



REPÚBLICA DE CABO VERDE

Terms of Reference

Assessment of the value of the assets and liabilities of the physical component of the RTPE as a WAN infrastructure for NOSi - Núcleo Operacional da Sociedade de Informação

1. Background

The Republic of Cabo Verde has requested a \$20 million loan from the World Bank to finance the Digital Cabo Verde project DCV. The project aims to support the Government of Cabo Verde in the implementation of the main priorities initiatives of the national ICT and e-governance policy implementation strategies, as well as continue to support the strengthening of the national telecommunications sector and contribute to transform the country into a regional digital hub to accelerate its digital economy through an improved digital infrastructure and strengthened demand for digital services and skills.

In its Enabling Legal and Regulatory Environment component, the DCV Project will support the GoCV in its efforts to improve Institutional structure and capacity, particularly with NOSI. In this context the Government of Cabo Verde will contract a TA, to make an Assessment of the value of the assets and liabilities of the physical component of the **State Technological and Private Network (RTPE)** as a *Wide Area Network (WAN)* infrastructure. In a context where connectivity and infrastructure investments continues to pose challenges, GovCV is committed to providing better services and ensure its sustainability, development and performance.

According to Cabo Verde's Government, the digital economy is crucial to achieve the objectives outlined in the Strategic Plan for Sustainable Development (PEDS) and the vision of an ICT Hub: Connectivity; Capacity Development and Service Platform. In response to this challenge, it is necessary the promotion of a business environment around Information and Communication Technologies (ICT) and Research & Development (R&D) to transform Cabo Verde into a technology center of regional reference in Africa.

In the Horizon 2019-2022 Strategic Global Action Plan, NOSi, E.P.E established its institutional restructuring as a priority and a necessary measure in the digital transformation of the public sector. NOSi, EPE's restructuring operations require Transformation of Skills (Human Capital) and Basic Digital Governance Infrastructures (State Technological and Private Network - RTPE; and the State Root Electronic Certification Entity - ECR-CV in partnership with ARME, the entity currently responsible for the ECR-CV).

The origins of NOSi date back to the establishment of the State Financial Administration Reform Unit (RAFE – *Reforma da Administração Financeira do Estado*) in 1998, under the superintendence and limited to the Ministry of Finance, with the mission of creating new budget, financial and asset management instruments supported by a technological platform.



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In 2003, in order to meet the growing demands and in line with the Cabo Verde Government's strategic vision, *NOSi - Núcleo Operacional da Sociedade de Informação* (Operational Nucleus for the Society of Information) was set up as an Operational Unit of the Interministerial Commission for Innovation and the Society of Information, with one of its competencies being the implementation, maintenance, operation and administration of the State's Private Technological Network.

In 2014 NOSi was transformed into a Public Enterprise Entity, but its mission remains enshrined in its statutes ([Decree Law No. 13/2012 of February 25](#)), notwithstanding a new wording anchored the current mission was drafted to better enable the path to smart governance working practices, security resilience and data privacy in the RTPE. ([Strategic Global Action Plan](#))

Until now it has been the responsibility of NOSi to manage the physical and logical resources that make up the RTPE, which entails very high maintenance and operationalization costs. Thus, within the government's strategy of liberalizing the telecommunications sector and restructuring NOSi, the consultancy now proposed will provide guidance to the best management model for the physical component (WLAN) of the RTPE.

NOSi continues to assume the responsibility for the RTPE brand and its core network, and will reinforce the coordination of the logical infrastructure management process, therefore improving the RTPE's security and compliance, which better fits its current mission of leading Cabo Verde digital transformation as a platform for service provision.

NOSi guarantees conditions so that all other basic access services to RTPE, as well as management and maintenance services of LAN (Local Area Network), namely, networks of the local areas of ministries, schools, hospitals, city halls, etc., can be provided by privates.

