

ICT/MIS Specialist (National)

Assignment: Information and Communication Technology (ICT) /Management Information System (MIS) Specialist (National) for the PNG Power Limited – Energy Utility Performance Improvement Project (EUPRIP)
Employer: PNG Power Limited (PPL)
Location: Port Moresby, Papua New Guinea
Duration: 24 months with potential for extension
Expected Start Date: December 2024

1. Background

The PNG's Energy Utility Performance Improvement Project (EUPRIP) is a World Bank-funded development project that aims to improve the operational performance of the PNG's national electricity utility (PNG Power Limited) and improve the reliability of electricity supply in the project area. The project has four components to achieve this project development objective.

- **Component 1 — Urgent rehabilitation and upgrade of PPL infrastructure** supports the execution of investments in the urgent rehabilitation and upgrade of medium voltage distribution network, substations, and control and protection functionality.
- **Component 2 — Implementation of key components of the Performance Improvement Plan (PIP) for PPL** supports the implementation of key components of the PIP and has two components.
 - (i) **The incorporation of tools to support management** will support PPL's incorporation of management information systems (MIS) to enable more efficient and transparent processes and activities in all business areas: operation and maintenance of assets for electricity supply, the handling of customers' claims, commercial functions, and management of corporate resources and databases supported by a geographic information system.
 - (ii) **Revenue protection and optimization** will support activities to reduce non-technical losses in supply (unmetered consumption) through systematic remote recording and monitoring of consumption by large users.
- **Component 3 — TA on least-cost power development plan and implementation** provides technical assistance to support any supplementary planning and preparatory studies needed to implement the least-cost power development plan (LCPDP) and achieve the country's electrification targets.
- **Component 4 — Project management support** provides technical and operational assistance to support PPL on project management and implementation.

To address the underlying factors of EUPRIP, the MIS component is a critical investment for PPL, where PPL expert capacity and staff capacity are not sufficient and resources are scarce. Among the experts needed in the MIS assignment, a national ICT/MIS specialist will be needed to support the MIS component of the project.

2. Objectives of the assignment

The national ICT/MIS Specialist will be responsible for the provision of the ICT/MIS technical advice and action needed for PPL's EUPRIP MIS component development and progress. This national specialist will be working with the PPL EUPRIP Project Manager (PM), PPL ICT MIS Team, PPL ICT Manager, PPL Staff, the national and international EUPRIP consultants, and the international consulting firm/agency for the

design, development, and deployment of ICT-based MIS. The position will be based in Port Moresby in Papua New Guinea.

The preliminary MIS component will consist of have the following modules and/or functions:

- i) Enterprise Resource Planning (ERP),
- ii) Customer Relationship Management and Commercial Management System (CRM-CMS),
- iii) Incidents Recording System and Outage Management System (IRS-OMS),
- iv) Enterprise Asset Management System and Workforce Management (EAMS-WFM),
- v) Facility Database (FDB), and
- vi) Geographical Information System (GIS).
- vii) Energy Management System (EMS)
- viii) Business Intelligence (BI) and Analytics

3. Reporting requirements

The National IT/MIS Specialist will report to the PPL's EUPRIP PM, Project Advisor, Chief Technical Officer (CTO), ICT Manager and work closely with the international consulting firm/agency, as well as the International individual owner's engineer (OE) of EUPRIP, who mainly focuses on Component 1. The Specialist will observe the reporting obligations detailed in Annex A.

4. Scope of Services

The services to be performed by the National ICT/MIS Specialist include *inter alia*:

- a) Understand the overall business process of incorporating tools to support management in EUPRIP to analyze and map the PPL ICT/MIS implementation, including gathering and documenting the business requirements to support the International MIS international consulting firm/agency during the program design and resolving technical issues as part of the PPL MIS. The national specialist should understand the importance of aligning ICT/MIS tools with the overall business process, and how this alignment will enhance efficiency and decision-making of PPL.
- b) Take stock of existing ICT/MIS infrastructure (existing systems, hardware, connectivity, human capacity) in terms of its readiness, usefulness, and relevance in the context of implementing the new PPL MIS through the program; list out any technical gaps identified. The national specialist should consider including a brief assessment methodology for evaluating existing ICT/MIS infrastructure readiness.
- c) Review and develop ICT/MIS implementation work plan based on the program objectives by considering existing ICT and PPL business systems and infrastructure to address the MIS design issues and implementation challenges with the international consulting firm/agency.
- d) Develop a concrete action plan to implement this intended MIS, taking into consideration data collection, data entry, and training, and take a lead in its implementation along with PPL's ICT/MIS team, and the international MIS consulting firm/agency.

