



ICT STRATEGIC PLAN FOR RWANDA TVET BOARD

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RTB ICT STRATEGIC PLAN

1. Acronyms

RTB	Rwanda TVET Board
TVET	Technical and Vocational Education and Training
ICT	Information & Communication Technology
MS	Microsoft
HQ	Headquarters
CBT/CBA	Competence Based Training /Competence Based Curriculum
DPs	Development Partners
VR&AR	Virtual Reality & Augmented Reality
LMS	Learning Management System

RTB ICT STRATEGIC PLAN

2. Introduction

The ICT Strategic Plan is one of the informing strategies forming part of the RTB Framework and provides a roadmap for ICT operations that will facilitate short-, medium and long-term community priorities and aspirations

3. RTB Mission

The mission of RTB is to promote quality education in technical and vocation education and training from level one (1) to five (5) aimed at fast tracking socio-economic development of the country.

4. RTB Responsibilities

RTB has the following core responsibilities:

1. To design and distribute curricula, teaching materials, trainer's guides, methodologies and establish training methods for technical and vocation education and training from level one (1) to five (5);
2. To promote the use of information and communication technology in technical and vocation education and training from level one (1) to five (5);
3. To coordinate and fast track technical and vocation education and training programs and activities;
4. To coordinate programs and activities to ensure trainers development, build their capacities and monitor their management;
5. To advise the Government on all activities which can fast track

5. RTB Mandate

Rwanda TVET Board is mandated with the coordination of all programs, projects and activities that can fast-track the development of TVET in Rwanda, at level one (1) through level five (5). The core business of RTB is run through two (2) key departments and one division – Training Management Department, Curriculum & Instructional Materials development department as well as the Digital Technologies division. RTB also has a Single Project Implementation Unit (SPIU),

which coordinates all projects and development partners that support skills development up to level five (5) of the RQF.

6. Digital Technologies Division

The division of Digital Technologies tasked with the penetration and demystification of ICTs to the ordinary TVET learner/trainer. Among others, the division is tasked with the establishment, management and maintenance of ICT, Network and Internet connectivity infrastructure within TVET schools.

In collaboration with the department in charge of curriculum development, the Digital Technologies division is responsible with transforming the developed curricula and all related instructional materials into digital content and make them easily accessible online to both learners and trainers. The division is also responsible for ensuring that TVET keeps abreast with the latest emerging instructional technologies such smart classrooms, virtual labs etc

7. Strategic Gaps

The challenges we are facing include a lack of resources, which means both human resources, enough digital resources, and ICT facilities. This can be explained in following aspects:

- ✓ Lack of competent workforce/Trainers certified in digital literacy
- ✓ Lack of technologies/tools to facilitate the digitalization implementation process
- ✓ Lack of internet infrastructure required to facilitate the implementation process
- ✓ Lack of digital devices for both teachers and trainees
- ✓ Digital instruction materials (Curricula, Training Manual, Notes, ToG,...)
- ✓ Lack of blended learning policy
- ✓ Lack of digital champions to help RTB to train a big number of trainer and trainees in use of RTB digital platforms
- ✓ Lack of internet connectivity bandwidth to facilitate trainer and trainees to access digital platforms

8. Future Needs

- The well customized learning management platform with interactive content
- Digital instruction materials (Curricula, Training Manual, Notes, Tog,...)
- Competent workforce/Trainers certified in digital literacy
- Technologies/tools to facilitate the digitalization implementation process
- Internet infrastructure required to facilitate the implementation process
- Digital devices for both teachers and trainees
- Blended learning policy
- Digital champions to help RTB to train a big number of trainer and trainees in use of RTB digital platforms
- Internet connectivity bandwidth to facilitate trainer and trainees to access digital platforms

9. ICT Strategic Framework

Strategy Goal 1 – Develop eLearning systems to integrate digital education at RTB TVET Schools

Strategic Objectives	Actions
Strategic Objective 1.1: eLearning platform user interface is customized based on international standards and definitions integrated to ensure interoperability and to provide flexible support of various online learning scenarios, to enhance the student experience and minimize technical support.	<p>1.1.1 Customize user interface of the eLearning Platform</p> <p>1.1.2 Technical Integration of MS Teams with Moodle partly completed</p> <p>1.1.3 Integration of formative assessments (quizzes and assignments)</p> <p>1.1.4 Enable e-assessment in eLearning platform</p> <p>1.1.5 Document the necessary functionalities of e-Portfolio solution</p> <p>1.1.6 Identify potential e-Portfolio solutions that fulfill the requirements and integrate with Moodle.</p>

