**MINISTRY OF COMMUNICATIONS, TECHNOLOGY AND INNOVATION**



**REPUBLIC OF SIERRA LEONE**

**SIERRA LEONE DIGITAL TRANSFORMATION PROJECT**

**IDA- E1130-SL**

**Recruitment of a Consulting Firm for the Sierra Leone Internet Exchange Point (SLIXP) Technical and Commercial Viability Study**

**SL-MOFED-367845-CS-QCBS**

**OCTOBER 2023**

**Terms of Reference**

**for**

**Recruitment of a Consulting Firm for the Sierra Leone Internet Exchange Point (SLIXP) Technical and Commercial Viability Study**

* 1. **Introduction**

The Government of Sierra Leone (GoSL) has committed to transforming its economy based on a more inclusive and human-centric digital growth and development approach. A high-level vision for the digital economy is articulated in the new National Digital Development Policy (NDDP), which was approved by the Cabinet in December 2021 setting the GoSL’s vision to transform Sierra Leone into an inclusive digital economy and society and to leverage digital technology to support the GoSL to deliver on its national development plan effectively and efficiently. The Sierra Leone Digital Transformation Project (SLDTP) aims to expand access to broadband internet, increase digital skills and improve government capacity to deliver public services digitally. The project will support the development of a strong enabling environment for the nation’s digital transformation and digital development agenda as articulated in the National Digital Development Strategy.

* 1. **Project Description**

The Sierra Leone Digital Transformation Project (SLDTP) is a five-year International Development Association (IDA)-funded project supported with a US$50 million grant. The project’s main implementing agency is the Ministry of Information and Communications (MIC). The proposed Project Development Objective (PDO) is to expand access to broadband internet, enhance digital skills and improve government capacity to deliver public services digitally.

The SLDTP proposes four integrated and mutually reinforcing components, witha fifth component dedicated to contingent response to future emergencies (*Contingent Emergency Response Component*, *CERC)*.

* Component 1 – Expanding Digital Access and Increasing Resilience of the Digital Environment;
* Component 2 – Digital Skills Development and Innovation
* Component 3 - Laying Key Foundations for Digital Government Services and Systems
* Component 4 – Project Management and Implementation Support; and
* Component 5 - Contingency Emergency Response Component (CERC).

The proposed activities integrated into Components 1, 2, and 3 are designed to support the Government in building resilient and inclusive policies by strengthening its legal and regulatory frameworks, scaling up the citizen-centric digital public service delivery by reinforcing the government portal and relevant Ministries, Departments, and Agencies (MDAs) capacity. By enhancing the service delivery infrastructure and platforms, the project will support ensuring continuity of public services in times of crisis. The Project is being implemented by a Project Coordination Unit (PCU) in the Ministry of Communications, Technology and Innovation (MoCTI).

The National Regulatory Authority (NatCA) was established by the National Communications Act 2022 replacing the Telecommunications Act 2006 (as amended). The mandate of the Authority is to license and regulate the electronic communications operators and other related matters. Additional responsibilities includes the promotion of fair competition among operators for the benefit of end-users of telecommunications services and products.

The Ministry of Communications, Technology and Innovation (MoCTI) is the line Ministry chiefly in charge of driving the Government’s digital transformation strategic vision and promoting ICT sector policy. Due to the semi-convergence of all communication regulatory activities into one body, the government reviewed the National Telecommunications Act and renamed the new regulatory body the National Communication Authority (NATCA) in the new National Communications Act of 2022.

One of the key mandates of NaTCA is to promote the development and utilization of information and communications technology and ensure the availability of secured, accessible, and affordable digital services to enhance the quality of life of the people of Sierra Leone and contribute to the country's socio-economic development. One of the key drivers for internet affordability is the establishment of an Internet Exchange Point (IXP) which will allow Internet service providers to interconnect and exchange local data traffic within the country rather than over international links. This will promote more efficient, resilient, and less costly connectivity by improving local Internet performance and reducing international bandwidth costs. In addition to the technical benefits IXP, it also provides a key framework for the market stakeholders to work collaboratively in achieving government’s goal of creating an inclusive and connected Sierra Leone.

