



REPUBLIC OF CABO VERDE

MINISTRY OF FINANCE

TERMS OF REFERENCE

Feasibility Study and Procurement Preparation for School and Municipalities Connectivity

Digital Cabo Verde Project

1. Background

The Republic of Cabo Verde, through the Ministry of Finance and the Special Projects Management Unit (UGPE), is implementing the Digital Cabo Verde Project – Additional Financing (IDA Credit No. 7797-CV), financed by the World Bank's International Development Association (IDA). The Additional Financing aims to strengthen Cabo Verde's digital competitiveness foundations and improve the provision and usage of digital public services, building on the results achieved under the parent project Digital Cabo Verde (P171099).

The project is structured around three main components:

- Component 1 – Legal and Regulatory Environment, which aims to strengthen the legal, regulatory, and institutional framework governing the digital economy, including digital certification, cybersecurity, trust services, interoperability, and technical compliance;
- Component 2 – Digital Competitiveness, which supports the development of enabling digital infrastructure, skills, and market conditions for a secure and competitive digital ecosystem;
- Component 3 – Digital Public Services and Marketplace, which focuses on improving the availability, security, and reliability of digital public services for citizens, businesses, and the diaspora.

Despite ongoing efforts by national telecommunications operators to expand connectivity through terrestrial infrastructure, a significant number of schools and municipalities still lack adequate internet access or receive services of insufficient quality. These limitations stem primarily from geographic, technical, and economic constraints. In this context, it is necessary to consider alternative connectivity solutions, including satellite-based technologies, as complementary or transitional options to ensure universal coverage.

Digital Cabo Verde Project Component 2 envisages the expansion of broadband connectivity to public schools throughout the national territory. This intervention is intended to support digital learning, improve school management, and facilitate access to online services and platforms.



In addition, in the context of expanding access to public digital services through the Single Citizen Portal, the Government of Cabo Verde has identified the need to assess basic connectivity, infrastructure, and service-readiness conditions across the country's 22 municipalities. This includes taking stock of existing municipal public service access points and prior or existing service delivery arrangements, including Casa do Cidadão¹ counters where relevant, in order to identify opportunities for complementarities, territorial coverage expansion, and more efficient deployment of digital public services.

To support informed decision-making and ensure technology neutrality, the Government of Cabo Verde requires a comprehensive feasibility study. This study shall assess the different technological options available and produce appropriate technical and strategic documentation to enable procurement processes to move forward in an efficient and transparent manner.

2. Objective of the Consultancy

General Objective

The overall objective of this consultancy is to support the Government of Cabo Verde in identifying, assessing, and preparing the most efficient, sustainable, and cost-effective solution to provide broadband connectivity to public schools, while ensuring adequate conditions for digital education and school management.

The purpose of this consultancy is to carry out a technical, operational, and economic feasibility study, as well as to prepare the technical and strategic documentation required for the future procurement process for school connectivity solutions.

The purpose of this consultancy is also to assess the basic connectivity, infrastructure, and service-readiness conditions across the 22 municipalities of Cabo Verde, in support of the territorial expansion of digital public services through the Single Citizen Portal.

The consultancy shall not include implementation of the solution, supply of services, installation of equipment, or the detailed engineering design of central government infrastructure.

Specific Objectives

The consultancy shall:

¹ The Citizen's Centre, established by Decree-Law No. 35/2007 of 29 October, began operations in November 2007. It manages the Service Centres, Citizen's Centres in Sal, Praia and São Vicente, and the service desks in partnership with the Municipal Councils, Chambers of Commerce, the Directorate-General for Registries, Notaries and Identification, and other institutions with which it has service agreements, thereby ensuring the capacity to respond to requests from citizens and businesses. With the aim of bringing citizens ever closer and ensuring access for emigrant communities to the services of the Citizen's Centre, the COL – Online Certificates counter was created for the diaspora. A mobile service was launched using specially equipped vehicles to facilitate access for customers living outside urban centres. The Citizen's Centre comprises:

- Multi-channel platform: each of the means made available to citizens that enable diversified access to and communication with the State.
- Front Office: a counter set up to provide integrated citizen services, for the delivery of certain public services.
- Back Office: each of the various bodies involved in providing the integrated service to citizens, as requested at the Front Office.



