Terms of Reference

Technical Assistance to develop a new Information and Communication Technologies (ICT) curriculum in secondary education to promote the development of digital skills in Cabo Verde.

1. BACKGROUND

The Government of Cabo Verde requested a US$26 million loan from the World Bank to support the implementation of its National Strategy for Sustainable Development (*PEDS 2021-2030 - Ambição 2030*), aiming to accelerate economic growth by strengthening its human capital and increasing employment opportunities. The Human Capital Project's main objective is to "Strengthen access to basic services and improve the employability of youth and women in Cabo Verde." The Project supports, in particular, an education reform to better prepare young students for future employment, by improving the quality of the current Education System and ensuring that all youth acquire skills relevant to market needs. This reform includes the development of a new curriculum in secondary education.

The Government of Cabo Verde has also benefitted from another US$20 million loan from the World Bank to support the implementation of the Digital Cabo Verde Project with the main objective to transform the country into a regional digital hub by enhancing its digital infrastructure, strengthening the demand for digital services, and enhancing the development of digital skills. The project supports the Government's strategy to transform the country into a digitally enabled service economy, raising its competitiveness and attracting further investments.

This Technical Assistance (TA) aligns with both Component 1 of the Human Capital Project to develop the new secondary education curriculum and Component 2 of the Digital Cabo Verde Project to support the development of digital skills and improve Cabo Verde's competitiveness.

2. ADDITIONAL BACKGROUND INFORMATION

The new curriculum framework for education considers the development of digital skills essential, to enhance both the teaching and learning process and to prepare Cabo Verdean youth for the labor market and future employment. The X legislature Government Program aims to offer Cabo Verdeans an Education of Excellence that will contribute to improving the country's competitiveness, productivity and sustainable development, "*adapting schools to the demands of modernization, making them true centers of knowledge, technologically advanced*" (Program of the X Legislature 2021-2026 , pp. 15-20).

To respond to this challenge, the Education Strategic Plan outlines strategic measures for the development of digital skills for all students. A new curricular matrix was designed for both basic and secondary education. In grades 5-8 in basic education, the new curriculum includes 30 hours of instruction each year to introduce digital skills to students. The programs and learning materials for these grades have been finalized. Given that many basic education schools lack the necessary equipment/resources, implementation of the modules varies but the curriculum outlines ICT skills to teach in each grade for all students. In grades 9-12, the new curriculum also includes ICT as a mandatory subject for all students including instruction of 2 hours/week. Then, for students who select the vocational track which focuses on ICT and electronics, Programming is to be taught for 3 hours/ week in grades 10 and 11 and Multimedia for 3 hours/week in grade 12.

In order to promote the development of digital skills, NOSI ran a very successful program in Cabo Verde known as Weblabs I. This program was carried out in collaboration with the Ministry of Education but was not part of the official curriculum and the Weblab courses were offered to students as an elective. With the new official secondary education curriculum, the Ministry of Education intends to incorporate elements of the innovative, highly interactive, activity-based curriculum of the Weblabs into the schools.

To guide the development of the new curriculum for each discipline, the first step is to develop the overall program. For the secondary curriculum in ICT, the programs for the general ICT course in each grade is already developed or in the final stages. For the specific courses on Programming and Multimedia Technologies, the programs are still yet to be developed. The second stage is to develop the learning and teaching materials for the specific courses. All of

the learning materials for the ICT courses in grades 9-12 and courses on Programming and Multimedia Technology are yet to be developed.

3. TECHNICAL ASSISTANCE OBJECTIVES

3.1. General Objective

The overall objective of this ToR is to hire a consultancy firm specialized in the area of promoting the development of digital skills to support the Ministry of Education (ME), (i) to prepare the programs for the new courses in Programming (grades 10 and 11) and Multimedia Technologies (grade 12); and (ii) prepare the new teaching and learning materials for the new ICT courses in grades 9-12 and for the specific courses on Programming and Multimedia Technologies.

