



DIGITAL MALAWI ACCELERATION PROJECT

PROJECT NUMBER: P505095

GRANT NUMBER: IDA-E338-MW

TERMS OF REFERENCE (TORS) FOR SOFTWARE DEVELOPMENT ANALYST

1. Background

Information and Communication Technology (ICT) is now globally recognized as an essential tool in promoting competitiveness, job creation, sustainable development, and overall poverty reduction. A combination of widespread access to broadband and a robust ICT services ecosystem can offer a powerful platform for reducing poverty, improving human development and increasing government transparency and efficiency. ICTs have the potential to transform business and government - driving entrepreneurship, innovation and economic growth and breaking down barriers of distance and cost in the delivery of services.

In recognition of the critical role that ICTs plays in fostering socio-economic development and empowering the poor, the Government of Malawi secured a loan from the World Bank to implement an ICT Project, the Digital Malawi Acceleration Project (DMAP). The line Ministry and owner of the Project is the Ministry of Information and Digitalization (MoID) whereas the lead implementation agency for the project is the Public Private Partnership Commission (PPPC). Other stakeholders include Ministry of Education, MAREN, the National Registration Bureau, the Malawi Communications Regulatory Authority (MACRA) and others.

2. The Digital Malawi Acceleration Project

The US70 Million (Phase 1) Project comprises the following components:

Component 1: Affordable broadband and secure data hosting. This component will cover rural connectivity that will expand broadband coverage in rural areas with the aim of achieving universal coverage of mobile broadband, connecting at least 500 public sector sites in addition to the at least 530 sites connected through the previous Digital Malawi Foundations Project. Provision of connectivity services to at least 2,000 schools throughout the country. Being a regional Project, regional connectivity initiatives will be used to address gaps in missing cross-border broadband links, possibly drawing upon a regional financing facility. Finally, it will include integrated infrastructure planning of 'digital corridors' for Southern Africa.

Component 2: Interoperable and secure data platforms. This component will cover the Next Generation Digital ID and identity verification services, including electronic Know Your Customer (eKYC) and Public Key Infrastructure (PKI) (because of the requirement to develop e-Signatures capability for public e-services that require a higher level of assurance). In order to reach all citizenry, the *Bomalathu* data exchange platform for Government will be expanded. The platform faces both Government agencies as well as other players in the private sector, including financial institutions, and the general public. The Component will also seek to enhance policy and regulatory frameworks, operationalization of the Data Protection Authority and support for the MCERT at MACRA.

Component 3: High impact digital services and productive digital usage. This will cover the Digital skills and digital literacy which was started by Digital Malawi Project benefiting over 19,000 beneficiaries, and it is now planned to expand. Participation in regional program on device affordability will also be a major activity in this component. This device affordability program will be complemented by an e-waste initiative that promotes recycling and resale or safe disposal of laptops and phones. This will be carried out in conjunction with the tech hubs, with a focus on skills development and job creation for young people and persons with disabilities (PWD). Finally, it will also look at the Sectoral deep dives: social protection, disaster and emergency response, financial inclusion, and lands management.

Component 4: Project management. This component will cover the establishment of Malawi Information Technology Authority (MITA) by providing funding for the establishment and operationalization of the proposed authority. The Component will also fund the DMAP management and coordination unit that includes procurement, financial management and social and environment standards.

3. Aim of the Assignment

To strengthen the capacity for the Department of e-government, the project wishes to recruit Software Development Analysts as part of the project Support Personnel. This position will be tenable in Lilongwe.

4. Objectives of the Assignment

The Software Development Analyst will be responsible for implementation of systems/software projects. Working directly with the Chief Digital Solutions Architect, the consultant will co-lead architectural and detailed design of systems, plan and manage software releases, ensure software quality and provide technical guidance and support to third-party software vendors

5. Scope of work

- The Software Development Analyst will collaborate with product managers, MDAs, designers, and other stakeholders to understand and translate business requirements into technical specifications.
- Will review documentation/specifications for MDA systems and provide guidance and feedback based on prevailing technologies, government standards/policies, applicable data protection legislation and industry best practices.
- Will conduct technical planning of software projects and break down complex projects into manageable tasks, estimate timelines, and assign tasks to software development team members.
- Develop complex systems, ensuring they are scalable, reliable, and maintainable.