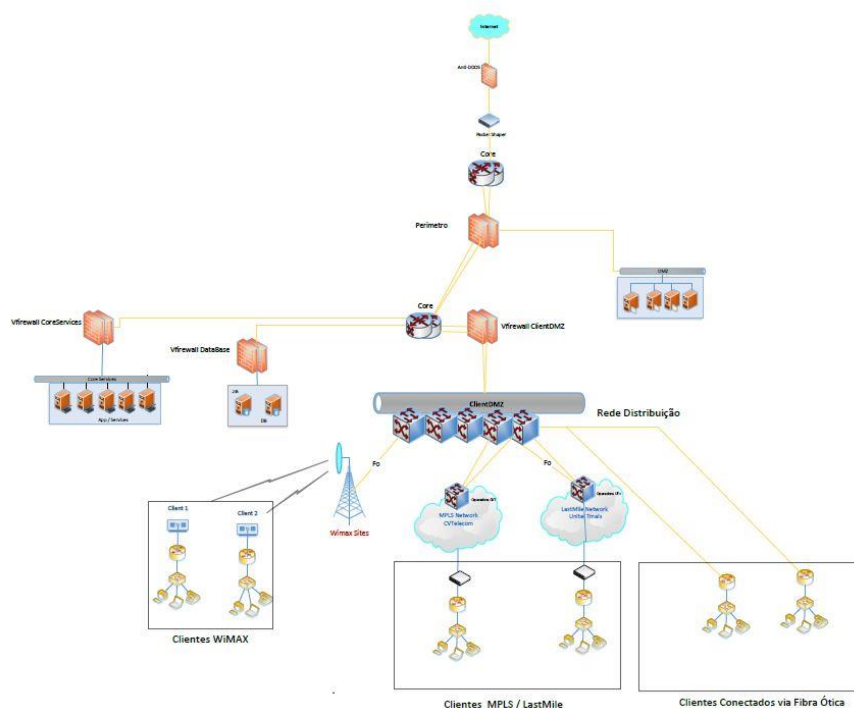


Figure 1 RTPE Network Configuration



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The State Technological and Private Network (RTPE)

The RTPE consists of physical and logical resources related to the information and communication technologies of the State of Cabo Verde and guarantees the availability of public and electronic services of quality to citizens and companies.

Over the years, the State has invested more than 3 billion ECV (31 million USD) in physical infrastructures for the RTPE thereby strengthening the institution's connection capacity to the State Network, in the following components:

- *Dozens of kilometers of fiber optic networks that include secondary schools and some larger institutions;*
- *Structured Networks (Local Area Network - LAN) to create and improve internal Communication capacity;*
- *Wi-Fi networks (internal and external access point) to facilitate mobility;*
- *Licensed spectrum (MW).*

2. Objective(s) of the Assignment

The objective of the assignment is to recruit a consulting firm to carry out an exhaustive survey of all assets and liabilities of the communications networks of the RTPE access, as a WAN (Wide Area Network) infrastructure to NOSi, and to make a real assessment of its value, in view of the NOSi's restructuring process.

3. Scope of Services, Tasks and Expected Deliverables

3.1. Scope

The survey and assessment should cover all assets and liabilities of the WAN infrastructure, used to access the RTPE, in Cabo Verde. This activity involves traveling to all the islands and municipalities of the country and must be carried out within 5 months.

3.2. Inventory

(i) A survey of the assets responsible for the general connectivity to the RTPE network, considering:

- The identification of all State institutions linked to the RTPE;
- Identification and assessment of all connectivity topologies (Fiber / Wimax / Microwave / Via Operators) in the RTPE;
- Assessment of the bandwidth (and quality of service) of each site with the identification of each criteria used in the assessment;



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- Identification of active equipment that guarantees WAN connectivity with the RTPE;
- Identification of active equipment currently in the RTPE;
- Spectrum licensing (MW);
- Creation and structuring of an inventory database of network assets / liabilities existing in the RTPE.
- The geomapping of all network equipment using a standard tool with georeferencing functionality
- Install and/or setup a networking monitoring agents in all network equipment, that will allow an automatic update of the database inventory

(ii) *The inventory process of the identified assets must include at least the following information:*

- Brand, model, and serial numbers and / or other identifiers;
- State of the asset according to the assessment criteria (physical, functional and technological);
- Acquisition cost (including maintenance and support);
- Real present value, amortization;
- Operating cost;
- Licensing costs.