3.2. Specific Objectives

The design of the new programs and materials must take into account the following considerations:

a) The new ICT curriculum for secondary education must build on and align with the ICT modules in grades 5-8;

b) Ensure the new programs and materials take into account different student profiles and the reality of each school/municipality in terms of connectivity and availability of access to IT equipment;

c) The design of the materials needs to address prevalent gender inequalities in the ICT sector by promoting greater inclusion of girls and women and ensure aspects related to special education needs are included to ensure pathways for ICT skills development for all students;

d) All of the materials developed must be validated both scientifically in terms of content and pedagogy used;

e) The new teaching and learning materials (student and teacher activity guides and interactive materials) should be based on global best practices, student-centered, and innovative to ensure the development of knowledge and digital skills among students; and

f) Be prepared in accordance with the structure and guidelines drawn up by the Ministry of Education/National Directorate of Education, contained in the *Orientações Gerais e Estrutura para a Elaboração dos Programas das disciplinas do Ensino Secundário*, the *Perfis de Formação dos Alunos do Ensino Não Superior* (PFA), and the R*eferencial para o Ensino Secundário Geral de Cabo Verde e Planos de Estudo*, in accordance with decree-law no. 28/2022 of July 12.

4. PROJECT SCOPE

Table 1. Materials to be developed

	9th grade	10th grade		11th grade		12th grade	
	Student Activity Guide/ Interactive Resources/ Teacher's Guide	*Program*	*Student Activity Guide/ Interactive Resources/ Teacher's Guide*	*Program*	*Student Activity Guide/ Interactive Resources/ Teacher's Guide*	*Program*	*Student Activity Guide/ Interactive Resources/ Teacher's Guide*
ICT	*X*		*X*		X		X
Programming		X	X	X	X		
Multimedia Technologies						X	X

The firm is expected to conduct the following activities to develop the materials specified in the table above.

Activity 1: Preparation of secondary education programs for Programming and Multimedia Technologies

The design of the secondary education programs for these courses should be carried out, taking into consideration the general ICT curriculum for grades 9-12. Teams must work together to ensure coherence of programs in the same discipline throughout different years and learning cycles and coordinate the preparation of programs with the design of teaching materials.

As part of the development of the new secondary education programs, the firm must:
   a) Develop, with scientific and pedagogical excellence, the programs for Programming and Multimedia Technologies for secondary education, harmonizing them with the

curricular guidelines for this level of education. The programs must integrate digital and conceptual skills, aiming not only to acquire knowledge, but to enable students to be able to apply this knowledge in concrete situations. The programs must also account for the Cabo Verdean sociocultural reality;

b) Prepare the programs for Programming (grades 10 and 11) and Multimedia Technologies (grade 12), which considers the age group, the available teaching time, the number of teaching weeks per year, and the conditions related to the context;

c) Promote digital inclusion, entrepreneurship and digital creativity of students and teachers and, indirectly, of the entire educational community;

d) Integrate content linked to promote and respect diversity, without prejudice based on origin, gender, sexual orientation, age, religious conviction or any other forms of discrimination, as well as valuing knowledge, identities, cultures and potential;

e) Incorporate knowledge relating to the socio-environmental area that affects human life and dignity, at a global, national and regional level, so that students can assume an ethical position in relation to the care of themselves, others and the planet;

f) Integrate knowledge and experiences that enable understanding of the work environment, allowing students to make autonomous choices, aligned with his/her personal, professional and social life and link secondary education with higher education and the world of work.

To ensure the alignment of the Programming and Multimedia Technologies programs with the other ICT programs developed for all students in grades 9-12, the firm must also take into account the following: (1) The different characteristics of secondary education schools, due to lack of IT equipment and/or connectivity in schools, as indicated in this ToR; and (2) for students in the vocational track, they may choose between Programming or Multimedia Technologies, or both.

