



THE DIGITAL MALAWI PROJECT

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TERMS OF REFERENCE

FOR A CONSULTANCY SERVICES FOR THE PROVISION OF CONNECTIVITY FEASIBILITY STUDY AND ADVISORY SERVICES

Introduction

The Government of Malawi (GoM), through the Digital Malawi Program Phase I: Malawi Digital Foundations Project, implemented by the Public Private Partnership Commission (PPPC) in collaboration with the Ministry of ICT and with financing from the International Development Association (IDA), is seeking to hire a consultancy (firm) to conduct a detailed study and provide advisory services to facilitate the government's program in support of three interrelated objectives: (i) providing high-speed connectivity for priority public institutions throughout the country, including government offices, public services centres ('one-stop shops'), primary and secondary schools, health centres, et cetera; (ii) facilitating private sector development of a seamless, reliable, open-access, wholesale fiber backbone and last mile connectivity links throughout the country; and (iii) lowering the costs for wholesale bandwidth and transit services for government and private sector customers. The scope will include support for identification of an appropriate PPP model to achieve these objectives, defining technical requirements, selection of a PPP partner and structuring of the partnership agreement.

1. Background of the Assignment

1.1 IMPORTANCE OF BROADBAND CONNECTIVITY FOR DEVELOPMENT

Information and Communication Technology (ICT) brings a host of benefits with its ability to shrink time (by performing data processing and calculations faster and accurately) and collapse distances (by enabling those separated physically to communicate, synchronously or otherwise, in real-time). Today, ICT is rapidly transforming the way people, businesses, and governments communicate, transact, and access information and services. Indeed, ICT has revolutionized the way society, businesses, and the government interact, conduct their work processes, and develop product innovations. ICT, as a tool, is an accelerator, driver, multiplier, and innovator, and an instrument for scaling up development interventions and outcomes.

Specifically, there is evidence of the positive impact Internet access has on the development of society and the economy through a variety of mechanisms and across diverse situations. For example, there is a body of work that relates to the contribution of broadband to the economic output of a country, the GDP, with most studies concluding that broadband penetration has a positive impact on GDP growth. According to one estimate by Qiang et al, a 10% increase in broadband penetration would yield an additional 1.38% in GDP growth of low and middle-income countries¹. However, for this correlation to take effect, broadband adoption has to take place in combination with a widespread uptake of ICTs in the social and economic activities and processes in the country.

1.2 THE DIGITAL MALAWI INITIATIVE

In recent times, and on the positive side, a number of encouraging legal, regulatory, and market competitiveness developments have taken place in Malawi. One of the most recent initiatives in this regard, the very successful Regional Communications Infrastructure Program – Malawi Project (RCIPMW)) contributed towards building market competitiveness, consumer protection, information security, and universal access to telecoms services, thereby enabling digital transactions and innovation. To improve affordability in international connectivity, under the RCIPMW, GoM purchased a large volume of international bandwidth and related services for its agencies over a 10-year period through a competitive bidding process. SimbaNet, the winning bidder, constructed a new fibre-optic network linking Malawi to Zambia and Tanzania, terminating at a virtual landing point (VLP) on Capitol Hill in Lilongwe and eight drop points along the network. Telecom operators and Internet service providers (ISPs), who can connect to the SimbaNet network on an open access basis, can now provide retail services at reduced costs. More significantly, there is a growing interest in the private sector among both existing market players and potential new entrants to make significant network infrastructure investments and launch new service offerings, particularly in and between urban centres. There is also a strong demand from budding innovators and entrepreneurs.

This private sector-led enthusiasm must be harnessed, by making investments in the digital infrastructure and the enabling ecosystem, characterised by a progressive, forward-looking government policy and light touch regulation of the ICT sector. This approach towards breaking the logjam of the vicious cycle described above where imperfect supply conditions have generally discouraged demand for digital services must be realised through appropriately structured Public Private Partnerships as the most suitable vehicle with which to kickstart digital investments for Malawi.

The Digital Malawi program aims to contribute to a ‘digital transformation’ of Malawi’s economy, society, and government by leveraging digital technology to drive economic growth, innovation and job creation, access to services, information and markets, and to increase government efficiency and transparency. The program will support a comprehensive, long-term investment into Malawi’s digital transformation by focusing on a spectrum of areas including not just digital infrastructure and services but also their analogue enablers like institutional capacities, policy interventions and the like.

