Pension Office

Terms of Reference (ToR)

Consulting Firm for the Design, Development, Implementation and Training of Google Big Query Data Warehouse

Sustainable and Integrated Labor Services Project (SAILS)
P177240

1. Background

Maldives Pension Administration Office (MPAO) is an independent legal entity established under the Maldives Pension Act on 13 May 2009. The primary functions of MPAO includes administering the Maldives Retirement Pension Scheme and the Old Age Basic Pension Scheme. MPAO has built a strong pension administration system which ensures adequate and secure income security at retirement. MPAO is an ISO 27001 certified organisation where the entire IT infrastructure is running on the Google Cloud Platform (GCP).

MPAO is jointly implementing the Sustainable and Integrated Labor Services (SAILS) Project with the Ministry of Economic Development (MoED). The Project is funded by the World Bank through which the Government of Maldives aims to improve social protection coverage and employability of workers.

SAILS Project aims to enhance the resilience and employability of Maldivian workers by establishing a sustainably financed unemployment insurance scheme and integrated labour market services. The Project comprises of 4 components:

1. Integrated Labor Market Services that would establish an Employment Services Scheme and Job Centers nationwide;
2. Strengthening Social Insurance that would establish an Unemployment Insurance Solidarity Fund;
3. Project Management that would establish a Project Management Unit and day-to-day project coordination and
4. Contingency Emergency Response Component that would provide immediate response to crisis and emergency as and when required.

As the lead implementing agency for component 2 of the Project, MPAO is seeking a firm to develop and implement a robust and efficient Data Warehouse (DWH) solution using Google Bigquery. The data warehouse solution will play a crucial role in supporting the MPAO to manage and administer pension schemes and provide quality services to the members. Additionally, this solution will serve as a central repository for all the pension data, thereby enabling streamlined access and analysis of data internally and externally. The selected Firm for the assignment will work under the guidance of Head of Innovation and Technology of MPAO and shall also report to the Project Director on the status of the assignment on a regular basis.

2. Objectives

The objective of this assignment is to develop and implement a Data Warehouse (DWH) solution using Bigquery on GCP. With the DWH solution, MPAO is seeking to accomplish the following:

- Create a central repository for all pension data from various data sources;
- Data pipelines that ingest data from various upstream data sources, such as APIs, Excels, Databases, etc;
- Execute Extract, load, and transform (ELT) process;
- Share the data with internal and external stakeholders;
- Train inhouse users on Data Warehousing and on internal and external statistical reporting, Business Intelligence (BI) and Artificial Intelligence (AI) tools;

This DWH solution is intended to provide quality and accessible data within the organisation, improve data literacy, increase efficiency, process complex queries to develop statistical reports and build AI models in an efficient manner that add value to the organisation internally and externally.

3. Scope of Work

The DWH solution is a four (4) phase solution. The scope of the of the project include but is not limited to the following:

3.1. <u>Phase 1 - Requirement gathering and documentation</u>

3.1.1. Conduct a review of the organisation's current technological architecture, internal and external applications in use, including analysis of data source to find out data type and structure, volume, sensitivity, etc.

3.1.2. Identify BI and AI tools that can be integrated with the DWH solution.

3.1.3. Selecting the DWH technologies (DWH database, ELT tools, data modelling tools, etc.), taking into account number of data sources and data volume to be loaded into the DWH and Data flows to be implemented.

3.1.4. Develop DWH backup and recovery plan in the event of system failure.

3.1.5. Identify the end user requirements and products to be developed through the DWH technologies.

3.1.6. Identify metrics for performance and quality for the end product performance.

3.2. <u>Phase 2 - Design and Implementation of the Solution</u>

3.2.1. The solution must include architecture diagram and data model for the entire pipeline (data sources to end product).

3.2.2. The solution must have a robust and unified security approach to safeguard data.

3.2.3. The solution shall be implemented using Google Bigquery.

3.2.4. The proposed solution shall be the centralised data repository that will serve as the primary source of data for the organisation. This repository will be created by integrating relevant data from various existing source systems, as well as any future source systems that may be implemented in the future. Additionally, where appropriate, external data sources will also be integrated into the repository.

3.2.5. The data validation process must be scalable and replicable for each of the data sources.

3.2.6. Benchmarks for cleaning data to be identified.

3.2.7. The central repository shall serve the purpose of querying, analysing, reporting as well as model building which consists of tools of analysis, transformation and presentation.

3.2.8. The solution shall capture metadata and other changes to the data overtime, for a seamless reporting, regardless of the change to data.

3.2.9. The solution shall support structure and model version history in addition to the data history.

3.2.10. The solution shall support reporting at any point.

3.2.11. The solution shall have a backup plan.

3.2.12. The solution shall provide the option to evolve the schema after it's moved.

3.2.13. The solution shall keep the DWH environment running during schema changes with minimal disruption to upstream and downstream processes.

