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Realising the potential of technology in education

EdTech in Rwanda: A Rapid Scan

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Country Scan

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1. About this scan

EdTech Hub country scans explore factors that enable and hinder the use of technology in education. This includes policies, government leadership, private-sector partnerships and digital infrastructure for education. The scans are intended to be comprehensive but are by no means exhaustive; nonetheless, we hope they will serve as a useful starting point for more in-depth discussions about opportunities and barriers in EdTech in specific countries and in this case, in Rwanda.

This report was originally written in June 2020. It is based primarily on desk research, with quality assurance provided by a country expert. Given how rapidly the educational technology landscape is evolving, the Hub plans to provide periodic updates. Table 1 provides a summary of the situation regarding EdTech in Rwanda.

Table 1. EdTech in Rwanda

| | |
|--|---|
| <p>Policies</p> | <ul style="list-style-type: none"> ● National Information Communication Infrastructure (Government of Rwanda, 2001; Government of Rwanda, 2010; Government of Rwanda 2015) ● SMART Rwanda Master Plan 2015 (Rwanda Ministry of ICT and Innovation, 2015) ● Education Sector Strategic Plan 2018 / 2019 to 2023 / 2024 (Rwanda Ministry of Education, 2018b) ● ICT in Education Policy 2016 (Rwanda Ministry of Education, 2016a) |
| <p>Infrastructure</p> | <ul style="list-style-type: none"> ● 58.2% of primary schools have on-grid electricity and 20.8% have solar power (Rwanda Ministry of Education, 2018a) ● 74.2% of secondary schools that have on-grid electricity and 18.3% that have solar power (Rwanda Ministry of Education, 2018a) ● 30% of primary schools have internet access compared to 52.9% of secondary schools (Rwanda Ministry of Education, 2018a) ● 66.9% of households own a mobile phone (Rwanda Ministry of Education, 2020) ● Disparities in access to ICT across urban and rural regions are highest for the internet and lowest for radio (National Institute of Statistics of Rwanda, 2014) |
| <p>Partners and initiatives</p> | <ul style="list-style-type: none"> ● The Ministry of Information and Communications Technology and Innovation, Rwanda Education Board (REB), Rwanda Information Society Authority (RISA), the National Commission for Science and Technology (NCST) and the Rwanda Development Board (RDB) have a key role in EdTech ● The Ministry of Education (MINEDUC) continues to make good progress in providing access to educational technology for schools ● The government is committed to funding EdTech; this has spurred |

| | |
|-----------------|--|
| | increased involvement from donors and international organisations |
| Covid-19 | <ul style="list-style-type: none">• All schools closed on March 16, 2020, affecting approximately 3.5 million learners from kindergarten through secondary schools, 13,000 TVET learners and 89,000 tertiary learners (Rwanda Ministry of Education, 2018a; Rwanda Ministry of Education, 2020)• In April 2020, the MoE launched the Response Plan of Ministry of Education to the COVID-19 Outbreak (Rwanda Ministry of Education, 2020) |

2. Country overview

Rwanda is a small, landlocked country in East Africa. It has an estimated population of 12 million, which is increasing at a rate of 2.4% per year. As of 2016, close to 43% of the population is below the age of 15 (Demographic Dividend, 2020). There are five provinces in the country, divided further into 30 districts and 416 sectors. The Eastern, Southern, and Western Provinces have the highest resident populations, while the Northern Province and Kigali City have the lowest resident populations.

In 1994, more than one million people lost their lives in the genocide against the Tutsi, and an estimated two million people fled into neighbouring countries as refugees. When the genocide ended in July 1994, the Government of National Unity was formed, and in 2000 President Paul Kagame was elected to a term of seven years. The country made great progress in socio-economic and infrastructure developments during those seven years. In 2010, the President was elected to a second term and in the 2013 Parliamentary elections, 64% of seats went to women candidates.

Since 1994, Rwanda has continued to make steady progress in improving economic growth and social welfare. The high increase in school enrollment and the drop in child mortality rates are a testament to this progress. In 2018, Rwanda's HDI Index was 0.536, ranking Rwanda as 157 out of 189 countries surveyed (UNDP, 2019). Rwanda's GDP increased from US\$4 billion in 1995 to US\$22.6 billion in 2017 (Global Partnership for Education, 2019).

