree in IT/Computer Science/ Data Science or related area.
- Minimum 10 years' of domain expertise
- 5 years' experience in systems development lifecycle management.

- Minimum 10 years' experience in software development (in particular web applications)
- 3 years' experience in integrated software development using SDMX and API
- 2-3 years' of experience in information security
- Minimum 5 years' experience in project management
- Advance knowledge in statistics
- 3 years' experience in system analysis
- Ability to communicate effectively and deliver training in English.

13.2 **Team Members**

- Degree in IT/ Computer Science/ Data Science or related area.
- Professional certification in system development and database management systems.
- 2-3 years' experience in systems development lifecycle management.
- A minimum of 5 years' experience in web application and database development
- Basic knowledge in statistics
- 1 year of experience in information security
- Experience working in similar environments
- Ability to communicate effectively and deliver training in English.
- Proficiency in git and GitHub
- Advanced web development skills, e.g. HTML, PHP, CSS.
- JavaScript
- Ruby