

# KEY HIGHLIGHTS

## Rwanda Country Study June 2017

### 1. About Rwanda

Rwanda is a small landlocked country located in East-Central Africa, and is bordered by the Democratic Republic of the Congo, Burundi, Tanzania, and Uganda. The capital is Kigali. Rwanda has a surface area of 26,338 km<sup>2</sup> and is densely populated, with a population of 11,609,666, of which 52% are women.

There are three official languages: Kinyarwanda, English and French. Kinyarwanda is widely spoken since it is the native/mother language spoken by all citizens in the country. Most of the population (84%) are belong to the Hutu ethnic group.

In 2015, Rwanda ranked 9 out of 54 African countries on the Mo Ibrahim Index which offers a comprehensive assessment of governance that informs and empowers citizens, civil society, parliaments and governments as a tool of measuring progress in governance.

Currently, Rwanda enjoys a positive trend in this measure.



2 00 S, and  
30 00 E



11,609,666  
million



21.97B (PPP)

*How is Rwanda doing in terms of Information, Communication Technology, Education, Science Technology and Innovation which are the pillars of the African Leadership in ICT and Knowledge Society Development (ALICT) course?*

## 2. Information Communication Technology

Information and Communication Technology (ICT) is a central engine to driving Rwanda's transformation to a knowledge based economy, and the government is seeking to become a regional leader in ICT.

According to the International Telecommunication Union (ITU), Rwanda's ICT Development Index score for 2016 was 2.13, placing it 150 out of 175 countries up from 158<sup>th</sup> place and a score of 1.79 in 2015. Rwanda is ranked 20th in the region.

The World Economic Forum's Networked Readiness Index for 2016 ranked Rwanda 80 out of 139 countries with a score of 3.9, it climbed three places to 80th position, driven by a government that is very focused on the digital agenda.

In 2012, the Ministry of ICT and the Ministry of Youth merged to become the Ministry of Youth and ICT (MYICT). The MYICT addresses ICT policies and programmes among other duties.

In 2010, mobile telephony and Internet uptake had grown substantially. In 2011, Rwanda had 11 Internet Service Providers (ISPs), 700,000 Internet users, and nearly 6,000,000 mobile phone subscriptions. In that year, according to government data, ICT sector revenues amounted to about RF100 billion.

**SMART Rwanda Master Plan** The SMART Rwanda Master Plan (SRMP) is the new national ICT strategy, which underpins the current government transformation agenda. The SRMP reviews and analyses the current national socio-economic development policies, strategy and provisions as well as ICT development, deployment and use in the country through a baseline study. The key deliverables of the Plan are:

- ***24-hour Self-Service Government - all govt. services will be online by 2018.***
- ***Cashless and paperless government - all government financial transactions will be made electronically and via mobile by 2018.***
- ***Over US\$50M saved through efficiency gains - savings through outsourcing and reduction of future wage bill by foregoing recruitment of additional government ICT staff.***

**The national fibre-optic backbone network, which connects to an undersea network, already has links to all 30 districts of the country and 9 border posts.**

The government also negotiated with three fibre-optic submarine cable companies SEACOM, TEAMS and the Eastern Africa Submarine Cable System (EASSy) to increase fibre bandwidth capacity to benefit schools, health centres and other institutions.

Rwanda has completed the construction of a 4,500 kilometres fiber optic telecommunications network. The fiber was laid across the country to link Rwanda to undersea cables running along the east African coast.

By 2013, 26 of the 30 districts of Rwanda have access to 4GLTE, and the government targets to extend its coverage to the rest of the country by 2017

**8,932,108 at the end of June - 2016 to 9,025,516 at the end of July-2016:** The total number of active mobile telephone subscriptions in Rwanda increased by 1.5%.



While post-paid subscription increased from 104,185 at the end of June-2016 to 108,229 at the end of July-2016, the prepaid subscriptions increased from 8,827,923 to 8,917,287 during the same period.

Telephone connectivity is now more-or-less universal in Rwanda.

**98%** of the population have mobile phone connectivity

**3,784,896** the number of Internet subscriptions up from 3,111,992 subscriptions in December 2014.

**33.5%** Internet penetration rate by December 2015.

**35.6 %** of the Rwandan population is using Internet through their different devices

The One Network Area which was introduced in October 2014 with the aim of harmonize tariffs on mobile voice calls, SMS and data transmission within the EAC. Roaming charges between Rwanda, Kenya and Uganda have been removed and all mobile calls between the three countries are local. This has led to a minimum 400 per cent increase in the volume of calls.

## **ICT Initiatives..**

eRwanda created a solid foundation for a knowledge-based economy, and [was] well synergized with other [projects].