In spite of the above benefit of IXP, At present Sierra Leone does not have a functional Internet exchange point. Despite the various technical and financial support from development partners, including from the African Union, SLIXP has very limited participation and has been unable to become fully functional. Challenges have included a.o: i) lack of clarity of operating procedures, standards, service offerings, governing structure and commercial viability; ii) limited infrastructure and redundancy; and iii) limited awareness. The absence of locally generated content, compounded by the non-availability of the .sl ccTLD, further impedes the successful establishment and growth of the Sierra Leone Internet Exchange Point. These challenges have impeded the Government’s desire to improve communications in Sierra Leone. The Ministry therefore desires to work with NaTCA and the private operators to develop a working model for a more robust IXP that will help localize Internet traffic and thereby improve communication and broadband access. It is critical that this commitment to digital transformation be reinforced and realized by practical actions to keep Sierra Leone’s vision on trajectory and to ensure inclusive digital growth based on market competition. It is in that regard that the SLDTP would help address critical identified challenges and help address them to help Sierra Leone transform into a Digital Economy.

* 1. **Objectives**

The overall objective of the assignment is to carry out a traffic study to determine the operational and business Model for the establishment of an Internet Exchange Point in Sierra Leone. This strengthens the capacity of operators to provide cost-effective access by keeping local Internet traffic local through Internet Exchange Points.

The specific objectives of the assignment include but not limited to:

* Conduct a comprehensive desk review of relevant reports on SLIX operation in Sierra Leone and identify implementation challenges
* Assess the possibility of establishing the IXP in Sierra Leone.
* Assess the financial feasibility and sustainability of the proposed IXP and develop an operational model budget for setting up and running the company.
* Develop Articles of Corporation /Association, Memorandum of Understanding, and file Registration of SLIXP as a company and at AFRINIC (African Network Information Centre).
* Identify potential stakeholders and partners for the SLIXP, classify membership, develop an appropriate organizational structure and include a constitution.
* Conduct a market analysis survey (Internet traffic analysis) to assess the demand and potential uptake of SLIXP services among the target market and forecast future growth.
* Develop a business and operational model to support SLIXP’s primary objective of facilitating the exchange of Internet traffic between Internet Service Providers (ISPs) within the country.
* Recommend appropriate technical specifications, infrastructure requirements, design, operational guidelines, and governance of the SLIXP. Identify the host location for the company, including backup locations. Advice on procurement of equipment for SLIXP, including servers, routers and switches.
* Identify and recommend necessary changes in enabling environment (policy, legal, regulatory framework) for the operationalization of SLIX
* Based on the above assessments, prepare a business plan which reflects the:

1. value proposition for SLIXP;
2. potential target market, traffic projections and service offerings at both national and regional levels;
3. benefits for ISPs and Content Providers in particular, and the Internet ecosystem in general;
4. the requisite network infrastructure, policy and regulatory framework for delivering services;
5. the governance and operational structure based on regional and global experiences;
6. high level financial projections including revenue forecasts, operating expenses, capital investment requirements, and projected profitability;
7. a marketing and sales promotion strategy for SLIXP, including an analysis of the most effective channels and messages for reaching the target market, and the development of promotional materials and outreach activities;
8. a capacity-building plan for the operation of the SLIXP, including training and development needs, outreach and education requirements, and potential collaborations with other regional or international IXPs; and
9. Develop a stakeholder engagement plan and a roadmap for the SLIXP project implementation.
   1. **Scope of Assignment**

The scope of work includes the following:

**Commercial Viability Assessment**

1. Assessment of the current demand for Internet services in Sierra Leone, including the size and growth of the Internet user base, the current penetration rates of Internet services, and the key trends and drivers shaping the demand for Internet services.
2. Assessment of the potential uptake of SLIXP services among the target market, including an analysis of the needs and preferences and the potential market size, market segments, and revenue streams.
3. Identification of the key players in the market, including an analysis of their strengths and weaknesses, market share, and pricing strategies.
4. Develop a comprehensive business model that outlines the value proposition of the SLIXP and how it will generate revenue and sustain profitability.