3. Education system overview

A law passed in 2018 updated the organisation of the education sector, including its mission and objectives and the responsibilities of government and partners in education (Rwanda Ministry of Education, 2018c). The Education Sector Strategic Plan (ESSP) gives direction to the education sector and is implemented in five-year cycles. The current ESSP which covers the period from 2018 / 2019 to 2023 / 2024 guides the implementation of sub-sector education plans. It is aligned with the National Strategy for Transformation (Rwanda Ministry of Finance and Economic Planning, 2017) as well as the Sustainable Development Goals and the African Union Agenda 2063 (Rwanda Ministry of Education, 2018b).

Rwanda's education is divided into four levels:

1. Pre-primary education: Three years of nursery school for children between 4 and 6 years of age.
2. Primary education: Six years in primary school for children between 7 and 12 years of age. This level concludes with a national examination that assesses readiness for secondary school.
3. Secondary education: Six years in secondary school for children aged 13 to 18 years.
4. Tertiary education: Four to six years depending on academic courses or a technical and vocational educational path.

Non-Formal Education or Adult Basic Education provides an additional educational pathway. The education system in Rwanda enforces compulsory education for the first nine years for students between the ages of 7 and 15 years. Secondary education is divided into lower secondary for the first three years and upper secondary for the last three years. At the completion of lower secondary, students take an examination and select between upper secondary, teacher training college, or technical and vocational education and training (TVET). TVET is delivered through Technical Secondary schools, Vocational Training Centres, and Integrated Polytechnic Regional Centres.

The Ministry of Education is responsible for developing policies and strategies for the education sector. The Rwanda Education Board (REB) is responsible for the implementation and coordination of all basic education programmes. The Workforce Development Authority (WDA), working with the Rwanda Polytechnic (RP), focuses on the implementation of programmes and policies in both private and public TVET institutions. The Higher Education Council (HEC) ensures higher education policies and standards are adhered to by all higher learning institutions (HLI).

The budget allocation to the education sector as a proportion of total government expenditure declined between 2007 and 2017 from 17.8% to 12.9%. However, between 2014 and 2017, the education sector budget allocations as a percentage of GDP were higher than the allocations for the health, agriculture and energy sectors (Global Partnership for Education, 2019). From 2013 to 2018, primary education was allocated between 30% and 40% of the overall education budget. Secondary education received between 25% and 30% of the budget. In 2016, TVET received 52% of total donor support to off-budget projects, while basic education received 36%, and higher education received 12% (Rwanda Ministry of Education, 2018b).

3.1. Education sector progress and challenges

Rwanda has continued to achieve progress in increasing access to education and equity in the delivery of education, as well as improving the relevance and quality of education. In 2016, a new competency-based curriculum (CBC) was introduced to improve the quality of education. The CBC focused on strengthening the competencies of students but faced some challenges due to delays in the procurement of textbooks. Other issues affecting the implementation of the CBC include a lack of adequate training for teachers on the delivery

of the new curriculum and assessment methodologies (Global Partnership for Education, 2019).

The increase in gross enrolment rates from 123.2% in 2012 to 139.6% in 2016, compared to Education Sector Strategic Plan (ESSP) targets of 100% in 2017 / 18, is likely because many children are outside the appropriate age range when starting school and students are not progressing through their grades. Primary school completion rates declined from 72.7% in 2012 to 65.2% in 2016 (Rwanda Ministry of Education, 2018b). In parallel, the repetition rate increased from 12.7% in 2012 to 18.4% in 2016 (Rwanda Ministry of Education, 2018b). Primary school drop-out rates have been decreasing since 2014 but remained at 6.7% in 2017 / 2018 (Rwanda Ministry of Education, 2018a; Rwanda Ministry of Education, 2018b). The average number of pupils per classroom was 81 in 2016. It decreased to 71 in 2018 with some variations across districts (Rwanda Ministry of Education, 2018a). The government is constructing additional classrooms and implementing double-shifting to address the high pupil-to-classroom ratio.