- Conduct a comparative assessment of terrestrial (fixed and wireless), satellite (GEO, MEO and LEO), and hybrid connectivity solutions from technical, operational, and economic perspectives;
- Identify and characterize the existing technological infrastructure in schools, including connectivity, equipment, internal networks, and power conditions;
- Assess the adequacy of such infrastructure for pedagogical, administrative, and school management needs;
- Analyze the extent of use of digital educational platforms, applications, and content;
- Assess support arrangements, maintenance mechanisms, and the sustainability of technological solutions;
- Develop comparable indicators to support investment prioritization;
- Formulate recommendations for the phased implementation of the school connectivity solution, taking into account demand, digital readiness, and operational sustainability;
- Prepare procurement-ready technical and strategic documentation in line with World Bank procedures.
- Assess the existing connectivity, infrastructure, and operational readiness conditions in the 22 municipalities of Cabo Verde, including existing or historical public service access points such as Casa do Cidadão counters where relevant, in order to identify opportunities to support the rollout of digital public services through the Single Citizen Portal.

3. Scope of Work

The Consultant shall be responsible for carrying out the tasks described below, ensuring methodological consistency between diagnosis, technical analysis, economic analysis, and final recommendations.

Task 1: Baseline Assessment and Demand Analysis

The Consultant shall establish a comprehensive georeferenced database for all target schools and 22 municipalities, including at a minimum:

- **Geographic and Administrative Data:**
 - Island, municipality, and precise GPS coordinates;
 - Proximity to the nearest fiber node, mobile tower, or VSAT ground station;
 - Road accessibility for equipment installation and maintenance.
- **Current Connectivity Status:**
 - Existing connectivity type (if any);
 - Current contracted bandwidth and actual measured throughput (where applicable);



- Name of current service provider and contract expiration date;
- Monthly expenditure on connectivity (CAPEX and OPEX).
- **Power Supply:**
 - Grid connection status: on-grid (national grid), off-grid (solar, generator), or mixed/unreliable;
 - For off-grid schools or Casa de Cidadao: existing renewable energy capacity (kWp), battery storage, and estimated daily availability;
 - Suitability for powering connectivity equipment (voltage stability, available load).
- **Physical Infrastructure:**
 - Availability and condition of indoor structured cabling (LAN) and distribution switchboards;
 - Number of buildings per school and Casa do Cidadao and distance between them;
 - Availability of a secure, weatherproof enclosure suitable for housing equipment (router, terminal, UPS);
 - Physical security conditions (fencing, guard, history of theft or vandalism).
- **Demand and Usage Profile:**
 - Student enrollment (disaggregated by urban and rural, gender and, where available, disability status) and Casa do Cidadao usage;
 - Number of teaching and administrative staff, as applicable;
 - Inventory of connected devices (computers, tablets, interactive whiteboards) per school and Casa do Cidadao;
 - Anticipated use cases: digital learning platforms, administrative systems, video conferencing, cloud-based tools;
 - Estimated concurrent users and peak usage hours.
- **Institutional Context**
 - Existence of a trained IT focal point or technician at school or cluster level;
 - Prior connectivity projects or pilots and their outcomes.
- **Municipal Public Service Access Assessment**

In addition to the school baseline, the Consultant shall carry out a municipal-level assessment across the 22 municipalities of Cabo Verde in order to inform the territorial expansion of digital public services through the Single Citizen Portal.

This assessment shall include, at a minimum:

- identification and georeferencing of existing municipal public service access points;
- identification of existing or historical Casa do Cidadão counters, where applicable;
- current connectivity and power conditions at such locations;
- availability of minimum physical infrastructure to support digital public service delivery;



- basic operational readiness, including the presence of municipal focal points or service staff;
- assessment of complementarities, overlaps, service gaps, and territorial coverage constraints;
- identification of municipalities or service points that may be prioritized for phased expansion of access to digital public services.

Field visits shall cover a statistically representative sample of schools across all inhabited islands and shall also include selected municipal public service access points, with particular attention to remote and underserved locations. The resulting database shall be delivered in a structured, open format (e.g., GeoJSON, CSV, or compatible GIS layer) and shall form the evidential basis for all subsequent tasks.