- Work with other DevOps experts to design, implement and maintain deployment and testing pipelines and environments; ensuring cross-functional Dev and Operations teams' collaboration.
- Prescribe tools, languages and platforms for software projects and lead the development, testing and deployment of software, ensuring optimized time-to-market and delivery of high-quality, well-tested software.
- Design, develop, and deploy new features and enhancements to existing applications, ensuring systems are up-to-date and in line with prevailing user requirements.
- Implement, maintain and enforce secure coding practices to safeguard software systems against common vulnerabilities and threats. Conduct thorough code reviews to identify and mitigate security risks and performance bottlenecks.
- Identify, debug and track software defects and issues. Develop automated tests and perform manual testing to ensure the quality and reliability of the software.
- Manage and optimize private and public cloud infrastructure, ensuring scalability, security, high-availability and cost-effectiveness. Deploy software-defined architectures for systems to respond to varying workloads.
- Track and report on project progress, identifying and mitigating risks to ensure timely delivery.
- Create and maintain comprehensive documentation for code, architecture, and processes to support shared team knowledge and onboarding.
- Participate in management and technical meetings and discussions related to government IT infrastructure and various ICT system at MDAs.

6. Required qualifications and attributes:

- The required qualifications are a minimum of Bachelor's degree in computer science, Information Systems or equivalent from a reputable institution,
- With a minimum of 5 years of relevant work experience.
- **Or**
- Master's degree preferred in Computer Science/Engineering, Information Systems or equivalent from a reputable institution,
- With a minimum of 3 years of relevant work experience.
- Certification: Possession of IT project management, software engineer or solutions architect certifications (e.g. ITIL, PMI-ACP, CSSD, CPSD, AWS-CSA etc) will be an added advantage
- Extensive skills and experience in designing, developing, testing, deploying, and maintaining scalable desktop, mobile and web applications
- Proficiency in at least two major programming languages including Java, Python, PHP, C++, C#, JavaScript, Ruby, Go.
- Proficiency in Linux/Unix, Windows and MacOS/iOS environments and extensive experience with build, testing, development, and CI/CD tooling on all environments.
- Knowledge of open-source big-data processing and data streaming tools such as Apache Spark, Hadoop and Kafka;
- Experience with both relational (SQL) and non-relational (NoSQL) database technologies including MySQL/MariaDB, MSSQL, PostgreSQL, Oracle and NoSQL platforms such as Cassandra and MongoDB.
- Experience with integration technologies and enterprise service bus implementations including WS02, Mulesoft will be an added advantage.
- Hands-on experience with cloud platforms like Digital Ocean, AWS, Azure, or Google Cloud. Familiarity with cloud-native development and deployment practices, covering expertise in application containerization (Docker and Kubernetes), configuration of CI/CD pipelines using tools such as Jenkins, GitLab CI, GitHub Actions and CicleCI.

7. Duration of the Contract

The Software Development Analyst will be recruited for a period of three (3) years with the possibility of extending the contract subject to satisfactory performance. The performance will be measured based on timely submission and quality of all deliverables, advancement of the respective activities, and the feedback from management and technical team members at eGovernment Department focused on technical competency, professionalism, responsiveness, and teamwork.

8. Deliverables

The Software Development Analyst will be required to submit ad hoc and monthly reports covering his/her activities which will go into a common e-Governance report. The report will include the following:

- Documentation of prescribed government- or department-wide software development workflows, tooling and methodologies for adoption by the Department of E-Government
- A secure private repository for all software projects under the Department of E-Government
- Monthly progress report (monthly)

9. Remuneration and Other Benefits

The remuneration package for the position is negotiable based proficiency, qualifications and available budget.

10. Contractual Provisions

The Software Development Analyst will work under conditions as stipulated in his/her Consultancy Contract which will be guided by the Laws of Malawi in line with World Bank Regulations and Statutes and PPPC conditions of service.

11. Reporting

The Consultant will work under the direct supervision of The Director, Department of e-Government through the Chief Digital Solutions Specialist. However, the legal contract holder shall be the Chief Executive Officer of the Public Private Partnership Commission. The address for whom is as follows:

The Chief Executive Officer
Public Private Partnership Commission
P.O. Box 937
Blantyre.
Malawi.
Telephone: +265 (0) 1 823 655
Fax: +265 (0) 1 821 248
Email: info@pppc.mw.

12. Selection

The applicant will be selected on the basis of the approved methods of selecting individual consultants in accordance with the World Bank's "Procurement Regulations for IPF Borrowers" (Procurement Regulations) dated September 2023, and the "Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants", dated October 15, 2006 and revised in January 2011 and as of July 1, 2016, and other provisions stipulated in the Financing Agreements.