	<p>1.1.7 The deployment and integration of e-Portfolio solution</p> <p>1.1.8 Identify potential anti-plagiarism solutions and their costs (e.g. Turnitin, VERICITE)</p> <p>1.1.9 The deployment and integration of the anti-plagiarism solution</p> <p>1.1.10 Integrate eLearning with Microsoft office 365</p>
<p>Strategic objective 1.2:</p> <p>A unified user support system is established that handles the needs of eLearning users</p>	<p>1.2.1 Identify and train user support staff</p> <p>1.2.2 Research and acquire potential AI (Artificial intelligence) automated tech support solutions</p> <p>1.2.3 Update written, audio and visual support documentation</p>
<p>Strategic objective 1.3:</p> <p>A team is established to manage the technical support and maintenance of the eLearning systems at the RTB and TVET Schools levels.</p>	<p>1.3.1 Identify and train system administrators at RTB HQ</p> <p>1.3.1 Identify managers (eLearning Champions) of the Moodle system to manage courses and users.</p>
<p>Strategic objective 1.4:</p> <p>A digital assessment and proctoring solution are implemented.</p>	<p>1.4.1 Identify appropriate digital assessment and proctoring solution, the cost per license and identify other requirements for the implementation</p>
<p>Strategic objective 1.5</p> <p>A single sign-on for users of RTB systems is implemented.</p>	<p>1.5.1 Ensure the interoperability of all components of the eLearning System and office 365</p>

Strategy Goal 2 – Develop relevant blended-learning content that results in CBT/CBA

Strategic Objectives	Actions
<p>Strategic objective 2.1:</p> <p>Instructional design principles and best practices are developed and their</p>	<p>2.1.1 Coordinate with DPs/Curriculum unit / and other consultancy to develop audio, visual, written instructional design guidelines for online/hybrid course creation.</p>

implementation by course developers is supported	
Strategic objective 2.2: Relevant digital content aligned with the curriculum is developed or acquired	<p>2.2.1 Define guidelines to develop digital content and ensure the compliance with existing quality assurance guidelines</p> <p>2.2.2 Provide technical training on authoring tools (such as H5P, Interactive content, Unity and VR&AR tools) for teachers and content developers to create digital content (learning objects)</p> <p>2.2.3 Train teachers to manage courses on Moodle</p> <p>2.2.4 Curate and/or acquire existing digital content to be customized aligned with our curriculum</p>
Strategic objective 2.3: A quality assurance process aligned with CBT/CBA is established.	<p>2.3.1 Review the suitability of existing quality guidelines (CBT/CBA) for online courses.</p> <p>2.3.2 Review the quality of every course before being published</p>
Strategic objective 2.4: The creation and implementation of blended learning courses is evaluated on an annual basis.	<p>2.4.1 Define on annual basis which courses should be online/hybrid offline</p> <p>2.4.2 Monitor the percentage of online/hybrid learning courses.</p>

Strategy Goal 3– Establish the RTB central eLearning organ/Team

Strategic Objectives	Actions
Strategic objective 3.1 The eLearning policy is developed and implemented.	<p>3.1.1 Approve the eLearning Policy draft</p> <p>3.1.2 Develop the Action Plan</p> <p>3.1.3 Implement the Action Plan</p>
Strategic objective 3.2	<p>3.2.1 Write mission/vision statement and create an organizational chart</p>

The location, related equipment, and personnel for the establishment of a central eLearning organ/Centre or team at RTB Headquarters is identified	3.2.2 Create specification for the center, covering space needed. supporting equipment and related infrastructure
Strategic objective 3.3 Research on relevant emerging technologies to improve learning experiences and students' engagement is conducted.	3.2.1 Consult with experts from Industry and development partners to track recommended emerging technologies namely Virtual reality, 3D Modellings, Virtual Labs, IoT, AI, drones, Satellite Internet service, etc.
Strategic objective 3.4 The capacity building plan is defined.	3.4.1 Update the existing capacity building Plans to include training on using eLearning Platform (Moodle).

Strategy Goal 4– Provide adequate internet connectivity bandwidth and digital capable devices at TVET School and related facilities

Strategic Objectives	Actions
Strategic objective 4.1 Adequate internet connectivity bandwidth is provided in each school	4.1.1 Explore emerging opportunities with local providers (Liquid, CanalBox, MTN, BCS, etc.) and international providers (Starlink, Google, Facebook, Huawei, Microsoft, etc) and evaluate funding mechanisms. 4.1.2 Work with MINEDUC and RISA regarding different national broadband projects aimed at upgrading of broadband available to education
Strategic objective 4.2	4.2.1 Set up and upgrade the network infrastructure expanding the network to cover school with adequate bandwidth