Additional Technical Note

In the absence of architectural plans or technical schematics for the schools and Casa do Cidadao, the Consultant shall use publicly available satellite imagery (for example, Google Maps or equivalent tools) for preliminary analysis and planning purposes, including:

- Approximate identification of school and Casa do Cidadao buildings;
- Proposed location of equipment (antennas, routers, access points);
- Indicative cable routing and distribution points;
- Preparation of maps or simplified implementation sketches.

The level of detail of the assessment shall be appropriate to the purpose of a feasibility study and procurement preparation. In the absence of complete plans or technical information, the Consultant may rely on reasonable estimates based on satellite imagery, field observations, and validation with school management or Casa do Cidadao staff, clearly indicating cases where the data collected are preliminary in nature.

Cartographic outputs and sketches prepared based on satellite imagery shall be considered preliminary and intended exclusively for feasibility analysis, indicative sizing, and preparation of bidding documents, and shall not replace detailed designs or technical surveys required during implementation.



Task 2: Analysis of Technical Options

Based on the baseline data collected under Task 1, the Consultant shall conduct a rigorous comparative assessment of all technically feasible connectivity solutions for the target schools and 22 municipalities. The analysis shall cover the following solutions:

- Fiber-optic connectivity;
- Fixed wireless / microwave solutions²;
- Mobile broadband (3G/4G/5G, where applicable);
- Satellite connectivity (including LEO systems such as Starlink);
- Hybrid solutions.

For each option, the Consultant shall provide:

- Technical description;
- Implementation requirements and limitations;
- Estimated CAPEX (equipment, installation, parts);
- Estimated OPEX (service, maintenance, support);
- Implementation timeframe;
- Scalability;
- Local installation and support capacity;
- Classification of schools and Casa do Cidadao according to digital readiness level.

Given Cabo Verde's archipelago geography, the Consultant shall conduct the technical assessment at the island level, not solely at the national level. For each of the ten inhabited islands, the assessment shall identify the most technically and economically viable solution.

For each school or cluster and Casa do Cidadao, the Consultant shall provide a comparative options matrix, supported by technical, economic, and operational justification, identifying the preferred solution, the viable alternative, and, where applicable, the transitional solution. To do so, the Consultant shall apply a transparent, weighted scoring framework to compare technical options across a consistent set of criteria, assigning scores and weights to each criterion in consultation with the Client at the Inception Report stage, ensuring the methodology is agreed before it is applied.

Task 3: Service Performance Assessment

The Consultant shall carry out a comparative performance assessment, including:

² Regulatory and Spectrum Constraints: For all wireless options, the Consultant shall assess the applicable spectrum licensing conditions under ANAC (Agência Nacional das Comunicações), including frequency band availability, licensing fees, and any restrictions on self-provision by public entities. This analysis shall identify any regulatory barriers that could affect solution feasibility or procurement timeline.



- Bandwidth (guaranteed vs. best effort);
- Latency (ms);
- Service availability (% uptime);
- Sensitivity to weather conditions;
- Network contention levels;
- Fault response and repair times.

The impact of these factors on digital learning, the use of educational platforms, and school and Casa do Cidadao administrative systems shall be assessed. The consultant shall validate vendor claims against independent sources (e.g., ITU data, GSMA reports, Ookla/M-Lab measurements, or comparable country case studies) and, where feasible, conduct field speed tests during the baseline visits.

The performance analysis shall take into account minimum service profiles by school and Casa do Cidadao category, including the estimated number of simultaneous users, predominant pedagogical and administrative uses, and minimum service quality requirements for the effective operation of priority applications.

Task 4: Cost Analysis and Recommended Solution

The Consultant shall develop a Total Cost of Ownership (TCO) model for a period of 5 years, including³:

- CAPEX;
- OPEX;
- Maintenance and replacement costs.

On this basis, the Consultant shall:

- Recommend the most suitable solution for each school and Casa do Cidadao (terrestrial, satellite, or hybrid);
- Identify schools and Casa do Cidadao where satellite is a transitional solution;
- Define the long-term solution;
- Present the consolidated cost of the proposed solution;
- Perform a cost-benefit analysis to justify the investment.