**Technical Assessment**

1. Review of the planned SLIXP architecture and infrastructure; design of technical specification and network requirements for the upgrade of SLIXP, including the necessary additional equipment, protocols, and standards, and an assessment of the costs associated with the upgrade and operation. The Consultant should also assess location, accessibility, security, power supply, and other relevant factors.
2. Assessment of network topology and connectivity of ISPs and content providers connected to the IXP. Consider factors such as the number of active networks, their size, geographical coverage, and respective customer bases.
3. Development of standards for operating SLIXP. This may include registration procedures for members, rights and obligations, dispute resolution mechanisms, suggestion of reasonable pricing policy to attract the Sierra Leonean market, and propose an organizational/ownership structure for SLIXP.
4. Definition of standards, service offerings, and technical specification and network requirements for the establishment and effective management of the .SL domain.
5. Development of options for last mile interconnection to the SLIXP by the various network users, ISPs and Telcos.
6. Assessment of the capacity-building requirements for the operation of SLIXP, including the training and development needs.
   1. **Reporting, Time Schedules, and Payment Schedule**

The consulting firm will be responsible for delivering the following:

1. An inception report within two (2) weeks after the contract is signed. The report should provide a clear picture of how the consulting firm understands the TOR and intends to achieve the expected tasks. It should propose a methodology for the assignment, including specific questions that will be researched, key stakeholders to be consulted and policies/regulatory frameworks that will be reviewed to carry out the required assessments. The report should also include a work plan with timelines for all the tasks that the consulting firm will undertake during the assignment.
2. A detailed Market Assessment report within four (4) weeks after the inception report, providing an assessment of the current Internet market in Sierra Leone, including the number and types of ISPs and Content Providers, and the quality and capacity of their connections; landscape for Internet services including an assessment of the strengths and weaknesses of key competitors, their pricing strategies and growth plans; potential barriers to the adoption of SLIXP services, including technical, regulatory, and operational factors that may impact the uptake of SLIXP services; digital adoption trends and opportunities for local content development and hosting in the country.
3. A detailed Technical report within 4 weeks after the market assessment report which analyses the current Internet traffic in the country and estimate the expected future volume. Traffic projections should consider initiatives that could promote local content development and hosting as well as emerging technologies such as streaming and cloud services. The should highlight the technical specifications for the upgrade and operation of SLIXP, including equipment and software requirements, protocols and standards, and any necessary operational procedures that may be required to manage current and future traffic. The report should include operational policies and procedures for the IXP and establishment of .SL ccTLD.
4. Based on above assessments, prepare a final combined report within 4 weeks which highlights all the key issues and recommendations related to the development of a robust IXP in Sierra Leone. The final report should include a business plan which reflects a.o. the i) value proposition for SLIXP, ii) potential target market, traffic projections and service offerings at both national and regional levels, iii) benefits for ISPs and Content Providers in particular and overall internet ecosystem in general, iv) the requisite network infrastructure, policy and regulatory framework for delivering services, v) the governance and operational structure based on regional and global experiences, vi) a high level financial projections including revenue forecasts, operating expenses, capital investment requirements, and projected profitability, vii) a marketing and sales promotion strategy including an analysis of the most effective channels and messages for reaching the target market, and the development of promotional materials and outreach activities, vii) a capacity-building plan for the operation of the SLIX, including training and development needs, outreach and education requirements, and potential collaborations with other regional or international IXPs.
5. Prepare a PowerPoint presentation within 2 weeks of final report summarizing key issues which will be presented to key MIC and stakeholders.

The Consultant is expected to complete the assignment in full within 16 weeks, The Consultant will regularly report to the Director of Communications, Ministry of Information and Communications or staff designated by the Director of Communications, Ministry of Information and Communications, on all aspects of the agreed activities and report to the SLDTP Project Coordinator.

The deliverables comprise the following:

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| **No** | **Deliverable** | **Timeline** | **Indicative payment schedule** |
| **1.** | **Inception report**, detailing how the assignment will be delivered | Commencement + 2 weeks | 10% |
| **2.** | Market Assessment Report providing an assessment of the current Internet market in Sierra Leone | Inception Report + 4 weeks | 20% |
| **3.** | Traffic Assessment Report | Market Assessment and Traffic report + 4 weeks | 20% |
| **4.** | **Draft Final report** | draft policy, legal and regulatory framework + 4weeks | 30% |
| **5.** | **Stakeholder engagement plan and Final report** | Stakeholder engagement plan and Final report + 2 Weeks | 20% |

* 1. **Qualification and Experience of Consultant Firm**

The consulting firm must meet the following requirements:

1. Technical Experience: Must have at least ten (10) years of experience in the telecommunications and/or networking industry, particularly in network architecture, Internet infrastructure, connectivity and interconnection agreement, or similar projects related to IXPs. They should be able to assess the technical requirements, scalability, and performance considerations associated with setting up an IXP.
2. Market Analysis and Financial Modelling Experience: Must have demonstrated expertise in the economic/financial analysis of IXP business, particularly in conducting market research, demand forecasting, revenue modelling, and cost analysis. Familiarity with World Bank procurement practices and procedures is a must, with weight being given to experience and capacity in carrying out World Bank projects.
3. Reputation and Excellent Standing: Provide reviews, testimonials, or references from previous clients in the execution of at least one (1) similar assignment in the past ten (10) years, to gauge the consulting firm’s professionalism, quality of work, and ability to deliver results.
4. Must have relevant experience working in Africa.