Activity 2: Scientific and pedagogic validation of programs

Teams must work together to guarantee the coherence of programs in line with programs in the same subject area and reference documents. Scientific-pedagogical validation is the responsibility of the firm together with National Directorate of Education. To ensure that

the programs effectively contribute to improving the quality of digital learning for all students, this includes the following:

a) Analyzing the Programs and ensure their scientific validity and pedagogical rigor, aligned with curricular guidelines, using clear and accessible language;

b) Presenting the content in an explicit and coherent way, with suggestions for practical/experimental activities appropriate to the learning process and level of education, stimulate creativity and autonomy, and present summaries of the material at the end of each chapter, in order to consolidate the knowledge acquired; and

c) Analyzing and ensuring the alignment of the Programming and Multimedia Technologies programs with the overall ICT Programs.

The scientific-pedagogical opinion must be formulated in accordance with the following criteria:

a) Scientific, linguistic and conceptual rigor;

b) Adequacy to the development of the skills defined in the curricular documents;

c) Compliance with the objectives and contents of the programs and with the reference and guiding documents currently in place;

d) Pedagogical and didactic quality, particularly with regard to method, organization of information and communication;

e) Sequentially and vertical and horizontal articulation of the proposed learning;

f) Respect for constitutional values, namely non-discrimination and gender equality;

g) Provide correct and relevant knowledge in the subject area in question.

h) The firm must present the scientific-pedagogical opinion with suggestions for improvement within 15 (fifteen) days from the delivery of the work, according to the approved Work Plan Calendar.

Activity 3: Preparation of the teaching and learning materials for ICT (Grades 9, 10, 11, and 12) and for Programming (Grades 10 and 11) and Multimedia Technology (Grade 12)

For the development of the teaching and learning materials, the firm must take into account the need to guarantee strong coordination and interaction with the technical

team at the Ministry of Education, through the National Directorate of Education. For the development of the new materials including the student activity guides/interactive resources and teacher guides, the firm must:

a) Develop, with scientific-pedagogical excellence, new ICT teaching materials for grades 9, 10, 11 and 12 and the programming (grades 10 and 11) and multimedia (grade 12) courses. The materials must integrate the skills and conceptual knowledge specific to each subject, aiming not only at acquiring knowledge, but allowing students to be able to apply this knowledge in concrete situations. The materials must also reflect the Cape Verdean sociocultural reality.

b) Prepare new teaching materials taking into account the age group, available teaching time, the number of school weeks per year, and the relative constraints to the context. The materials must enable work with different areas of knowledge through a comprehensive, reflective and motivating language for teachers and students, aligned with the programs and curricular guidelines for this level of education;

c) Encourage the deepening of learning, based on students' previous knowledge and experiences, and integrate transdisciplinary approaches, providing students with the mobilization of knowledge and skills, as well as their application in real everyday life situations.

d) Integrate content linked to respect and acceptance of diversity, without prejudice based on origin, gender, sexual orientation, age, religious conviction or any other forms of discrimination, as well as valuing different knowledge, identities, cultures and potential, recognizing oneself as a part of a collective to which students must commit;

e) Integrate knowledge and experiences that enable understanding of the world of work, within the scope of socioeconomic relations, allowing the student to make autonomous choices, aligned with his/her personal, professional and social life;

f) Include in the Teacher's Guide didactic and methodological suggestions to streamline classroom work, aligned with the student materials, with a focus on program application and pedagogy;

g) Edit materials through an editorial team that includes, among others, editors, designers, illustrators, etc. and scientific proofreaders;

h) Make available on a specific web platform, interactive resources associated with the new manuals for grades 9-12, including audio resources, videos, interactive exercises, games, etc., as well as the materials in a digital format to complement to the printed versions.

5. TASKS, DELIVERABLES AND SCHEDULE

The following tables outline the expected processes, results and deliverables related to the tasks outlined in these TORs.