### **ICT Bus Programme**

This programme created telecenters on wheels. Four buses were sent to rural communities, where they set up shop for two to three months, delivering short seminars and training to locals. Each bus was equipped with 20 Internet-connected laptops, as well as projectors, TV monitors, and other equipment. A Free WiFi in public transport initiative was also launched with 485 buses.

### **eSoko**

The eSoko project seeks to empower farmers to enable them make more informed market pricing decisions and ultimately more successful farming. The application delivers agricultural market prices to farmers' phones via SMS and interactive voice response, providing them with more accurate and timely information. It gives the Ministry of Agriculture a way to interact with farmers and traders as well as to monitor market activities.

In 2011, eSoko sent and received 27,293 text messages, covering 77 commodity prices in 50 markets across Rwanda. It also won the Technology-in-Government in Africa (TIGA) awards in June of the same year.

### **Irembo**

In 2015, efforts to digitize public service delivery were accelerated through Irembo by Rwanda Online Platform Limited. Since the project inception in April 2014, more than 30 services are now offered on the central portal "Irembo" with a target to automate the first 100 services by the end of 2017.

### **Rwanda Health Management Information System**

The Rwanda Health Management Information System (R-HMIS) is operating in each of the country's over 500 health facilities. Approximately 94% of health centres are connected to the internet. The number of patients at community level tracked using RapidSMS reached 186,719 by December 2015 up from 173,131 in 2014

## **Challenges in ICT Development**

- Low internet penetration,
- Low digital literacy and poor local content development
- Limited skill sets required for its sustainable growth due to inadequate specialized IT-related industry, IT project management and other set of skills required for the sector growth
- The absence of a Last Mile Network is preventing a steady growth of the Internet penetration countrywide to improve on communication infrastructure.
- ICT Penetration, ICT awareness and Literacy rate at community level remains at very low level with citizens living in rural areas having a limited ownership of ICT devices, a very limited awareness of how ICT can improve their productivity and socio-economic welfare.
- Limited human resources available for Science Technology and Innovation Development due to fewer scientists coming out of the academic institutions.
- Rate of deployment of Government to Citizens (G2C) e-government services is generally done at a low pace and where available, systems and services not sufficiently used by the intended users.

### 3. Education

The general responsibility for education in Rwanda lies with the Ministry of Education.

Primary education and lower secondary education is known as “nine years’ basic education” (9YBE). Secondary education lasts a total of six years, for pupils aged 13 - 18. It consists of the aforementioned three-year lower secondary education and a three-year senior secondary level.



The total primary enrolment increased by 68% from 1,431,692 (2000) to 2,402,164 (2013).

Rwanda has experienced a considerable and equitable rise in girls’ participation in early primary education. Where the gender ratio in 2000 was 50.4% (boys) and 49.6% (girls), it is now 49.3% (boys) and (50.7% (girls)

The Ministry of Education (MINEDUC) together with development partners continues to implement several initiatives in line with the NICI sub-plans for ICT in education. Some of the activities are: training primary and secondary school teachers to teach using ICT, developing e-learning content, and implementing an Education Management Information System (EMIS).

The integration of technology in education in Rwanda started at primary school level with the implementation of the ‘One Laptop per Child’ (OLPC) programme. Trials started in 2007, followed by distribution of 80,000 XO computers. An additional shipment of 100,000 devices was received in 2012 to cover schools in all of the country’s 416 administrative sectors.

The Government of Rwanda partnered with Positivo BGH to assemble smart devices in Rwanda. Since the start of the factory on 15th June 2015, over 95,580 devices had been produced. Initial distribution has targeted the education sector and by December 2015, 87,012 laptops had already been distributed.

**Teacher ICT literacy** in primary ,secondary schools and TVET increased between 2006 and 2010 as follows;

**17% to 52%** in primary schools

**25% to 51%** in secondary schools ,

**31% to 50%** In technical and vocational schools,

In 2015, a total of **16,214** teachers were trained basic ICT literacy.

#### **Challenges facing the education sector**

- Quality of education is still low
- The number of trained teachers to sustain enrolment ratios is still low.
- At higher education levels, the levels of enrolment are still very low, and several factors impact on the quality of teaching, learning, and research.
- Inadequate infrastructure.
- High power costs; equipment; and connectivity costs.
- The absence of a culture around the use of ICT and the resistance to changing mindsets has also prevented the widespread adoption of such tools in education.
- The limited availability of digital content, technical and pedagogical support, project coordination, and evaluation and monitoring mechanisms has impacted on the success of ICT in education.

## 4. Science, Technology, and Innovation (STI)

In the aftermath of the genocide, Rwanda's leaders recognized early on that education – including science education – would be a pillar of recovery. In 2000, the country embarked on a development path focused on science, technology and innovation (STI), with a particular emphasis on ICT.

There are several major players in STI in government including the Ministry of Youth and ICT (MYICT); and MINEDUC (there is a specific directorate dealing with science and technology – Directorate for Science, Technology and Research).