The assignment calls for a team of at least 3 persons who will possess the following qualifications, skills and experience:

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| **Key Position** | **Experience** | **Qualifications** |
| (1) **Team Lead (Project Manager)** | Must have not less than ten (10) years of experience working in the establishment or operation of an IXP or ICT related project, and must be familiar with the technical, operational, and commercial aspects of IXPs. Moreover, must have demonstrated experience in managing at least one (1) project of similar nature in the past ten (10) years.  Communication and Collaboration Skills: Must provide at least two (2) client testimonials or feedback with contact references on the team lead’s interpersonal, communication, and collaboration skills.  Must have relevant experience working in Africa. | Must hold a Master’s Degree in Telecommunications Engineering, Computer Science, Information Technology, or Public Policy/Public Administration, Business Information Technology, and Business Administration with a focus on technology management, or relevant post-graduate qualification. Additionally, specialized certifications or training in areas such as compliance and ethics, privacy, data protection, IT Service Management, Cybersecurity and Project Management is an added advantage. |
| (1) **Technical Expert-1 (Telecommunication and Network Infrastructure)** | Must hold a master’s degree in information technology, Telecommunications Engineering, Computer Science or a related post-graduate qualification or professional IT certification in areas such as Network Interconnection, Internet Infrastructure, IT Service Management, Cybersecurity. Project Management is advantageous.  The expert must have demonstrated experience working on at least one (1) similar assignment in the past five (5) years. | Must have at least eight (8) years of post-experience with strong technical background in network architecture, Internet infrastructure and interconnection protocols (e.g., border gateway protocol-BGP, routing, traffic exchange, peering policies, and traffic management). |
| (1) **Technical Expert-2 (Business and Economic/Finance)** | Must hold a Master’s Degree in Business Administration, Finance, Economics, or a related post-graduate qualification. In addition, certifications or training in areas such as Finance or Business Analytics, Market Research and Analysis, Accounting and Financial Management, Econometrics and Statistics, and Project Management are valuable.  The expert must have demonstrated experience working on at least one (1) similar assignment in the past five (5) years. | Must have at least eight (8) years of post-experience in the business and financial sector, with strong knowledge in market analysis, revenue modelling, cost assessment, financial forecasting, business planning and feasibility studies in the ICT sector. |

* 1. **Facilities Data and Information to Be Provided by Client**

The Ministry of Communications, Technology and Innovation (MoCTI) shall provide office space for the successful consulting firm to facilitate the smooth implementation of the assignment. The following shall be provided to the Consultant by the Employer:

1. facilitate the provision of access to relevant documents and data available which may be supportive to the Consultant, and
2. prepare a letter introducing the consulting firm to operators in the telecommunications sector and other relevant institutions, wherever required in performing the assignment.

The firm shall provide all the administrative, technical professional and support staff needed to carry out the assignment efficiently. The Consultants shall also be responsible for providing all other necessary facilities and logistical support for its staff/teams, including accommodation, vehicles/transportation, office equipment, field survey and investigation equipment, laboratory testing, communications, utilities, office supplies and other miscellaneous requirements wherever applicable to render their services. The firm shall nominate and make available a contact person for regular meetings with the Project Coordination Unit and MoCTI teams.

* 1. **Working Language**

The working language for the consultancy service shall be English.

* 1. **Conflict of Interest**

The successful consulting firm shall declare any conflict of interest, especially if any or all of the consultants is/are currently carrying out consultancy work for other stakeholders including licensed operators or service providers in the telecommunications sector in Sierra Leone.

* 1. **Confidentiality of Information**

The firm shall protect the confidentiality of the data or information received to conduct this assignment and shall sign a confidentiality agreement with MoCTI. No data, information, or deliverables from this assignment will be released to third parties without the written approval of MoCTI. The Consultant shall surrender all data and other materials to the Regulatory Authority and shall not retain any information or materials after the closure of the assignment.