Table I – Programs for Programming and Multimedia Technologies

Results	Deliverables	Tasks	Stages per deliverable
R1. Programs for the different disciplines prepared.	**P1.** Programs for Programming (2 – Grade 10 and Grade 11) and Multimedia Technology (1—Grade 12)	a) Analysis of Curricular Guidance documents and previous grades programs in the same discipline; b) Development of draft programs; c)Validation of programs by scientific and conceptual review team – 1st phase. a)Introduction of feedback. b)Approval of corrections by the programs' scientific and conceptual review team; c)Linguistic Review. a) Training sessions for teachers who will work with the Programs led by the Program designers.	**Stage 1**: Delivery of **version zero** in Word format **Stage 2:** a. Delivery of the scientific-pedagogical opinion of the Programs for experimentation. b. Delivery of the Programs in Word format. **Stage 3:** a. Preparation of training schedule/materials. b. Training sessions for teachers.

Table II –ICT Student Activity Guides/Interactive Resources and Teacher Guides for Grade 9, 10, 11, and 12

Results	Deliverables	Tasks	Stages per deliverable
R1 ICT Student Activity Guides designed/ prepared and edited.	**P1:**ICT Student Activity Guide for Grade 9 **P2:**ICT Student Activity Guide for Grade 10 **P3:**ICT Student Activity Guide for Grade 11 **P4:**ICT Student Activity Guide for Grade 12;	For each grade, the materials should be developed as follows: a) Development of the structure and sequence of content. b) Design of the approach to materials and page graphics. c) Writing, editing, pagination, illustration, request for authorization for texts and images whose copyright may belong to external entities, quality assurance. d) Delivery of the file (model design) for approval by the contracting authority. e) Delivery of the final files in digital format, ready for printing. f) Allocation of intellectual property. g) Editorial coordination (if contracted for printing and editing of materials).	**Stage 1:** Submission of the Draft Zero of the subject's Activity Guide for approval by the Ministry of Education **Stage 2**: Materials Revision: a. Analysis of materials/tests, carried out by specialists (teams of designers and validators of the teaching program) from the subject area b. Opinion of the didactic-pedagogical Scientific Review. c. Approval of final corrections by the National Directorate of Education. **Stage 3:** Delivery of the final version of the student's Activity Guide for the subject in digital format (editable formats).
R2 Teacher's guides conceived/elaborated and edited.	**P5:** ICT Teacher's guide for Grade 9 **P6:** ICT Teacher's guide for Grade 10 **P7:** ICT Teacher's guide for Grade 11 **P8:** ICT Teacher's guide for Grade 12	a) Development of the structure and sequence of content. b) Design of the approach to materials and page graphics. c) Writing, editing, pagination, illustration, request for authorization for texts and images whose copyright may belong to external entities, quality assurance. d) Delivery of the file (model design) for approval by the contracting entity. e) Delivery of final files in digital format, in their final version ready for printing. f) Allocation of intellectual property. g) Editorial coordination (if contracted for the printing and editing of materials).	**Stage 1:** Submission of the Draft Zero of the subject's Teacher's Guide for approval by the Ministry of Education of Cape Verde (team of designers and validators of the teaching program). **Stage 2**: Materials Revision: a. Analysis of materials/tests, carried out by specialists (teams of designers and validators of teaching programs) from the subject area in question, to guarantee quality; b. Opinion of the pedagogical didactic Scientific Review. c. Approval of final corrections by the National Directorate of Education **Stage 3:** Delivery of the final version of the subject's Teacher's Guide in digital format (editable formats).

Results	Deliverables	Tasks	Stages per deliverable
R3 ICT Interactive resources for students available on web platform.	**P9:** ICT Interactive resources for students for Grade 9 **P10:** ICT Interactive resources for students for Grade 10 **P11:** ICT Interactive resources for students for Grade 11 **P12:** ICT Interactive resources for students for Grade 12	a) Content analysis and prototype design b) Adaptation/elaboration of learning materials into digital educational resources, taking into account the country's reality regarding the availability of digital educational resources, for approval by the ME.	**Stage 1:** Submission of the Draft of Interactive resources for approval. **Stage 2:** Submission of final Interactive resources for approval.