- e) Identify training and capacity development needs (workshops and user manuals) for the PPL system operational and maintenance staff and relevant users at the headquarters office and local offices to ensure long-term system sustainability.
- f) In coordination with the PPL's ICT/MIS team and International MIS international consulting firm/agency, develop and implement computer application systems and modules, and monitor software components needed to support PPL MIS implementation and progress.
- g) The National Specialist, in collaboration with PPL's ICT/MIS team and MIS international consulting firm/agency, should assess the impact of the upgraded system on the current processes, workflows and organizational culture. Together, they should develop a communication plan to inform stakeholders about upcoming changes and address any concerns. The consulting firm should also assist in creating comprehensive training programs to ensure users are prepared for the MIS.
- h) To ensure a smooth transition, the national specialist should partner with the PPL's ICT/MIS team and MIS international consultancy firm/agency to evaluate existing data, determining what should be migrated, archived, or discarded. The firm will provide expertise in cleaning and validating the data, developed a detailed migration plan, and minimizing downtime to ensure data integrity.
- i) The MIS National specialist will coordinate with PPL's ICT/MIS team and MIS international consultancy firm/agency to setup up tools and processes for monitoring systems performance. They will jointly identify areas for improvement based on performance metrics and user feedback, implementing optimization measures as needed.
- j) The MIS National Specialist will coordinate with PPL's ICT/MIS team and MIS international consultancy firm/agency will work together to conduct a thorough security assessment. The consulting agency will help identify vulnerability and establish security measures to protect data and systems, ensuring compliance with relevant regulations, standards, and industry best practices.
- k) The MIS National Specialist will work with the consultancy firm to jointly measure performance against predefined objectives and key performance indicators (KPIs) and document lessons learned to guide future initiatives and continuous improvement efforts.
- l) Participate in all aspects of the MIS project lifecycle (detail identification, gap analysis, design, bid, contract, manufacturing, installation, test, commission, hand-over, operation, and maintenance), such as understating of the current situation, design, bid, bid evaluation, contract, implementation supervision, and initial maintenance, change management, data migration, performance and optimization, security and compliance and post-implementation review.
- m) Support Day-to-day operations of the PPL's ICT/MIS team and ICT Manager.

5. Description of Services

- a) Take a supporting role during the ICT/MIS design, contract, and development phase to ensure that the ICT/MIS features and functions are aligned to the business needs, especially after the contracting when the International MIS consulting firm/agency engagement ends. It should be

emphasized that the national specialist's role in ensuring that the ICT/MIS aligns with PPL's business needs during the project.

- b) Actively participate in the ICT/MIS design, bidding process, manufacturing, and implementation phase to gather technical knowledge and understanding of the MIS architecture and backend design. The national specialist should mention the importance of understanding both front-end (user interface) and back-end (database, architecture) aspects.
- c) Support conducting comprehensive user testing of the MIS modules, listing out technical and functional data, identifying gaps, bugs, and errors in the system, and taking appropriate actions. The national specialist should specify how gaps, bugs, and errors will be documented and addressed.
- d) Ensure appropriate usage of ICT/MIS features and functionalities and the ability to operate the system independently. Provide regular training (workshops and tutorials) to the operational staff as part of capacity-building measures.
- e) Develop necessary technical specifications and budget of quantity for the procurement of any ICT equipment needed for the IT/MIS implementation with the PPL's ICT/MIS team and international MIS consulting firm/agency, such as tablets, laptops, printer(s), servers, server room(s), communication infrastructure (hardware, software, interface bridges), etc., and certify its compliance and quality upon its delivery by the vendors.
- f) Establish a reliable system of regular data backup procedures in close collaboration with the relevant PPL staff as part of the MIS operation after commission.
- g) Actively participate in relevant technical meetings/discussions with various related departments, stakeholders, counterparts, and donors, including the World Bank review missions.
- h) Work closely with the PPL EUPRIP team and PPL's ICT/MIS team to perform the relevant tasks and duties as advised to facilitate the effective implementation of the project component.
- i) Provide a monthly progress report to PPL's ICT/MIS team, PPL EUPRIP PM and PPL CTO stating the work accomplished, issues and challenges, next steps, key recommendations, and timeline for each activity identified.
- j) Periodically visit PPL Headquarters and local offices to support and facilitate projects, encouraging and persuading PPL's ICT/MIS team and PPL EUPRIP PM, the PPL management, and staff.
- k) Support the PPL's ICT/MIS team and EUPRIP PM in monitoring, managing, and executing EUPRIP's day-to-day project technical and administrative operations. This includes preparing and updating project documents, providing regular status reports on the project progress, supporting to process of purchase orders and invoicing, and allocating appropriate resources to ensure that the project is completed within the given time and budget; coordinating and participating in overall EUPRIP operational meetings and stakeholder meetings, and contribute to the project performance review.
- l) The duration of this assignment will be **two years**.