<p>A network infrastructure for internet connectivity for school (Teacher, Staff and students) is established</p>	<p>4.2.2 Identify donors/funding support for Network equipment (Routers, Switches) and other networking hardware equipment</p>
<p>Strategic objective 4.3 An eLearning Facility (ICT Lab/smart classroom) at each school is established.</p>	<p>4.3.1 Evaluate available ICT Labs at each school 4.3.2 Align development partner ICT Lab projects to fulfil RTB needs. 4.3.3 Establish or Upgrade existing ICT Labs and/or Smart classrooms as needed for eLearning</p>
<p>Strategic objective 4.4 Students and teachers are facilitated to acquire digital devices and bandwidth respectively for digital modules delivery, design and development.</p>	<p>4.4.1 Equip eLearning champions with appropriate laptops, modems, etc. 4.4.2 Assess the device ownership by students and adequacy for eLearning 4.4.3 Create a program for students to acquire laptops 4.4.4 Work with GoR, DPs, and donors to acquire affordable laptops with internet connectivity for teachers and students 4.4.5 Promote 0-rating of RTB Domain amongst local ISPs</p>
<p>Strategic objective 4.5 Appropriate hosting solutions for the RTB eLearning platform and content are determined.</p>	<p>4.5.1 Consult Moodle for the best cost-effective hosting solution for Moodle LMS 4.5.2 Re-locate the eLearning platform to a more cost-effective hosting solution that also comply with GoR data privacy and security regulations</p>

Strategy Goal 5– Achieve engagement and build capacity of school, Students and Staff

Strategic Objectives	Actions
<p>Strategic objective 5.1: Individual school-based eLearning coordinators for the implementation of policy goals and strategic objectives are established.</p>	<p>5.1.1 Designate one school manager to coordinate departmental eLearning champions</p> <p>5.1.2 Conduct train the trainer workshops with eLearning managers and champions so that they are competent to deploy the training plans as specified.</p>
<p>Strategic objective 5.2 All teaching staff are trained on use of eLearning platforms and related project-based and student-centred pedagogy for achieving CBT/CBA learning outcomes.</p>	<p>5.2.1 Ensure training on modern pedagogy references the guidelines</p> <p>5.2.1 Provide training to teachers on the use of eLearning Platform</p>
<p>Strategic objective 5.3 All students are proficient on the use of eLearning platform.</p>	<p>5.3.1 Orientation on the use of eLearning platform included during the induction</p>
<p>Strategic objective 5.4 An incentive framework and usage guidelines for students and teaching staff is established.</p>	<p>5.4.1 Implement badge system to acknowledge students.</p> <p>5.4.2 Implement course rating mechanism allowing the recognition of teachers.</p> <p>5.4.3 Considering all hours of teaching independently of the modality (Face-to-face or Online modes)</p>

Strategy Goal 6– Proactive development of inclusive education with supported eLearning Systems for disadvantaged students

Strategic Objectives	Actions
<p>Strategic objective 6.1 Necessary infrastructure (e.g., wheelchair ramps, headphones, and other assistive technologies) is developed.</p>	<p>6.1.1 Evaluate the existing infrastructure and technology at each some to ensure inclusiveness in eLearning activities</p> <p>6.1.2 Check the master plan for facility inclusiveness</p> <p>6.1.3 Check the plan for the acquisition of assistive technologies (headphones, Braille keyboards, etc)</p> <p>6.1.4 Create a development plan for improving the universal access to the ICT Labs.</p>
<p>Strategic objective 6.2 All content produced should be accessible to people with disabilities where possible.</p>	<p>6.2.1 Require multi-modal course designed for accessibility (Written, audio and video)</p>

Strategy Goal 7- Ensure sustainability of the policy goals

Strategic Objectives	Actions
<p>Strategic objective 7.1 Appropriate government budgetary support and coordination with other government supported ICT projects is established.</p>	<p>7.1.1 Identify the existing government funded eLearning development projects</p> <p>7.1.2 Create an annual budget to implement RTB eLearning action plan.</p>
<p>Strategic objective 7.2 Development partner projects that support eLearning development are coordinated.</p>	<p>7.2.1 Appoint focal persons to liaise with Development partners.</p> <p>7.2.2 Align development partner eLearning related initiatives with RTB eLearning Policy and action plan by proactively providing guidance on RTB eLearning priorities</p>

<p>Strategic objective 7.3</p> <p>Research and development to take advantage of emerging technologies is continued.</p>	<p>7.3.1 Introduce new technologies such as multibranch videos, Unity for virtual 3D environments, virtual reality, open-source authoring tools (H5P), gamification elements</p> <p>7.3.2 Engage with global experts /consultants on new technologies in Vocational education</p>
<p>Strategic objective 7.4</p> <p>Commercialization of eLearning content</p>	<p>7.4.1 Identify the opportunities to Market RTB eLearning Curricula/Content in other countries</p> <p>7.4.2 Provide eLearning content development services to GoR, Private entities and Global market</p>
<p>Strategic objective 7.5</p> <p>The policy and action plan is reviewed and updated on an annual basis.</p>	<p>7.5.1 Review the progress and the results of the action plan</p> <p>7.5.2 Identify deviations and implement corrective measures including changes to action plan</p>