The Digital Malawi Program is structured under two phases:

1. the first phase, the Malawi Digital Foundations Phase, for establishing a base level of connectivity, market competitiveness, digital skills, and digital service delivery infrastructure to catch up with the progress of peer countries; and
2. the second phase, the Malawi Digital Acceleration Phase, for leveraging improved connectivity and public digital service delivery capacity to accelerate growth of the digital economy, encourage private and public innovation utilizing digital technology, and support expansion of digital services offerings across sectors.

2. Overall Scope and Objectives of the Current Assignment

The Digital Foundations phase (phase I), as part of the overall Digital Malawi program, is to be implemented under three components: (a) ‘Digital Ecosystem’, involving strengthening of laws, regulations, and institutional and human capacity needed to promote ICT infrastructure investment, market competitiveness, digital engagement, job creation, and innovation; (b) ‘Digital Connectivity’ for facilitating affordable, high quality Internet access for all citizens by incentivizing private sector network infrastructure development and service provision nationwide; and (c) Digital

¹ R. Katz, “The Impact of Broadband on the Economy: Research to Date and Policy Issues,” ITU Universe Broadband, pp. 1–136, 2012.

Platforms and Services, implying building the technical capacity, institutions, and IT infrastructure for the Government to deliver services to citizens and conduct its own business digitally.

The Digital Connectivity component aims at a direct intervention to encourage private sector infrastructure deployment that also leverages existing strategic public investments and incentives to improve access to high-speed, affordable connectivity for government, citizens, and businesses across all geographical areas including those that do not offer sufficient short- to medium-term returns to justify stand-alone private sector investment. At the same time the intervention must exert competitive pricing pressure, create network redundancy, and increase capacity along the most well-trafficked network routes that are currently served by a limited number of providers. The target is to achieve toward universal broadband connectivity for the entire country through a seamless, nationwide fibre backbone offering high-quality, reliable, open-access, low-cost transit services.

2.1 SCOPE and OBJECTIVES

The scope of the current exercise is to conduct a detailed study and related advisory services to facilitate the government's program in support of three interrelated objectives: (i) providing high-speed connectivity for priority public institutions throughout the country, including government offices, public services centres ('one-stop shops'), primary and secondary schools, and health centres; et cetera (ii) facilitating private sector development of a seamless, reliable, open-access, wholesale fiber backbone throughout the country; and (iii) lowering the costs for wholesale bandwidth and transit services for government and private sector customers. The scope will include support for identification of an appropriate PPP model to achieve these objectives and technical assistance with the selection of the partner and related legal and technical agreements.

It is envisioned that the GoM will serve as an anchor client to the PPP partner, aggregating demand for bandwidth and connectivity services across government. This is expected to not only meet the government's connectivity needs, but also to incentivize the PPP partner to undertake new investments in network infrastructure and/or upgrading and expansion of existing networks. The PPP partner will be expected to operate the network on an open access basis, non-discriminatory basis, enabling shared use of the infrastructure by other telecommunications services providers.

This exercise will have the following elements:

- a detailed mapping exercise, feasibility study, and PPP transaction advisory consultancy to identify priority institutions for connection based on projected bandwidth demands, location, cost, and overall impact and a market assessment to identify likely bidders;
- review of the PPP options and payment methods following the study above;
- support for a competitive tender process for connectivity services under the selected PPP model, including preparation of technical specifications and bidding documents, undertaking stakeholder consultations and supporting the proposal evaluation/bidder selection processes
- Support for development of the methodology, enforcement mechanisms and capacity building for government to monitor service levels/performance of the PPP partner.

This Request for Proposal document is to select a consultancy firm (hereinafter, "consultants") responsible for performing the study referred above, fulfilling the objectives mentioned below and executing the specific tasks mentioned in Section 3 below.

3. Tasks to be Performed and Expected Outputs

The following specific tasks are envisaged to be performed as part of this assignment. Consultants must note that the tasks are to be executed in a result-oriented manner with the sole objective of achieving outputs and outcomes associated with the assignment.

3.1 TASKS TO BE PERFORMED

Task One (Tentative):

Digital mapping of the premises of public institutions and other identified facilities to which high-speed, high-quality connectivity services will be provided (Digital Mapping of Public Sites). Under the last mile connectivity network, there are plans to provide connectivity to at least 500 public sector sites spread throughout the 28 districts to which Malawi is divided. However, this figure is subject to change based on feasibility analysis. It is envisaged that prior to the commencement of the detailed feasibility a geo-referenced set of targeted sites will be made available to the consultant.