The recommendation shall include explicit investment prioritization criteria, such as current absence or insufficiency of connectivity, student and citizens population size, energy readiness, technical feasibility, cost per beneficiary, pedagogical urgency, and operational sustainability.

³ The TOC model should include a sensitivity analysis varying at least three parameters (i.e. bandwidth unit cost, hardware lifespan...).



Task 5: Market Analysis

The Consultant shall conduct a comprehensive market analysis to assess the commercial landscape for school and Casa do Cidadao connectivity services in Cabo Verde and support the development of a viable, competitive procurement strategy. The Consultant shall analyze:

- **Existing telecommunications operators:** The Consultant shall map all active and potential suppliers capable of delivering connectivity services to schools and Casa do Cidadao in Cabo Verde (i.e. fixed and mobile domestic telecommunications operators; international satellite providers);
- **Availability of installation and maintenance services:** The Consultant shall request information from identified potential suppliers on indicative pricing (CAPEX and OPEX per school/Casa do Cidadao per month), proposed service levels, delivery timelines, and local support arrangements. The responses will be used to inform cost modeling and procurement design, and shall not constitute a commitment to any supplier;
- **Level of competition and sustainability risks:** The Consultant shall assess the competitive dynamics of the market, including any barriers to entry for new suppliers, and shall identify any regulatory interventions that may be needed to ensure a competitive procurement outcome. In addition, the Consultant shall develop a recurrent cost sustainability model that includes annual OPEX (bandwidth, maintenance, support) per school/Casa do Cidadao and in aggregate; identifies potential funding mechanisms for recurrent costs; benchmarks the per-school/Casa do Cidadao OPEX against comparable programs in other comparable countries and the broader Africa region; recommends a preferred sustainability model with clear roles and responsibilities for the Government of Cabo Verde, the service provider, and school and Casa do Cidadao administrators.

The market analysis shall support the definition of the most appropriate contracting model, including assessment of the suitability of procurement by geographic lots, by technology, by service levels, or by a combination of these factors.

Task 6: Procurement Strategy and Preparation of the RFP

Building on the outputs of Tasks 1 to 5, the Consultant shall develop a comprehensive procurement strategy and prepare all documentation required to launch a competitive procurement process under World Bank Procurement Regulations for IPF Borrowers. More specifically, the Consultant shall develop:



i) Procurement Modality

The Consultant shall recommend the appropriate World Bank procurement method for each lot or package, considering the nature of the services, the estimated contract value, and the market conditions identified in Task 5. Where the recommended solution involves managed service agreements (e.g., monthly bandwidth subscriptions with LEO providers), the Consultant shall advise on the appropriate procurement modality and contract structure, including whether a direct contracting or framework agreement approach may be justified, and under what conditions. The Consultant shall also recommend the appropriate contract classification (goods, works, non-consulting services, or a combination) for each procurement package, as this has direct implications for the applicable Standard Procurement Documents and evaluation methodology.

ii) Lotting Strategy

The Consultant shall propose a lotting strategy that balances competition, administrative efficiency, and geographic coverage. The strategy shall be designed:

- By geography (islands, clusters);
- By technology;
- By service model.

iii) Technical Specifications and SLAs (Service Level Agreements)

The Consultant shall prepare detailed technical specifications for each procurement lot, including minimum performance requirements, bandwidth, latency, availability, quality of service, and indoor Wi-Fi coverage. The Consultant shall also prepare an SLA framework, which will include quantified, measurable KPIs (i.e. Minimum symmetric bandwidth per school/Casa do Cidadao, Service availability (uptime), maximum latency (round-trip), Mean Time to Repair (MTTR), Reporting). Penalties for SLA non-compliance and mechanisms for contract termination must be specified in the draft contract conditions.

iv) Bidding Requirements

The Consultant shall prepare bidding requirements that ensure quality, competition, proportionality, and fairness across all procurement lots, in line with the World Bank Procurement Regulations for IPF Borrowers.