2 Policy Implementation Guidelines

2.1 Develop eLearning systems to integrate digital education at RTB TVET Schools

- Selection of all systems should prioritize open and fully interoperable solutions based on industry standards
- All systems should support single user sign-on.
- All system vendors should have adequate support services available in Rwanda
- Capacitate IT Team at the eLearning organ/Team (RTB) and at each school to be able to manage the technical aspects of eLearning system at RTB and School levels
- Use digital assessment and proctoring software for online assessment
- Digital assessment and proctoring solutions are integrated

- The eLearning platform being used is Moodle shall be responsible for the maintenance and evolution of the platform as new technologies emerge.

2.2 Develop relevant blended-learning content that results in CBT/CBA

- For successful implementation of eLearning programmes, new curricula will be developed and where necessary existing ones adopted and/or adapted into eLearning mode. The focus shall be on:
 - Develop guidelines for content development, both internally and with development partners
 - Harmonize the development of eLearning content with industry requirements.
 - Evaluate learning outcomes to document achievement of CBT/CBA and track subsequent student employment
 - Annually measure the quality of new blended learning courses to evaluate the progress in achieving policy goals.

2.3 Establish the RTB central eLearning organ/Team

- The organ/Team will organize training sessions for teachers and students
- The organ will coordinate and supervise eLearning practices for all RTB Schools
- The organ shall work with the schools to facilitate the combination of face-to-face learning with online courses (blended learning) as well as providing administrative support and coordinating the development of infrastructure and support systems for eLearning.
- The organ will coordinate assessment strategies
- The organ will collaborate closely with the Curriculum Development Unit

2.4 Provide adequate internet connectivity bandwidth and digital capable devices at TVET School and related facilities

- Develop internet capacity by working with development partners and relevant government entities and evaluating emerging technologies.
- Deploy Wi-fi access across whole schools' including classrooms, public places and dormitories.

- Conduct a needs assessment prior to establishing an eLearning organ (dedicated ICT Lab) at each school
- Identify potential complementary hardware donors to achieve equitable distribution of internet capable devices to students, teachers, and staff
- Explore all hosting solutions for efficient course delivery and compliance with national data privacy policy.

2.5 Achieve engagement and build capacity of School, Students and Staff

eLearning practices and programmes need to be supported by sufficient administrative, academic, technical and other support staff with appropriate qualifications and experience. Responsibilities and job descriptions of such staff must be clearly defined. There must be systematic development of staff to ensure that it is kept up to date with developments and performing its duties effectively. The completion of a training session needs to be sanctioned with a certificate to motivate the participants.

- Continuous professional development of administrative staff in various eLearning related areas to develop general digital literacy and provide support to teaching staff and students.
- Coordinate the training development of teachers on advanced instructional design, teaching principles and utilization of smart classrooms.
- Determine existing capacity to coordinate
- Develop guidelines for harmonizing capacity building for content development and system utilization.
- Maintain a workload balance between online courses and face-to-face courses
- Recognize and acknowledge efforts made by teaching staff teaching online

In order to enhance quality and success in eLearning delivery, RTB shall ensure that eLearning users have efficient and effective user support services. Expertise and motivation of RTB staff in design, development and implementation of e-learning are critical success factors in realizing RTB e-learning ambitions. As such, RTB will install a staff and student support infrastructure that consists of elements such as:

- Establishing appropriate structures for providing user support services;
- Adopting innovative approaches to user support provision;
- Ensuring that campuses are equipped with adequate and accessible user support services with a help-desk / individual coaching function for students;
- Providing eLearning users with orientation, induction, guidance and other services in eLearning;
- RTB shall provide certificates to every successfully trained student or staff in eLearning practices;
- The eLearning platform gamification and badges system shall be used to engage and reward learners in their learning process;
- Guidelines and (online) manuals will be provided for both educational and administrative processes
- Help-desk/individual coaching function for both staff and students;

2.6 Proactive development of inclusive education with supported eLearning System for disadvantaged students

- Evaluate each school for its existing capacity for accommodating students with disabilities.
- Identify appropriate development action steps needed to be done to fully support students with disabilities
- Ensure the content developed is multimodal (Combining visual, written, and audio content)

2.7 Ensure sustainability of the policy goals

- Develop a strategic plan for the implementation of the policy
- Determine annual budget for the implementation of the policy
- Present development partners with an individualized action plan
- Achieving successful initial projects to establish credibility for the future efforts