Table III – Programming and Multimedia Technologies Student Activity Guides/Interactive Resources and Teacher Guides

Results	Deliverables	Tasks	Stages per deliverable
R1 Programming and Multimedia Technologies Student Activity Guides designed/ prepared and edited.	**P1:** Programming Student Activity Guide for Grade 10 **P2**: Programming Student Activity Guide for Grade 11 **P3**: Multimedia Student Activity Guide for Grade 12	For each grade, the materials should be developed as follows: a) Development of the structure and sequence of content. b) Design of the approach to materials and page graphics. c) Writing, editing, pagination, illustration, request for authorization for texts and images whose copyright may belong to external entities, quality assurance. d) Delivery of the file (model design) for approval by the contracting authority. e) Delivery of the final files in digital format, ready for printing. f) Allocation of intellectual property. g) Editorial coordination (if contracted for printing and editing of materials).	**Stage 1:** Submission of the Draft Zero of the subject's Activity Guide for approval by the Ministry of Education **Stage 2**: Materials Revision: d. Analysis of materials/tests, carried out by specialists (teams of designers and validators of the teaching program) from the subject area e. Opinion of the didactic-pedagogical Scientific Review. f. Approval of final corrections by the National Directorate of Education. **Stage 3:** Delivery of the final version of the student's Activity Guide for the subject in digital format (editable formats).

Results	Deliverables	Tasks	Stages per deliverable
R2 Teacher's guides conceived/elaborated and edited.	**P4:** Programming Teacher's guide for Grade 10 **P5:** Programming Teacher's guide for Grade 11 **P6:** Multimedia Technologies Teacher's guide for Grade 12	a) Development of the structure and sequence of content. b) Design of the approach to materials and page graphics. c) Writing, editing, pagination, illustration, request for authorization for texts and images whose copyright may belong to external entities, quality assurance. d) Delivery of the file (model design) for approval by the contracting entity. e) Delivery of final files in digital format, in their final version ready for printing. f) Allocation of intellectual property. g) Editorial coordination (if contracted for the printing and editing of materials).	**Stage 1:** Submission of the Draft Zero of the subject's Teacher's Guide for approval by the Ministry of Education of Cape Verde (team of designers and validators of the teaching program). **Stage 2**: Materials Revision: a. Analysis of materials/tests, carried out by specialists (teams of designers and validators of teaching programs) from the subject area in question, to guarantee quality; b. Opinion of the pedagogical didactic Scientific Review. c. Approval of final corrections by the National Directorate of Education **Stage 3:** Delivery of the final version of the subject's Teacher's Guide in digital format (editable formats).
R3 ICT Interactive resources for students available on web platform.	**P7:** Programming Interactive resources for students for Grade 10 **P8:** Programming Interactive resources for students for Grade 11 **P9:** Multimedia Technologies Interactive resources for students for Grade 12	a) Content analysis and prototype design b) Adaptation/elaboration of learning materials into digital educational resources, taking into account the country's reality regarding the availability of digital educational resources, for approval by the ME.	**Stage 1:** Submission of the Draft of Interactive resources for approval. **Stage 2:** Submission of final Interactive resources for approval.

6. FIRM PROFILE/QUALIFICATIONS

The firm that will design, develop and implement the tasks described in this ToR skills must create a team to ensure the following:

- The team has significant proven experience in carrying out similar tasks, with a focus on Information and Communication Technologies (ICT) in the educational context, preferably in similar contexts;
- Proven experience in designing and preparing curriculum programs and teaching materials for ICT development, for primary and secondary education;
- Proven experience in designing interactive resources for students; and

- Must have specialists with specific experience and the required qualifications to develop and validate educational programs related to ICT and related disciplines

The team of 4 Key Specialists is the following:

Team Leader:
- At least master's or postgraduate degree in Educational Sciences – Specialization area in Educational Technology or similar.
- At least 8 years of proven experience in coordinating similar projects.
- Knowledge of the other Lusophone countries in Africa education systems (advantage).
- Proven proficiency (oral and written) in Portuguese.