At a minimum, the bidding requirements shall cover:

- Minimum qualification criteria, including, as appropriate, average annual turnover, liquid assets or access to credit, and legal eligibility to contract;
- Technical experience requirements, proportionate to each lot, including successful completion of similar contracts, relevant technology experience, and demonstrated capacity to deliver services across geographically dispersed or remote sites;



- Operational support capacity, including local or regional presence, after-sales support, maintenance arrangements, and service response capability, where justified;
- Joint ventures, consortia, and subcontracting arrangements, including the conditions under which qualifications may be combined;
- Bid and performance securities, where appropriate, taking into account contract size, risk, and market conditions;
- Proposal preparation requirements, including the minimum technical, implementation, and service information to be submitted by bidders.

In defining these requirements, the Consultant shall avoid unnecessary restrictions and ensure that all qualification and bidding conditions are proportionate to the nature, scope, and complexity of each procurement lot.

Additional requirement: In the absence of architectural plans or technical information made available by the contracting authority, bidders may use publicly available satellite imagery or equivalent tools for preliminary formulation of the technical proposal, without prejudice to subsequent validation during contract mobilization.

v) Evaluation Criteria

The Consultant shall design a transparent World Bank-compliant evaluation methodology for each procurement lot. The methodology must include, but is not limited, to the following items: two-envelope evaluation structure (i.e. technical and financial proposals); quality-price weighting; technical evaluation sub criteria; financial evaluation basis; post-qualification verification; satellite imagery and physical site survey requirements.

vi) Bidding Documents

The bidding documents shall be prepared in an advanced draft version, sufficiently developed for institutional review, technical validation, and subsequent adaptation for the launch of the procurement process.

vii) Network Security Requirements

The Consultant shall define minimum and proportionate network security requirements adequate to protect the integrity and availability of school and Casa do Cidadao connectivity.

In this regard, the Consultant shall:

- Assess security risks associated with the different connectivity solutions;
- Define minimum security requirements for access control, authentication, logical traffic segmentation, perimeter protection, and monitoring;
- Identify management and supervision options compatible with the existing institutional architecture;



- Recommend security provisions to be included in the bidding documents, including functional requirements, minimum service levels, applicable standards, and international good practices.

The consultancy shall not include the detailed design, procurement, or implementation of central security platforms.

viii) Conflict of Interest Safeguard

The bidding documents shall include an explicit conflict of interest clause prohibiting any firm or individual that participated in the preparation of this feasibility study (including all key experts and sub-consultants) from submitting a bid, or being named as a subcontractor in any bid, for the subsequent procurement of connectivity services or equipment that results from this study. This clause shall be drafted in conformity with World Bank Procurement Regulations.

ix) Bilingual Documentation

All procurement documents shall be prepared in both English and Portuguese.

Task 7: Implementation Plan

The Consultant shall develop a phased implementation plan for the rollout of connectivity solutions to all target schools and municipalities, structured in two phases: a Pilot Phase and a Scale-Up Phase.

i) Pilot Phase

The Consultant shall propose a pilot covering a representative sample of schools and Casa do Cidadao. The pilot selection shall be based on transparent criteria, including geographic spread across at least four different islands to test inter-island variability; mix of urban, peri-urban, and remote schools and Casa do Cidadao; mix of school sizes (enrollment) and power supply conditions. Where multiple technology solutions are recommended, the pilot shall include schools/Casa do Cidadao under each proposed technology type to enable a direct performance comparison under real operating conditions. The Consultant shall specify the duration of the pilot phase (recommended minimum: three months of operational service after installation) and the criteria for declaring the pilot successful before proceeding to full scale-up.

ii) Scale-Up Phase

The Consultant shall propose a prioritization framework for the scale-up phase, ranking schools/Casa do Cidadao by a combination of criteria including: current connectivity gap, student enrollment, remoteness, and school performance indicators. The framework shall be transparent and must be agreed with the client before finalization.



iii) Monitoring and Evaluation Framework

The Consultant shall design a Monitoring and Evaluation (M&E) framework for the connectivity program, covering both the pilot and scale-up phases. The framework shall include network performance monitoring; user satisfaction surveys; outcome indicators; reporting schedule.

iv) Capacity Building and Local Technical Support Model

The Consultant shall assess the human capacity requirements for sustaining the connectivity program and propose a local technical support model, addressing the role of school/Casa do Cidadao-level IT focal points; a first-line support model, identifying whether this function should be performed by the service provider, a government-contracted local technician network, or a hybrid arrangement; a training program for relevant staff.

v) Risk Assessment.