Over the years, the number of girls attending schools has increased, and girls are currently performing better than boys and have lower repetition rates. Additionally, more girls are enrolled in all of the subject combinations offered in upper secondary school than boys, except in technical secondary schools where boys are enrolled in higher numbers. Despite government efforts to ensure gender equality, little attention has been paid to the declining enrollment rates for boys.

There is also limited data on students with disabilities. There are disparities in the types of physical disabilities identified; students with physical disabilities are more easily identified compared to students with mental disabilities. Further, the number of students with disabilities is extrapolated from the total number of people with disabilities in the population. There is also the need for clarity on the disability criteria in data collected on learners with disabilities. The lack of accurate information impacts decisions that are made about the provision of learning facilities and resources for students with disabilities.

Additional challenges highlighted by the Ministry of Education include:

- **Limited teacher competencies in content and pedagogy.** Teachers must be prepared to use the competence-based curriculum effectively and support learners in building business, ICT and STEM skills.
- **Need for new indicators to track access and quality of education.** Existing indicators can be strengthened to design programmes that can better reach all learners, especially marginalised groups, SEND students, and students living in rural areas.
- **Lack of coordination across districts and between the public and private sectors.** In 2018, the MoE noted that many districts were missing a district education strategic plan, or drafted a plan that does not align with the ESPP. Furthermore, they identified that alignment is needed for the private sector to

support the expansion of pre-primary education, TVET and higher education in Rwanda (Rwanda Ministry of Education, 2018b).

3.2. Education Sector Plan 2018–2024

Rwanda's fourth ESSP 2018/19–2023/24 provides a framework for implementing the government's goal of achieving economic transformation through education. The ESSP is structured around nine strategic priorities:

1. Enhanced quality of learning outcomes that are relevant to Rwanda's social and economic development.
2. Strengthened continuous professional development and management of teachers across all levels of education in Rwanda.
3. Strengthened Science, Technology, Engineering and Mathematics (STEM) across all levels of education in Rwanda to increase the relevance of education for urban and rural markets.
4. Enhanced use of Information and Communication Technology (ICT) to transform teaching and learning and support the improvement of quality across all levels of education in Rwanda.
5. Increased access to education programmes, especially at nursery (pre-primary), primary, secondary, TVET and higher education levels in Rwanda.
6. Strengthened modern school infrastructure and facilities across all levels of education in Rwanda.
7. Equitable opportunities for all Rwandan children and young people at all levels of education.
8. More innovative and responsive research and development in relation to community challenges.
9. Strengthened governance and accountability across all levels of education in Rwanda (Rwanda Ministry of Education, 2018b).

4. EdTech policy and strategy

In this section, we describe Rwanda's national ICT policy and include a brief look at the ICT in education policy.

4.1. National policy

From 2000–2015, the Government developed and implemented three National Information and Communication Infrastructure Plans (NICI Plans I–III). The NICI plans included a range of ICT for Development (ICT4D) programmes. The NICI I established the legal and regulatory framework for the telecommunications sector (Rwanda Ministry of Education, 2001). The NICI II plan focused on infrastructure networks like the National Fiber Optic backbone and also addressed areas like operator licensing (Rwanda Ministry of Education, 2010). The plan included ICT projects like the One Laptop per Child (OLPC) programme and the eRwanda project. The NICI III plan called attention to skills development or building professional ICT skills, cybersecurity, community development, e-Government and private sector development (Rwanda Ministry of Education, 2015). It promoted the use of ICTs to

develop a knowledge-based society, empower and transform communities and build a vibrant and competitive private sector.

The Smart Rwanda 2020 Master Plan (SRMP) introduced in 2015, follows the NICI plans and was designed based on the analysis of their achievements (Rwanda Ministry of ICT and Innovation, 2015). The SRMP covers seven pillars: Smart Agriculture, Finance, Trade and Industry, Health, Education, Government, Women and Youth Empowerment in ICT.

4.2. ICT in Education policy

The ICT in Education policy was approved by the cabinet in 2016 (Rwanda Ministry of Education, 2016a). The new policy incorporated existing ICT in education projects like the OLPC programme. The policy is centred around four strategic objectives;

1. Develop a competent and relevant ICT professional base to industry needs.
2. Increase ICT penetration and usage at all educational levels.
3. Develop education leadership and teachers' capacity and capability in and through ICT.
4. Enhance teaching, learning and research through ICT integration in higher learning institutions (HLI).