Specialist in Designing ICT Teaching and Learning Materials:
- At least a master's degree in educational sciences or similar.
- At least 7 years of proven experience developing learning materials to teach digital skills.
- Knowledge of other Lusophone countries in Africa education systems (advantage).
- Proven proficiency (oral and written) in Portuguese.

Specialist in Scientific-Pedagogical Review of Teaching Materials:

- At least master's or doctorate in Educational Technologies or similar.
- At least 7 years of proven experience teaching ICT courses and incorporating effective teaching pedagogies.
- Knowledge of other Lusophone countries in Africa education systems (advantage).
- Proven proficiency (oral and written) in Portuguese.

Specialist in Digital Teaching Resources:
- At least a master's degree in Educational Technology or similar.
- At least 5 years of experience in developing Digital Teaching Resources.
- Proven proficiency (oral and written) in Portuguese.

(Depending on the profile of the specialists above, the firm may also be required to contract 1-2 education experts in ICT from Cabo Verde to ensure the content developed aligns with the local context and there are members on the team familiar with the secondary education system in Cabo Verde.)

7. CONSULTANCY TECHNICAL COORDINATION

The teams' coordination and technical supervision is the responsibility of the National Directorate of Education (DNE), Curricular Development Service, which will also oversee and monitor the work with the firm's support if necessary. The National Directorate of Education (DNE) guarantees the graphic edition of the Programs. The team from the National Directorate of Education (DNE), as the institution overseeing this work, will ensure the necessary logistics for preparing the materials, namely, administrative support, telecommunications, printing of documentation and workspace, if necessary. Furthermore, to guarantee the working conditions of the teams, the National Directorate of Education must:

i.   Provide essential information/elements that allow the work to be guided, when requested;
ii.   Monitor and evaluate the development of the new materials ;
iii. Appraise and validate all products after delivery of materials at each stage.

8. CONSULTANCY DURATION AND PAYMENT

Contract duration will be 1 (one) year. For each package of materials (i.e. programs, teaching materials and interactive materials) developed, there will be a phase of elaboration, experimentation, and presentation of the final versions. Payment is linked to the products presented and validated, as described below:

RESULTS/PRODUCTS AND PAYMENTS

Results/Products	Deliverables	Payment percentage
Result 1: Inception Report, including workplan, methodology and timeline.	Workplan and Work Methodology; List of confirmed teams (designers and validators).	**5%**
Result 2: Final versions of Programming and Multimedia Technologies programs in digital format (Word and PDF)	Final versions validated by the scientific and conceptual teams.	**15%**
Result 3: Final versions of ICT Student activity guides and interactive resources and Teacher's guides for grade 9 and 10.	Final versions validated by the scientific and conceptual teams.	**25%**

Results/Products	Deliverables	Payment percentage
Result 4: Final versions of ICT Student activity guides and interactive resources and Teacher's guides for grade 11 and 12.	Final versions validated by the scientific and conceptual teams.	**25%**
Result 5: Final versions of Programming and Multimedia Technologies student activity guides and interactive resources and Teacher's guides	Final versions validated by the scientific and conceptual teams.	**30%**

9. INTELLECTUAL PROPERTY

Upon approval of the different products under this ToR, these will be the property of the Ministry of Education (ME), with the author's rights safeguarded, without prejudice to the adjustments that the Ministry of Education has to carry out, within the scope of future curricular reforms. Service providers are subject to the duty of confidentiality and are committed to using any information/documents provided by the Ministry of Education through the National Directorate of Education for the purposes exclusively stipulated in this ToR.