This task entails building a locationally-referenced digital map (using the open street map platform), reflecting the location of all public institutions under the aegis of GoM, the current user base in each of these institutions, likely applications to be used for their operations, current and projected Internet and GoM intranet bandwidth requirements, connectivity options and infrastructure available currently with them and any other details the consultants find it necessary to define the projected user service level and network requirements for each location.

Task Two: Comprehensive assessment of the target user base at a national level, market competitor analysis, and estimation of the expected demand (Demand Forecast) of services and the required bandwidth (Demand Forecast).

Beyond the digital mapping of the public institutions with their embedded user base and the bandwidth demand from them, the consultant is expected to undertake a comprehensive high-level country-wide current demand assessment and forecast (over the next 10 years) taking into account socio-economic segmentation of target populations using parameters such as population density, age, gender, occupation, propensity to consume, purchasing power and the like. This study and assessment can have a geographical approach with districts as a possible atomic unit from which to extrapolate to the national level.

The consultants must estimate from these studies the current and future demand for connectivity-enabled services from schools, health centres, government institutions, business establishments, community spaces and other potential user groupings possible. This high-level demand assessment could emerge from direct surveys, benchmarking with other examples in similar circumstances, data held by reputed and recognised operators or other sources based on a robust model that can reasonably hold ground over a 10-year time horizon.

Task Three: Current Infrastructure Assessment, Optimisation of Re-use, and Design of the different technologies of access (Technical Assessment)

The demand forecast output emerging from Tasks One and Two must be juxtaposed with the capacity of the existing connectivity infrastructure in Malawi to meet the expected traffic projections or the option of developing new network infrastructure. As part of this, a detailed study must be performed to examine the capacity of the existing country-wide broadband infrastructure to meet the said demand, including (a) analysis of the current supply of telecommunications services including type of service, technology, price, reliability and penetration; and (b) analysis of any other existing (and in-the-pipeline) supporting broadband infrastructure including coverage, capacity, purpose, user, timing and owner.

The consultant must estimate the gap between demand projection for bandwidth and the current bandwidth supply to meet the same. The consultant must propose the most appropriate structure of a nation-wide scalable, heterogeneous high-speed broadband backbone network with sufficient bandwidth and throughput and consider different network technology alternatives in a detailed technical study that identifies the most suitable combination from the standpoint of coverage, high-speed capacity, and costs. This technical study must also take into account the last mile fibre network solutions to the public institutions mapped under Task One, each of which must be enabled to connect directly to each other through high-speed physical and virtual private networks (VPN's) using secure and reliable convergent technologies and services. The network design should make it possible to facilitate cost-effective, reliable, secure, and fast national communications including for emergency communications, (notably mobile system, independent

of terrestrial network but providing interoperability between key agencies such as fire, police and Disaster Preparedness and Emergency Response agencies)

The proposed broadband backbone network must be such as to provide affordable Internet connectivity for the entire population of Malawi including communities residing in rural and/or remote areas. Design considerations must include though not be limited to the establishment of strategically placed passive infrastructure (e.g. ducts and towers) access nodes or points of presence, and the use of wireless technologies such as satellite, WiMAX, 3G and 4G mobile to reach remote areas with minimal infrastructure requirements. Validated traffic forecast data from existing assessments should be leveraged such that design proposals can include revenue forecasts based on these expected increases in infrastructure usage.

Task Four: Comprehensive Financial analysis and corresponding sensitivity analysis (Financial and Sensitivity Analysis)

From the analysis emerging from Task Three, a comprehensive financial study must be conducted towards the following:

- a. The consultants must estimate deployment investments (CAPEX) and operating costs (OPEX) associated with each the different parts of the network, including the last mile fibre network facilities provided for the public institutions and for each of the technological alternatives. This consolidated financial analysis must clearly identify all unitary costs of the elements involved (e.g. cost of node, cost of kilometre of fibre optic, passive infrastructure elements, any tariffs associated with availing existing facilities from operators etc.) in such a manner so as to provide functionality to switch between different technological alternatives in different areas/components, enabling the specific financial sensitivity analysis for each of them.
- b. The consultants must forecast revenues expected from meeting the projected demand for services by the private provider. This consolidated revenue projection must also identify the different service categories conceptualised (say, according to the bandwidth required by them), estimated traffic volumes in the respective service categories, proposed tariff/subscription/lease rates from wholesale and retail purchasers of bandwidth from the network, and estimated revenue resulting thereby. Again, the model should be such as to allow choosing between different unitary price rates to evaluate their respective impact on the overall revenue.
- c. The consultants must estimate the Net Present Value (NPV), Internal Rate of Return (IRR) associated with the investment and the break-even point given the anticipated cash flows for each of the revenue sources identified.
- d. The consultants must present from among the alternative chosen as mentioned above, and going beyond mere numerical considerations, two to three most compelling techno-economic solutions, along with their merits and demerits, that present the best case in terms of meeting the demand requirements in the most efficient way while also furthering the digital agenda for Malawi.