6. Key Deliverables

1) Assist PPL in the survey, design, and revisions of the MIS.

- Collaborate with stakeholders to conduct a thorough survey of existing processes and systems.
- Participate in designing the MIS architecture, considering scalability, security, and integration with PPL's existing infrastructure.
- Revise and refine the design based on feedback and evolving requirements.
- Configure and update hardware and servers to align with the MIS design.

2) Assist PPL in the ICT/MIS bidding process.

- Work closely with the PPL's ICT/MIS team and international consulting firm/agency during the bidding process.
- Assist in preparing technical specifications and evaluating bids.
- Ensure alignment between technical requirements and vendor proposals.

3) Assist PPL in the ICT/MIS detail design, manufacturing, and testing process.

- Collaborate with the PPL Project Manager (PM), Owner's Engineer (OE), and ICT/MIS team.
- Provide technical expertise during the detailed design phase.
- Monitor manufacturing processes (if applicable) to ensure adherence to specifications.
- Conduct rigorous testing of the MIS components, identifying and addressing any issues.

4) Assist PPL in the ICT/MIS installation, on-site testing, and hand-over process.

- Oversee the installation of MIS components at PPL's premises.
- Conduct on-site testing to validate functionality, data integrity, and system performance.
- Collaborate closely with the PM, OE, and ICT/MIS team during this critical phase.
- Ensure a smooth handover process, including knowledge transfer to operational staff.

5) Ensure the MIS installation and configuration manual.

- Develop a comprehensive installation and configuration manual.
- Keep the manual accessible and up to date.
- Include step-by-step instructions, troubleshooting tips, and best practices.
- Ensure that the manual is user-friendly and serves as a valuable resource for future maintenance.

6) Support PPL in updating and completing MIS source code and data files.

- Regularly review and enhance the MIS source code.
- Address any bugs, optimize code, and maintain version control.
- Ensure data files are complete, accurate, and securely stored.
- Collaborate with the international consulting firm/agency if needed.

7) Provide **technical support and training for the operation of the IT/MIS** timely and as needed.

- Provide timely technical support to end-users.
- Address queries, troubleshoot issues, and guide users through system operations.
- Conduct training sessions for operational staff, emphasizing efficient utilization of the MIS.
- Stay responsive to evolving needs and adapt training as necessary.

7. Selection Criteria

Qualifications

- 1) Bachelor's degree in IT/Computer Sciences OR management information systems or associate degree with 3+ years of IT/computer service equivalent.

Mandatory Skills and Experience

- 1) Experience in computer technology, data networks and/or software development are essential.
- 2) Proven experience in IT software development programs and lifecycle.
- 3) Demonstrated experience in conducting IT assessment and system scoping for designing and implementing systems, preferably in the public sector, Utility MIS, and billing/collection systems, to an advantage.
- 4) Ability to perform user testing and conduct training on the applications.
- 5) Sound knowledge of relational database management systems and large-scale IT program implementation life cycle.

Desirable Skills and Experience

- 1) Knowledge of a relational database management system (RDBMS) such as SQL, Oracle / MS SQL Server, Java scripts, or the combination of these with the MS Dot Net framework will be an advantage.
- 2) Excellent command on development and interfacing technologies.
- 3) Strong background in Systems design and implementation (UML modeling, documentation) including knowledge and experience with Systems lifecycle development methodologies.
- 4) Mobile & GIS development experience will be a plus.
- 5) Work experience from certified software development & product companies is preferred.
- 6) Previous experience on working effectively in large team is desirable.

Annex A: Consultant's Reporting Obligations

Document / Event	Timing	Activity
Monthly Progress Report	Monthly. Two days following the end of the month	- Submit an electronic copy of the monthly.
Minutes of Design review meetings	One week after a design review meeting.	- Draft minutes and circulate participants. - Finalize minutes and distribute it.
Minutes for project support meeting of PPL EUPRIP PM, PPL management, and PPL ICT/MIS staff, PPL CFO	One week after a project support meeting.	- Draft minutes and circulate participants. - Finalize minutes and distribute it.
Other additional reports for the EUPRIP PIP component activities as required by PPL CFO , PPL EUPRIP PM, PPL CTO, Kumul Consolidated Holding (KCH).	Variable as required by relevant stake holders through PPL EUPRIP PM.	- Other activity reports as needed