3.3. *Assessment of the RTPE's supporting technological infrastructure*

- (i)** Define a model for assessing RTPE's assets according to the sector's best practices and under benchmark exercise insular experience. The assessment matrix and its criteria should be quantifiable.

The assessment matrix - weighting model versus evaluation criteria - should be adjusted and agreed with NOSi prior to the beginning of the evaluation process.

- (ii)** Carry out a formal assessment process - based on the previously defined model - to identify the real value of previously inventoried assets, considering:

- State of the asset according to the assessment criteria (physical, functional and technological);
- Acquisition cost (including maintenance and support), amortization;
- Operating cost (support, maintenance with the manufacturer and others);
- Manufacturer support level (sales plan and expected support for the asset);
- Equipment lifetime (assets/liabilities);
- Assessment of the (expected) cost of replacing the equipment (assets / liabilities).

- (iii)** Carry out an evaluation of the economic asset of the RTPE, considering:

- The analysis of NOSi's contracts SLA's with its providers, and with its clients
- The real use of the network regarding the services provided (with or without contracts) to government agencies



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- The estimate the unmet demand for networks services by government agencies

(iv) Assess the technical and managerial capacities of the NOSi regarding the strategic view of his new role, considering:

- Tools for the monitoring
- Management
- Service quality
- Security
- Billing
- Other relevant responsibilities

4. Team Composition & Qualification Requirements

Experience Requirements and References

- a) The consultant and or transaction adviser must have at least ten (10) years of experience in technical audit for security and networking audit processes similar to the RTPÉ's level of complexity and scope;
- b) The consultant and or transaction adviser must also have experience in asset valuation processes in the context of technological network infrastructure (assets and liabilities) and present in its application at least five (5) reference cases - three (3) of them must be related to the Central / Public Administration;
- c) References from previous projects must be contemplated and presented by the competitor and, inherently, knowledge about the technologies in question proving an adequate level of experience with the technologies (software and hardware) and the scope of the proposed assessment (audit processes) through specialized services of the project in question;
- d) The experience and knowledge of NOSi's CORE network will also be relevant;
- e) Provide experience in security audit processes, including in terms of networking.

Quality and / or Technical Certification Requirements

- a) The consultant technical certifications and experience (identification and enumeration of similar projects) within the scope of the services defined for the project must be contemplated and presented, namely networking assessment processes (security and networking) to be carried out;
- b) It is a basic requirement to have the elements of the project team's certifications in terms of assessment services (audit) considering its preponderance in the scope (and due to the objectives) of the project;
- c) considering the criticality and technological complexity of the project, it is a minimum requirement to present (at least) two reference certifications in the security and networking specialties, namely the CISSP, CCNA, CEH, OSCP and Lead Auditor



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ISO/IEC27001 certifications, which will be duly evaluated by the Proposal Evaluation Committee;

- d) Additionally, other technical, financial and project management certifications will be considered valuable in the proposal evaluation process. Considering the complexity and geographical scope of the project, the existence of proven experience (through certifications) in the project management will be paramount.