Task Five: Recommendation of the Most Appropriate Public Private Partnership Model (Recommendation)

Based on the technical, financial and market assessments, the three objectives outlined in 2.1, as well as based on previous experience/lessons learned with PPPs in Malawi and Globally, the consultants must propose a suitable PPP structure for the transaction. The PPP model identified should be consistent with GoM policy and legal frameworks. The consultants will elaborate the PPP arrangement in detail outlining the ownership and management structure of the broadband network infrastructure created, governance and oversight arrangements for administration of the PPP contract, distributions of risks between the contracting parties and responsibility sharing between them towards management of the infrastructure. The PPP structure thus created must provide for open, flexible, transparent and non-discriminatory access to all wholesale and retail service providers and in doing so ensure that no possible conflicts of interest exist between the PPP partner and potential sub-contracting parties.

Once the most appropriate techno-economic solution and the PPP model/structure to be followed has been adopted, the consultants must define a detailed work plan for a phased implementation of the connectivity infrastructure along with outputs and outcomes that are expected at different stages of such implementation. Service level parameters in respect of services to be provided to the public institutions as well as to other service providers acting as intermediaries for wider connectivity services to citizens and businesses must be defined and their indicative target values must be suggested. Consultants are expected to draw from other successful international exercises of connectivity services provision through PPP in this regard.

Task Six: Supporting services required from the Government to facilitate implementation

The consultants must also outline the support the PPP partner would need from GoM or regulatory agencies like MACRA to safeguard their investments and the business model/plan against possible disruption owing to rapid changes in technology, competition from incumbent or future service providers in providing the same services as the PPP partner, changes in the regulatory environment and the like. Similarly, the consultants must also identify possible cooperation and support the PPP partner might need from GoM in obtaining access to already existing infrastructure and rights of way that the PPP partner might like to utilize or in obtaining the required statutory permissions from appropriate regulatory agencies. At the same time the consultants must also define governance norms which the PPP partner must abide by to ensure open, flexible, transparent, non-discriminatory and affordable access to customers free from any conflicts of interest

Task Seven: Procurement Assistance and Bidding Process Management (Procurement)

Based on the demand forecast, techno-economic solution and the PPP model/structure adopted, the consultants must prepare RFP & related documents required for selecting a PPP partner through international competitive bidding towards implementation of the broadband connectivity solution for Malawi. The consultants must prepare the contract agreement and service level agreement (SLA) templates for the parameters earlier defined and assist the government to complete the RFP tendering, evaluation and contract finalization processes, including conducting pre-bid meetings, responding to clarifications and other queries and rendering such other support as may be required towards successfully selecting the right PPP partner. The consultants must ensure that the award criteria include a host of aspects including, though not limited to tariffs proposed, technology selection, coverage, impact on overall market competitiveness and internet access objectives (availability, reliability and affordability), regulatory fit in the current environment, implementation approach, support services, end-user services anticipated and marketing approach towards stimulating demand.

Task Eight: Overall Project Management

The consultants must define and implement appropriate project management mechanisms, sound planning, and resource allocation from among the proposed staff according to their proven expertise and prior knowledge of the subject. They must maintain regular management reporting to ensure punctual delivery of high quality results of the assignment within their proposed budget.

Specifically, the consultants must provide at the beginning of the contract period (and at such subsequent times when revisions are necessitated), a detailed workplan including at least the following:

- detailed schedule of all activities and their associated outputs and outcomes;
- assignment of experts for execution of different proposed activities and producing outputs;
- identification of possible risks and suggestions to mitigate them; and
- quality assurance measures to ensure high quality results.

Based on the work plan and related details, the consultants must submit:

- Monthly progress reports on activities, information on the progress achieved, next steps, possible risks affecting project, risk mitigation measures; and, whenever required,
- Early warning reports, at any time, if emerging risks threaten key milestones of the project.