The implementation plan shall include a risk assessment identifying the principal risks to successful delivery (technical, institutional, financial, environmental) with likelihood and impact ratings, proposed mitigation measures, responsible parties for each risk, and criteria for moving from pilot to scale-up.

The implementation plan shall identify municipalities where existing service access arrangements may be leveraged, upgraded, or complemented in support of the phased rollout of digital public services through the Single Citizen Portal.

4. Deliverables

- Inception Report and Methodology Plan;
- Georeferenced School/Municipalities Database;
- Technical and Performance Analysis Report;
- Economic, Market and Recommended Solution Report;
- Procurement Strategy, Implementation Plan and Bidding Documents.

5. Duration

The estimated duration of the consultancy is 7 months counted from the date of contract signature.

The implementation schedule assumes the timely provision, by UGPE, the Ministry of Education, and other competent entities, of the lists of schools, municipalities, institutional contacts, existing data, coordination arrangements, and access authorizations required for the execution of the work.

Any delays in the provision of such inputs, when not attributable to the Consultant and where they materially affect the normal development of the activities, may justify limited adjustments to the



work plan and implementation schedule, without changing the object, technical scope, or deliverables of the consultancy, unless otherwise expressly agreed by the parties.

Deliverables shall be submitted on a phased basis, in accordance with the following indicative schedule:

MONTH 1

Deliverable 1 – Inception Report and Methodology Plan

Minimum content:

- Detailed study methodology;
- Work plan and schedule;
- Strategy for the assessment of the 434 schools;
- Data collection instruments;
- Institutional coordination strategy;
- Preliminary technical and economic analysis criteria.
- Methodology for the municipal public service access assessment across the 22 municipalities.

MONTH 3

Deliverable 2 – Georeferenced School Database and Municipal Service Access Points (Preliminary Version)

Minimum content:

- Structured database covering all schools;
- Current connectivity status by school;
- Technological and power infrastructure;
- Preliminary classification (urban/rural; served/unserved);
- Maps and GPS coordinates;
- Preliminary internal signal distribution sketches.
- Georeferenced inventory of municipal public service access points across the 22 municipalities;
- Identification of existing or historical Casa do Cidadão counters, where applicable;
- Preliminary assessment of connectivity, infrastructure, and service-readiness conditions at municipal level.



MONTH 4

Deliverable 3 – Technical and Performance Analysis Report

Minimum content:

- Comparative assessment of fiber, mobile, wireless, satellite, and hybrid solutions;
- Performance analysis (latency, availability, scalability);
- Assessment of impact on digital learning;
- Classification of schools/Casa do Cidadao by digital readiness level;
- Preliminary identification of the role of satellite connectivity (transitional vs. structural).

MONTH 5

Deliverable 4 – Economic, Market and Recommended Solution Report

Minimum content:

- CAPEX, OPEX and TCO model (5 years);
- Market analysis and supply capacity;
- Implementation risk assessment;
- Recommended solution by school/Casa do Cidadao or cluster;
- Consolidated cost of the proposed solution.

MONTH 7

Deliverable 5 – Procurement Strategy, Implementation Plan and Bidding Documents (Draft Final)

Minimum content:

- Procurement strategy and lotting approach;
- Performance-based technical specifications;
- SLAs;
- Network security requirements;
- Qualification and evaluation criteria;
- Draft contract forms;
- Phased implementation plan (pilot + scale-up);
- Final implementation schedule and risk assessment.
- Territorial prioritization approach for municipalities in support of the Single Citizen Portal rollout;



- Recommendations on complementarities between school connectivity investments and municipal service access expansion, where relevant.

Deliverables and Payment Schedule Matrix

Deliverable	Main Content	Indicative Timing	% Disbursement
D1 - Inception Report and Methodology Plan	Methodology, work plan, schedule, and data collection instruments	Contract Signature +Month 1	10%
D2 - Georeferenced School and Municipality Database (Preliminary Version)	School-by-school diagnosis, maps, coordinates, and preliminary sketches and municipal public service access baseline data.	Contract Signature)+Month 3	25%
D3 - Technical and Performance Analysis Report	Comparative assessment of solutions and performance evaluation	Contract Signature +Month 4	20%
D4 - Economic, Market and Recommended Solution Report	Costs, market, risks, and recommendation by school/Casa do Ciudadao or cluster	Contract Signature +Month 5	25%
D5 - Procurement Strategy, Implementation Plan and Bidding Documents (Draft Final)	Procurement package, implementation plan, and bidding documents and municipal territorial rollout recommendations for digital public service access.	Contract Signature +Month 7	20%

Disbursements associated with each deliverable shall be subject to submission and acceptance by the contracting authority, in accordance with the contract.