3.2.14. The solution shall allow for growth in size.

3.2.15. The solution must include API integrations to data sources.

3.2.16. The solution shall have ELT pipelines and testing processes.

3.2.17. The solution shall facilitate data sharing with external stakeholders via API solution in a controlled environment.

3.2.18. The solution shall provide installation and configuration as required for the successful implementation of the solution including performance benchmarks.

3.2.19. The solution must include AI tool integration.

3.3. Phase 3 - Training on DWH and Analytical solutions
   3.3.1. Conduct user and administrator training sessions and workshops on warehouse operation, management and maintenance to Data Services Department, Pension Office.
   3.3.2. Conduct user training on BI tools and AI tools related to DWH available in GCP to Data Services Department, Pension Office.
   3.3.3. Conduct user training on Tableau to relevant departments of MPAO.

3.4. Phase 4 - Provide Support
   3.4.1. The Firm shall provide technical support up to 1 year from the date of operational acceptance. The provision of technical support beyond the initial period may be subject to an extension by mutual agreement between the Firm and the MPAO.

4. **Deliverables**
   4.1. Phase 1:Requirements Gathering and Documentation (Gap analysis Report).
   4.2. Phase 2: Design (Agreed SOW/SOP Document) and Implementation of the Solution (Acceptance Report).
   4.3. Phase 3: Training on DWH and Analytical Solutions (Agreed Training Plan and Knowledge Evaluation Report).
   4.4. Phase 4: Completion of Support and Maintenance of the DWH (Completion Report).

5. Duration of the Consultancy

The selected Firm is expected to complete the phase 1 to phase 3 within a period of six months. Phase 4 shall be completed within one year from the date of operational acceptance.

6. Eligibility Criteria

6.1. The Firm shall be a Google Cloud Partner that provides data warehousing solutions using Big Query.

6.2. The Firm shall have at least four (4) resource personnel with more than three (3) years of experience in implementing DWH solutions. There shall be minimum one professional under each of the following specialist categories:

    6.2.1. Data Warehouse architect / developer / specialist / analyst;

    6.2.2. Data Engineer / Cloud Engineer / Data Scientist;

    6.2.3. Data Governance Expert.

6.3. The Firm shall demonstrate past experience in providing similar services particularly demonstrating the specified capabilities below:

    6.3.1. Enterprise DWH and support

    6.3.2. Design and implementation of Corporate Dashboards

    6.3.3. Business Intelligence decision support

    6.3.4. Data security

6.4. The Firm shall have implemented DWH solutions with GCP technologies at minimum 3 institutions, during the last five years.

6.5. The Firm shall have the requisite experience, resources, capabilities and qualifications in providing the services necessary to meet the requirements, as described in this ToR.

6.6. Firms who do not meet the eligibility criteria will not be considered for further evaluation.

6.7. The above list provides for minimum eligibility criteria. The interested parties are encouraged to provide information that indicates that they exceed these criteria.

7. Institutional Arrangements, Reporting and Supervision

7.1. The Firm will work under the guidance of Head of Innovation and Technology of Pension Office and the Firm shall also report to the Project Director on the status of the assignment on a regular basis.

7.2. The Firm shall be available to work in the Maldives for deliverables that require physical presence.

7.3. The Firm will be provided with a working space as and when required during the duration of the assignment.

7.4. The Firm has the option to establish a consortium or partnership, or to engage in subcontracting arrangements, in order to provide all the services required under this Terms of Reference (TOR). The Firm remains fully responsible for the successful completion of the services, regardless of the chosen approach for delivery.

8. Contract Type

The contract type for this assignment shall be an all-inclusive lump sum fee, which will cover the entire duration of the project.

9. Required Documents

9.1. Expression of Interest (EOI) Letter.

9.2. Profile of the Firm and any partner and sub-contractors.

9.3. Google Partner Certification.

9.4. Curriculum Vitae (CV) of the core team members indicating experience from similar assignments.

9.5. At least 3 professional references from the client or any relevant proof of work document.

9.6. Proof of Concept (POC) document.

To obtain the confidential supporting information required to develop the POC:

a) Applicants must reach out to pmu@pension.gov.mv stating interest in applying for this assignment.

b) MPAO will share a Non-Disclosure Agreement (NDA).

c) Applicants will sign the NDA and revert to MPAO.

d) MPAO will share the confidential information to the applicants who have signed the NDA.

Applicants are encouraged to reach out to MPAO in a timely manner to request the information for the POC to ensure that they have sufficient time to develop the document.

10. EOI and Application Submission

10.1. Deadline: 20 April 2023

10.2. Required documents shall be submitted to pmu@pension.gov.mv

10.3. Incomplete applications will not be considered.

10.4. Party ranked #1 from the evaluation will be contacted to submit Technical and Financial Proposal.

Hawwa Rishda Mohamed

Project Director

Sustainable and Integrated Labor Services Project (SAILS) - P177240

Maldives Pension Administration Office

8th Floor - Allied Building, Malé, Maldives

Email: pmu@pension.gov.mv