3.2 EXPECTED DELIVERABLES

The following deliverables associated with the above tasks are expected from the consultants as part of this assignment:

- Project Inception Report
- Public Facility Digital Mapping Report (Tentative)
- Detailed Financial, Technical and Legal Feasibility Study
- Monthly Project Reports
- RFP and Other Bidding Documents
- Project Management Deliverables

4. Profiles of Key Team Members

The consultants shall propose a team comprising a Team Leader, a Technical Specialist, a Financial Specialist, a Legal Specialist, a PPP Specialist and other support staff as they feel fit for the exercise. Minimum qualifications for each of these profiles shall be as follows:

The **Team Leader** shall have:

- At least 12 years' experience in the field of ICT across a range of developing countries including in Africa. Experience in Sub-Saharan Africa countries is desirable.
- The Team Leader's experience must reflect a history of successful network development and commercial operation in the public or private sector in an African setting
- Experience of having led projects is highly desirable.
- The Team Leader shall have successfully accomplished at least 3 similar assignments. Credentials and client reference coordinates must be supplied for cited experience.

The **PPP Transactions Specialist** shall have:

- At least 10 years' experience of which at least 7 must have been spent doing detailed feasibility studies, providing transaction advisory services and implementing PPP transactions in various sectors. Experience in transactions of the ICT sector shall be an added advantage.
- The candidate must be able to demonstrate experience in a lead role of at least 5 successfully completed PPP transactions. Credentials and client reference coordinates must be supplied for cited experience.
- Experience of having been involved in a leadership role in the transactions is highly desirable.
- Experience in developing countries especially Africa is an added advantage.

The **Technical Specialist** shall have:

- At least 10 years' experience of which at least 7 must have been spent on designing broadband networks and roadmaps. Involvement in designing similar broadband PPP transactions will be a major advantage.
- The candidate must be able to demonstrate experience in at least 5 successfully completed assignments that involve providing technical advisory services on telecom networks development.

The **Legal Specialist** shall have:

- At least 10 years' experience of which at least 7 must have been spent on drafting/reviewing PPP contracts and providing legal input to detailed feasibility studies and transaction advisory services. Credentials and client reference coordinates must be supplied for cited experience.
- The candidate must be able to demonstrate experience in at least 5 PPP assignments. Credentials and client reference coordinates must be supplied for cited experience.
- Experience in developing countries especially Africa is an added advantage.

The **Financial Specialist** shall have:

- At least 10 years' experience of which at least 7 must have been spent on drafting/reviewing financial models for investment decisions. Previous participation in detailed feasibility studies and transaction advisory services is a pre-requisite.
- The candidate must be able to demonstrate experience in at least 5 PPP assignments. Credentials and client reference coordinates must be supplied for cited experience.

- Experience in developing countries especially Africa is an added advantage.

5. Client's and Consultant's Respective Responsibilities

The consultants shall be contracted by the PPPC Malawi. A critical element of the assignment is knowledge transfer and, towards meeting this requirement, the consultants must ensure that knowledge of their work processes and methodology is, whenever possible, transferred to identified counterparts of the consultants in the client or the Government of Malawi. The consultants must ensure that the tasks identified above are performed in a result-oriented manner with the sole objective of achieving outputs and outcomes expected from the assignment as has been described in the literature above.

The clients shall provide the following to the best of their ability:

1. all available data and literature considered relevant for accomplishing identified tasks;
2. access to key officials within the relevant Ministries and other relevant official entities, including operator companies, regulators and/or any others as applicable;
3. ensure cooperation from other organizations, whose activities and programs may be considered relevant to this project, to enable the consultants to have access to the information necessary to carry out their work program;
4. office space and amenities for consultants and their local counterparts (excluding computing facilities); and
5. other logistical support, as necessary.

6. Duration of the Assignment

The duration of the assignment shall be six months from the date of commencement or eight months from the date of award, whichever is earlier.

7. Level of Effort

The study is expected to take 10 man-months or 220 effort days to complete.

8. Eligibility and Selection Criteria

1. The firm must demonstrate proven experience in the telecommunications sector, in particular in the developing world. Specific understanding on the development of market studies is required, taking into account both supply and demand sides related with telecommunications services;
2. The firm must demonstrate a proven capability to deliver detailed and accurate recommendations and of understanding ICT sector trends, demand aggregation, infrastructure development and other similar domains related to the ICT sector and the context of this assignment.
3. The firm must reflect within its experience an understanding on the development of domestic and international regulation, broadband issues, on cost benefit analysis and also on the design of analytical financial models.

In all cases above, credentials and client reference coordinates must be supplied for cited experience.