6. Coordination

The Consultant shall report to UGPE and shall carry out the work in close coordination with the Ministry of Education and, depending on the subject matter, with NOSi, DGTED, ARME, including



municipal stakeholders where required and other relevant public entities for technical, regulatory, and operational validation purposes.

7. Fundamental Requirement

All recommendations shall be supported by verifiable criteria, a comparative matrix, and documented technical-economic justification.

They shall also be:

- Technology-neutral;
- Independent of suppliers/vendors;
- Justified through comparative analysis.

8. Consultancy Qualifications

The assessment teams shall include professionals with complementary technical expertise, including:

- Team Coordinator;
- Network and connectivity specialists;
- ICT specialists;
- Technology infrastructure specialists;
- Data collection and processing technicians;
- Procurement and contract specialist.

The teams shall be responsible for data collection, validation, and analysis, ensuring consistent application of the methodology defined.

9. Consultancy Profile and Team Composition

The firm or consortium shall demonstrate the ability to work using a technology-neutral approach and without favoring specific suppliers, ensuring that all technical and economic recommendations are grounded in objective comparative analysis, performance criteria, and value-for-money principles.

Previous experience in the following will be considered an asset:

- Small island developing states;
- School and Casa do Cidadao connectivity programs;
- Digital transformation projects in the public sector;
- Regulatory and operational environments comparable to Cabo Verde.



The firm or consortium shall have at least 10 years of experience in the telecommunications sector, planning, and strategy, and shall demonstrate proven experience in the following areas:

- Planning, design, and assessment of broadband networks, including fixed, mobile, wireless, and satellite connectivity solutions;
- Technical and economic feasibility studies for connectivity infrastructure or services, including comparative analysis of alternative technologies;
- Connectivity projects for schools, public institutions, remote communities, or hard-to-reach areas, including island contexts or areas with logistical constraints;
- Cost analysis and financial modeling, including CAPEX, OPEX, and Total Cost of Ownership (TCO);
- Market assessment and supply-side analysis, including telecommunications operators, satellite service providers, integrators, installers, and support and maintenance service providers;
- Preparation of technical specifications, performance requirements, service levels (SLAs), and procurement support documentation;
- Experience in preparing procurement documents and strategies for projects financed by development partners, preferably World Bank-financed operations or equivalent institutions.

The firm or consortium shall mobilize a multidisciplinary team composed of at least six key experts, with experience compatible with the nature and complexity of the assignment. Prior in country or regional experience in Cabo Verde, ECOWAS, or PALOP contexts will be considered an asset.

I. Team Leader / Senior Broadband Connectivity Specialist

Minimum profile

- University degree in Telecommunications Engineering, Electrical Engineering, Networks, ICT, or related field;
- At least 10 years of relevant professional experience;
- Proven experience in planning, designing, and assessing broadband connectivity solutions;
- Experience coordinating multidisciplinary technical studies and engaging with public entities.

Main responsibilities

- Technically lead the assignment;
- Ensure methodological consistency across diagnosis, technical analysis, cost analysis, and final recommendations;



- Supervise formulation of the recommended solution and the implementation plan.

II. Satellite Connectivity and Remote Area Solutions Specialist

Minimum profile

- University degree in Telecommunications, ICT, or a relevant field;
- At least 8 to 10 years of experience in satellite connectivity solutions, hybrid networks, or connectivity in remote settings;
- Experience in assessing GEO, MEO, or LEO solutions, or equivalent technologies;
- Practical knowledge of installation, operation, support, and performance requirements for satellite services.

Main responsibilities

- Assess the technical feasibility of satellite and hybrid solutions;
- Compare performance, operational limitations, and suitability for school/Casa do Cidadao use;
- Support definition of the schools/Casa do Cidadao where satellite connectivity may be transitional or structural.