The project team should be composed by the following key experts:

1) Team Leader

- Have at least ten (10) years of proven practical experience in audit for telecom Network Engineering and Information Security;
- Strong experience in information security and networking assessment processes with proven experience (plus certifications for that purpose);
- Experience in information security and networking assessment processes in insular countries is desirable.
- Have at least 4 project assignments related to information security and networking assessment;
Portuguese and English language fluency is required

2) Financial Audit Specialist

- Have at least eight (08) years of proven practical experience in Financial or Project Management.
- Experience in financial analysis, evaluating costs and revenue streams, business management and strategies, setting financial sales milestones.
- Have at least 4 project assignments related to information security.
- Portuguese and English language fluency is required

3) Senior Security and Network Auditor

- Have at least eight (7) years of proven practical experience in Network Engineering and Information Security;
- At least 5 years' experience in information security and networking assessment / audit processes with proven experience (plus certifications for that purpose);
- At least 5 years' experience in consulting processes specialized in information security and networking with proven experience (plus certifications for that purpose).
- Have at least 3 project assignments related to information security and networking assessment / audit processes.
- Portuguese and English language fluency is required

4) Network and Security Auditor

- Have at least five (5) years of proven practical experience in Network Engineering and Information Security;



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- At least 3 years’ experience in information security and networking assessment / audit processes with proven experience (plus certifications for that purpose).
- At least 3 years’ experience in consulting processes specialized in the information security and networking aspect of information security and networking with proven experience (plus certifications for that purpose).
- Have at least 3 consultant/auditor assignments related to security and networking assessment / audit processes.
- Portuguese and English language fluency is required

5. Deliverables, Reporting Requirements and Time Schedule

<i>Component</i>	<i>Deliverable</i>	<i>Description</i>	<i>Type</i>	<i>Payment after Approval by the Client</i>	<i>Schedule</i>
Strategy approach	<i>E0. Inception Report</i>	<i>Overview of the job to be done within the scope of work including the – Roadmap of the implementation consultancy</i>	<i>Report</i>	<i>15%</i>	<i>Signing of the contract + 10 days</i>
Assessment	<i>E1. Assessment Model</i>	<i>Detailed Methodology used to value respective assets</i>	<i>Report</i>	<i>15%</i>	<i>Signing of the contract + 3 weeks</i>
Inventory	<i>E2. Inventory list & Database</i>	<i>Detailed and up to date inventory of assets. Deliverable of an interactive database – allow search and updates – with Information related to the equipment supporting the RTPE</i>	<i>Report, Database</i>	<i>20%</i>	<i>Signing of the contract + 14 weeks</i>
	<i>E3. Quality Evaluation Repport</i>	<i>Evaluation tools report for the monitoring, management, service quality, security, and billing Service gaps and SLA’s Report</i>	<i>Report</i>	<i>20%</i>	<i>Signing of the contract + 16 weeks</i>
Assessment	<i>E4. Final report</i>	<i>Report with valuation of the RTPE’s supporting technological infrastructure.</i>	<i>Report, Database</i>	<i>30%</i>	<i>Signing of the contract + 20 weeks</i>



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		<i>Update of inventory database with valuated information</i>			
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6. Client's Input and Counterpart Personnel

- (a) *The following information should be made available to the project:*
- i. Diagram of the RTPE WAN architecture
 - ii. Location of all related sites that access the RTPE network
 - iii. Any additional information will be made available according to the requests of the project team.
- (b) *Services, facilities, and property to be made available to the Consultant by the Client:*
- i. Access to all sites and facilities where the WAN infrastructure assets are located
- (c) *Professional and support counterpart personnel to be assigned by the Client to the Consultant's team:*
- i. Technician of the NOSi's RCA (Network and Communication Assessment) Department

7. Duration of the Assignment

The mission will be carried out over a maximum period of four (5) months from the date of signature of the contract.

8. Organization of the assignment

The selected firm shall undertake the assignments in close consultation with the NOSI shall follow and support the assignment. The Consultant will report to Unidade de Gestão de Projetos Especiais (UGPE) for contract administration.

9. Contract

A Lump-Sum form of Contract shall be signed, payments to the consulting firm are linked to approval of deliverables, and the payment of reimbursable expenses are made upon presentation of the receipt of the expenses occurred at the real cost.