The policy document promotes the use of ICT in formal education. It encourages educators across all levels of education to use ICTs in teaching and learning and advocates using open education resources. It also provides support to student-centred pedagogy and collaborative learning and the establishment of a research network linking Rwandan scientists and researchers to regional and international research networks (Rwanda Ministry of Education, 2016a).

Additionally, the policy promotes the use of ICTs in non-formal education, such as in community learning centres and libraries. It encourages the use of ICT infrastructure in afterschool activities to impart life and ICT skills to school drop-outs and local community members.

Another aspect of the policy focuses on the provision of needed infrastructure to enable the effective use of ICTs within the education sector, including a definition of sustainable and reliable technology models for the education system. The development of assistive technologies for special education needs students falls within this aspect of the policy (Rwanda Ministry of Education, 2016a).

Curriculum development, delivery and assessment, together with capacity building, are also outlined in the policy such as the promotion of local content development and the use of a blended-learning approach. Capacity building aspects include ensuring pre-service and in-service teachers participate in continuous professional development sessions on ICT literacy. The final aspect of the policy defines research and development as well as monitoring and evaluation for ICTs. This entails identifying best practices and lessons

learnt, which are fed back into programmes for iterative improvement (Rwanda Ministry of Education, 2016a).

Finally, the ICT in education policy has a four-year implementation plan, which was also approved in 2016. As of late 2019, a review of the ICT in education policy is in progress (Sabiiti, 2019). Phases I through IV of the policy were implemented between 2015 and 2019. The four strategic objectives cover the following initiatives:

1. Develop a competent & relevant ICT professional base to meet industry needs.
2. Increase ICT penetration and usage at all educational levels.
3. Develop teachers capacity and capability in and through ICT.
4. Enhance teaching, learning and research through ICT integration in higher learning institutions (HLIs) (Rwanda Ministry of Education, 2016b).

5. ICT infrastructure

The percentage of households with access to radio is high at 64%, but the percentage for households with computers is low at 3.38%. The percentage of households with internet access is low at 29.8% (Table 2).

Table 2. Percentage of households who own a radio, television, fixed line telephone, mobile phone and computer and that have access to the internet at home.¹

| ICT resource | Percentage |
|--------------------------------|------------|
| Radio | 64% |
| Television | 8% |
| Telephone — fixed line | 0.11% |
| Telephone — mobile | 54% |
| Computer | 3.38% |
| Access to the internet at home | 29.8% |

The difference between urban and rural households are highest for the internet and lowest for mobile phones (Table 3) (National Institute of Statistics of Rwanda, 2014).

¹ National Institute of Statistics of Rwanda (2014), available at <https://www.statistics.gov.rw/publication/rphc4-thematic-report-characteristics-households-and-housing>

Table 3. Percentage of urban and rural households with radio, mobile phone, computer, or internet at home.²

| ICT resource | Urban | Rural |
|--------------|-------|-------|
| Radio | 72% | 62% |
| Mobile | 97% | 88% |
| Computer | 12% | 0% |
| Internet | 28% | 2% |

Table 4 outlines ICT infrastructure in schools. Approximately 74% of primary schools have access to electricity compared to 88% of senior high schools. A long-running government-funded EdTech initiative to improve access to electricity is being implemented in primary schools, but overall coverage has not yet reached 100% due to the high number of primary schools. The student-to-computer ratio in primary and secondary schools is 10:1 and 8:1, respectively (Rwanda Ministry of Education, 2018a).

Table 4. ICT infrastructure in schools.³

| Infrastructure | Percentage with access |
|--------------------|------------------------|
| Electricity | |
| Primary school | 73.6% |
| Junior high school | 85.1% |
| Senior high school | 87.9% |
| Internet | |
| Primary school | 30% |
| Junior high school | 64.7% |
| Senior high school | 64.7% |
| Computers | |
| Primary school | 75.5% |

² Ibid.