III. Terrestrial Networks and Connectivity Architecture Specialist

Minimum profile

- University degree in Telecommunications Engineering, Networks, or related field;
- At least 8 to 10 years of experience in terrestrial networks, including fiber-optic, fixed wireless, microwave, mobile networks, and access solutions;
- Experience in coverage assessment, sizing, and connectivity architecture for multiple sites;
- Experience with technical requirements related to quality, availability, and scalability.

Main responsibilities

- Analyze terrestrial connectivity options and their applicability by school/Casa do Cidadao or cluster;
- Assess existing infrastructure requirements, technical constraints, and expansion needs;
- Support definition of the most suitable technical solution in coordination with the other specialists.

IV. Economic Analysis and Cost Modeling Specialist

Minimum profile

- University degree in Economics, Finance, Engineering, Management, or related field;



- At least 8 years of experience in economic-financial analysis of infrastructure or technology service projects;
- Proven experience in CAPEX, OPEX, and TCO modeling;
- Experience in comparative analysis of cost, sustainability, and economic efficiency scenarios.

Main responsibilities

- Develop the cost model for the assignment;
- Estimate investment, operation, maintenance, replacement, and logistics costs;
- Support the final recommendation on the basis of cost-benefit and sustainability criteria.

V. School and Casa do Cidadao Connectivity / Digital Transformation in Education Specialist

Minimum profile

- University degree in ICT, Education, Information Systems Management, Public Policy, or related field;
- At least 8 years of experience in education digitalization projects, school connectivity, or the use of digital technologies in educational environments;
- Experience in defining usage needs, demand profiles, functional requirements, and connectivity adequacy for pedagogical and administrative purposes;
- Knowledge of the operational requirements of schools and educational environments.

Main responsibilities

- Support the definition of bandwidth requirements, service levels, and usage profiles by school;
- Ensure that the technical analysis reflects actual use for digital learning, school administration, and access to educational platforms;
- Contribute to prioritization and phased implementation through a functional, education-sector-oriented approach.

VI. Procurement and contracting specialist

Minimum profile

- University degree in Procurement, Law, Engineering, Business Administration, Economics, Public Administration, or a related field;



- At least 8 years of relevant professional experience in public procurement, contract packaging, and preparation of bidding documents for infrastructure, ICT, telecommunications, or technology-enabled service projects;
- Demonstrated familiarity with the World Bank Procurement Regulations for IPF Borrowers, including the preparation of procurement strategies, bidding documents, qualification requirements, evaluation criteria, and contract conditions;
- Proven experience in structuring procurements involving goods, non-consulting services, framework-type arrangements, or mixed packages with technology and service components;
- Experience in drafting and reviewing technical and contractual provisions related to service levels, performance requirements, contract administration, and supplier obligations;
- Experience in procurement processes financed by multilateral or bilateral development partners will be considered a strong asset.

Main responsibilities

- Support the design of the procurement strategy and recommend the most appropriate procurement modality and contract structure for each lot or package;
- Advise on the classification of procurement packages and their implications for the applicable bidding documents and evaluation methodology;
- Lead the preparation of bidding requirements, qualification criteria, and evaluation criteria in line with World Bank requirements and the principles of fairness, competition, and proportionality;
- Support the drafting of the bidding documents, including instructions to bidders, qualification provisions, evaluation methodology, and draft contractual conditions;
- Ensure consistency between the technical recommendations of the study and the procurement documentation to be produced under the assignment;
- Advise on risks related to market concentration, limited competition, contract enforceability, and procurement implementation;

Support the preparation of conflict-of-interest safeguards and other procurement integrity provisions required for the subsequent tendering process.

10. Reporting and Outputs

All raw data, data-collection instruments, cleansed datasets, analytical files, and indicator tables shall be delivered as annexes to the final report, ensuring full reproducibility, transparency, and auditability of findings.



All reports and datasets must be submitted in Portuguese and English, in fully editable formats (Word, Excel/CSV, and PowerPoint), following the templates and structure approved during the inception phase.

11. Ownership and Confidentiality

All outputs produced under this assignment are the exclusive property of the Government of Cabo Verde. Confidentiality must be maintained throughout and after the project.