In 2012, the National Commission of Science and Technology (NCST) was established and tasked with providing informed and strategic policy advice to the Government on issues pertaining to the development of STI and research

### Challenges STI Sector

- 1** Lack of trained experts.
- 2** Limited financial resources from both public and private sectors to invest in the sector.
- 3** Many students at 'O' and 'A' level avoid science and prefer to do very well art subjects.
- 4** There are few engineers, doctors, technicians and artisans available on the labour market.
- 5** The current government funding modality of the medium-term expenditure framework (MTEF) is based on the need for immediate outputs and returns to the economy. STI requires a different funding arrangement that entails sustained long term financing commitments in order to realise its long-term contribution to the GDP.

## 5. In conclusion:

- Rwanda has made significant progress in socio-economic development, and has seen considerable progress on the path towards recovery and sustainable growth following the violent genocide and civil war in 1994. The government and private sector have invested in building infrastructure, skills, and institutional frameworks to provide an environment that is conducive to developing a KS – from establishing higher institutions of learning to the laying of fibre-optic cable nationwide.
- Several policies and plans focus on developing ICT, education, and STI in Rwanda.
- Rwanda continues to be one of the fastest growing African countries in ICT. ICT is acknowledged as a key driver for economic growth, and is the core of the reform agenda geared towards reconstruction and higher levels of development.
- In education, one of the major strengths of ICT in education is that it is already strongly supported by the government and is well considered in national policy documents, and various projects are already implemented or underway. The potential for using ICT to strengthen teacher professional development is acknowledged in several policies as important in improving the quality of education in Rwanda.
- While overall ICT access is growing and creating accelerated development opportunities in Rwanda, several challenges hinder the sustainability of new growth and development. Challenges include low levels of telecommunication penetration especially in remote areas, and a lack of basic infrastructure such as electricity. The education sector faces challenges of overcrowded classrooms, high student-teacher ratio, and lack of adequate funding in institutions of higher learning. Gaps still exist such as inadequacy of computer deployments, lack of teacher training in computer skills, and lack of electricity grid infrastructure in rural areas hindering ICT in education development.
- Insufficient funding of research institutions and insufficient capacity to innovate may also hinder the development of a KS. Further, the rate of adoption and integration of STI is low, with there being a shortage of technically qualified professionals. However, there are efforts to address this via the numerous partnerships to develop capacity in this area.

### Key Partners

- ⇒ Ministry of Youth and ICT
- ⇒ MTN Rwandacell, TIGO Rwanda, New ARTEL and AIRTEL Rwanda.
- ⇒ Rwanda Development Board
- ⇒ Rwanda Utilities Regulatory Authority (RURA)
- ⇒ Rwanda Information Technology Agency (RITA)
- ⇒ Ministry of Education (MINEDUC)
- ⇒ Rwanda Education Board (REB)
- ⇒ Higher Education Council (HEC)
- ⇒ Workforce Development Authority (WDA)
- ⇒ National Science and Technology Commission (NSTC)
- ⇒ Rwanda Science and Research Council (RSRC)
- ⇒ Rwanda Regional ICT Training and Research Centre
- ⇒ University of Rwanda's College of Science and Technology
- ⇒ Carnegie Mellon University-Rwanda
- ⇒ Japanese International Cooperation Agency (JICA)

In 2014, the Alliance for Affordable Internet (A4AI) ranked Rwanda as **the 1<sup>st</sup> African country with the most affordable Internet**, in the same ranking, Rwanda took the 10th position worldwide with 51.6 overall composite score.



**Poverty rate dropped** from 44% in 2011 to 39% in 2014 while inequality measured by the Gini coefficient reduced from 0.49 in 2011 to 0.45 in 2014.



In 2011, Rwanda had 11 Internet Service Providers (ISPs), 700,000 Internet users, and nearly 6,000,000 mobile phone subscriptions. In that year, according to government data, **ICT sector revenues amounted to about RF100 billion.**



Rwanda has completed the construction of a **4,500 kilometres fiber optic telecommunications network.** The fiber was laid across the country to link Rwanda to undersea cables running along the east African coast.



**Knowledge Society:** The rate of adoption and integration of STI is low. Insufficient funding of research institutions and insufficient capacity to innovate hinder the development of a KS.



Rwanda has experienced a considerable and **equitable rise in girls' participation in early primary education**, it is now 49.3% (boys) and 50.7% (girls)



## INTERESTING FACTS ABOUT KS DEVELOPMENT IN RWANDA

# KEY HIGHLIGHTS

## Rwanda Country Study June 2017

---



©GESCI 2017

All queries on rights and licenses should be addressed to GESCI, Unga House, Muthithi Road, Westlands, Nairobi, Kenya;  
e-mail: [info@gesci.org](mailto:info@gesci.org)