³ Rwanda Ministry of Education (2018a), available at http://197.243.16.104/~mineduc/newweb/fileadmin/user_upload/pdf_files/2018_Rwanda_Education_Statistics.pdf

| | |
|--------------------|-------|
| Junior high school | 85.5% |
| Senior high school | 83.6% |

6. Key partners and initiatives in EdTech

6.1. Government agencies

The Rwanda Education Board (REB), one of MINEDUC's six agencies is responsible for promoting the use of ICTs in education. Established in 2011, REB's vision is to improve the quality of Basic Education through curriculum development, development and management of teachers and assessment (Rwanda Education Board, 2018). The education board implements smart classrooms in primary schools and secondary schools. It has also set up an e-learning portal that currently hosts a range of educational content including interactive and animated content, videos and e-books.⁴

Table 5. Key government partners in EdTech.

| Ministry / Agency | Roles and responsibilities in EdTech |
|--|---|
| Rwanda Education Board⁵ | <ul style="list-style-type: none"> The ICT Education department is responsible for the overall implementation and supervision of ICT-in-education activities. This includes digital content and instructional technology development, connectivity and network development, learning devices and cloud solution technologies. |
| Ministry of ICT and Innovation⁶ Rwanda Information Society Authority⁷ | <ul style="list-style-type: none"> Implementing strategies, national ICT policies and programmes in order to fast-track socio-economic growth and increase access. Designing and coordination of initiatives that will increase the necessary skills in the ICT field with the aim of achieving a knowledge-based economy. Forging partnerships to facilitate cooperation and collaboration with other regional and international institutions with a similar mission. |

⁴ Rwanda Education Board (2019), available at <https://elearning.reb.rw/>

⁵ Rwanda Education Board (2018), available at <http://www.reb.rw/>

⁶ Rwanda Ministry of ICT & Innovation (n.d.), available at <https://www.minict.gov.rw/home/>

⁷ Rwanda Information Society Authority (2019), available at <https://www.risa.rw/home/>

6.2. Non-governmental agencies

The Ministry of Education has been implementing the OLPC programme since 2008 with direct budgetary support from the government.

EdTech initiatives have also received support from development partners and other funders, namely the World Bank, DFID, USAID, UNICEF, JICA, KOICA, WVOB, Mastercard Foundation, African Institute for Mathematical Sciences (AIMS) and World Vision. Mastercard Foundation's Centre for Innovative Teaching and Learning is a notable five-year initiative that is headquartered in Rwanda, with the aim of driving innovative use of technology to close gaps in access to education, building the evidence on effective and appropriate use of technology in education, and fostering a network of innovators and leaders to advance the use of educational technology in policy and practice across Africa.

Key implementing NGO partners in EdTech include Save the Children, Chemonics and Building Learning Foundations (BLF).

6.3. EdTech initiatives

Table 6 highlights the recent, large- and small-scale EdTech initiatives and all of these are working with the REB in their implementation. Few EdTech initiatives have been implemented to date, but this is expected to change with the growing interest from development partners in promoting the use of educational technology to improve learning outcomes.

Table 6. Recent EdTech initiatives in Rwanda.

| Initiative | Details |
|--|--|
| One Laptop per Child (OLPC) programme⁸ | <p>Overview: The OLPC programme is a key project that aims at the enhancement of education through the introduction of technology in primary schools. It is funded and implemented by the government through MINEDUC. The OLPC programme additionally conducted community awareness campaigns about the role of XO laptops in learning, organised supplemental student programmes, and trained teachers on how to use the XO laptops in their classrooms. Challenges related to lack of electricity and internet, and lack of charging spots in schools have surfaced throughout the implementation of the OLPC programme (Bizimungu, 2018). In 2019, the REB announced a shift from XO laptops to Positivo laptops would take place in 2020 (Sabiiti, 2019).</p> <p>Target group: Students in primary schools across the country.</p> |

⁸ One Laptop per Child (2011), available at https://wiki.laptop.org/images/5/53/Rwanda_Report-v7.pdf

| | |
|--|--|
| | <p>Technology: XO laptops installed with educational applications, deployment of school servers loaded with digital interactive content aligned with the CBC.</p> <p>Reach / scale: 275,407 laptops in 1523 schools deployed in 2018</p> <p>Implementing organisations: REB</p> <p>Government partners: MINEDUC</p> <p>Status of implementation: Ongoing since 2007</p> |
| <p>Rwanda Education Commons⁹</p> | <p>Overview: The Rwanda Education Commons (REC) was a programme intended to promote the effective use of ICTs in education. REC provided both online and offline resources for teachers, including sharing lessons plans on the website and publishing past student exams in newspapers. The project had the following focus areas:</p> <ol style="list-style-type: none"> 1. coordinating efforts among stakeholders in the use of ICT management tools 2. policy support 3. partnerships between technology providers and Rwandan educational institutions 4. improved content of educational materials 5. capacity building in website development, curriculum design and teacher training in multimedia 6. strategies for distributing online and offline educational resources 7. outreach and expansion among educators throughout Africa <p>Target group: Pre-service and In-service teachers</p> <p>Technology: The REC developed an online portal which acted as a library for teachers' resources and also hosted a discussion board. These resources included lesson plans, education policies and reports.</p> <p>Reach / scale: 30 districts</p> <p>Implementing organisations: fhi360 funded by USAID</p> <p>Government partners: MINEDUC</p> <p>Status of implementation: 2008–2012</p> |
| <p>Mentorship Community of Practice</p> | <p>Overview: The Mentorship Community of Practice (MCOP) was a project that supplemented the MINEDUC school-based</p> |

⁹ FHI360 (2020c), available at <https://www.fhi360.org/projects/rwanda-education-commons-rec>

| | |
|--|--|
| <p>Phase 1¹⁰ Phase 2¹¹</p> | <p>mentorship programme. School-based mentors were connected through technology to share best practices with one another. A library of relevant resources was also developed to promote effective teaching. The MCOP became the channel to connect mentors to the Rwanda Education Board. The endline evaluation showed that MCOP improved peer learning.</p> <p>Target group: 30 districts</p> <p>Technology: An online platform where mentors connected with their fellow teacher colleagues through an online discussion board. This system provided teaching and learning resources through an online library for the mentors to facilitate their activities with teachers.</p> <p>Reach / scale: 30 districts</p> <p>Implementing organisations: fhi360, funded by DfID initially and later USAID</p> <p>Government partners: REB</p> <p>Status of implementation: 2013–2015 (Phase 1), 2015–2017 (Phase 2)</p> |
| <p>Hanga Ahazaza¹²</p> | <p>Overview: Developing e-learning courses</p> <p>Target group: TVET students and teachers</p> <p>Technology: Working with the Rwanda Polytechnic (RP) in the developing of digital content and loading on to the institution’s learning platform</p> <p>Reach / scale: All TVET institutions through the RP website.</p> <p>Implementing organisations: Mastercard Foundation, GIZ</p> <p>Government partners: RP, MINEDUC</p> <p>Status of implementation: Ongoing since 2018</p> |
| <p>African Institute for Mathematical Sciences — Teacher Training programme (AIMS-TTP)¹³</p> | <p>Overview: Teacher training programme targeting pre-service and in-service teachers. The training is focused on building knowledge, skills and behaviours when teaching mathematics and sciences. Sessions will take place through the use of ICT and will help change the students’ attitude towards studying</p> |

¹⁰ FHI360 (2020a), available at

<https://www.fhi360.org/projects/innovation-education-mentoring-community-practice-mcop>

¹¹ FHI360 (2020b), available at <https://www.fhi360.org/projects/mentorship-community-practice>

¹² Mastercard Foundation (n.d.), available at <https://mastercardfdn.org/all/hanga-ahazaza/>

¹³ African Institute for Mathematical Sciences (2020), available at <https://www.aims.ac.rw/public-engagement/teacher-training-program/>

| | |
|--|--|
| | <p>mathematics and science at higher levels of education.</p> <p>Target group: Pre-service and in-service teachers</p> <p>Technology: Establishment of 14 smart classrooms which will be accredited training centres. Teachers trained will be certified in pedagogically effective ICTs.</p> <p>Reach / scale: 14 districts</p> <p>Implementing organisations: AIMS funded by the Mastercard Foundation</p> <p>Government partners: REB, MINEDUC, University of Rwanda (UR)</p> <p>Status of implementation: Ongoing since 2018</p> |
| <p>Capacity Development for ICT in Education (CADIE)¹⁴</p> | <p>Overview: The CADIE project has the following components:</p> <ul style="list-style-type: none"> • Training programme for secondary school teachers, • Establishment of Centres of Excellence which will be equipped with state of the art ICT equipment for teaching and learning • Technical support in managing the project and Monitoring and evaluation of programme implementation <p>Target group: Students and teachers</p> <p>Technology: Equipping classrooms turning them into Smart classrooms</p> <p>Reach / Scale: 30 districts</p> <p>Implementing partners: KOICA</p> <p>Government partners: REB</p> <p>Status: Ongoing since 2017</p> |

The private EdTech ecosystem in Rwanda is small but growing. Rwanda has an enabling environment that helps technology start-ups thrive, including a business-friendly environment, an accessible and youthful market that is open to new technology solutions, affordable broadband access and geographic centrality for countries in the region and others across the globe (Antoun, 2020). In late 2019, the Mastercard Foundation Centre for Innovative Teaching and Learning in ICT invited EdTech entrepreneurs in Africa to apply for funding and mentorship opportunities. 12 companies were selected to be part of the centre’s first cohort in 2020 including O’Genius Priority, a platform where students use

¹⁴ Rwanda Podium (2017), available at <https://www.rwanda-podium.org/index.php/actualites/politique/2194-ict-rwanda-and-republic-of-koa-sign-7-million-to-support-it-development-in-schools>

computers to conduct lab experiments (Mastercard Foundation, 2020). Another start-up based in Rwanda, BAG Innovation, recently received USD \$150,000 to scale a virtual internship matching system for students and employers (Jackson, 2019).

Box 1. The Government of Rwanda education sector response to Covid-19 (Rwanda Ministry of Education, 2020).

The first confirmed case of the coronavirus was declared in Rwanda on March 14, 2020, and subsequently, on March 16, 2020, the Government announced the closure of schools.

The Ministry of Education designed and published the Education Sector Covid-19 Response Plan in April 2020 with support from the different development partners within the sector. This plan has 5 main objectives:

- Ensure continuity of learning for all students in Rwanda
- Ensure that schools reopen with appropriate services and measures in place and that students re-enter the formal education system
- Ensure the health and safety of students, teachers and other education personnel
- Protect and provide for vulnerable populations, including children with disabilities, girls and children from lower wealth-quintiles
- Prepare the resilience of the education system against future shocks

This response plan is composed of short-term and long-term initiatives. The short-term initiatives include remote-learning opportunities like radio lessons, audio-visual lessons through television broadcasting and e-learning.

The long-term initiatives focus on measures to be taken and enforced when schools reopen and include ensuring the appropriate educational and health well-being of students and teachers. Another component of the long-term initiatives focuses on the sustainability of all the measures being employed beyond the Covid-19 crisis.

Working together with development partners, Rwanda applied for and was granted funding from the Global Partnership for Education (GPE). Rwanda was the first country to receive the GPE funding and this funding is aimed at supporting the implementation of the Covid-19 education response plan over an 18-month period.

7. Looking ahead

The EdTech landscape is very promising in Rwanda mostly because, from senior leadership to programme implementers, there is strong buy-in for educational technology and its potential to improve learning outcomes, as can be seen in the OLPC programme. Rwanda aims to shift from an agrarian economy to a knowledge-based economy where ICT is leveraged as a tool to achieve this. The ESSP and ICT in Education policy plans emphasise the use of EdTech tools and methodologies to improve the quality of education.

Development partners, in turn, are increasingly venturing into Rwanda's EdTech landscape to support new projects. This can be attributed to the government's clearly defined ICT-in-education policy and actionable implementation plan that helps partners understand its ambitions.

Moving forward, the government must step up efforts to include all stakeholders — the Ministry of Infrastructure, the district and sector level education officers, parents, heads of schools, teachers and students — in implementing EdTech initiatives and ensuring the right infrastructure is in place. This includes school readiness — electricity and internet connectivity, capacity building for the teachers and school leaders and technical support for teachers and other aspects implementing EdTech. The government also needs more help in areas such as assistive technologies, last-mile internet connectivity and localised content development. Limited financial resources and human capability have limited MINEDUC and its agencies from adequately addressing these areas. However, the progress made by the government over the years, supplemented with new and ongoing support from development partners, paints a future of continued learning gains for all learners in Rwanda.

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