

Rwanda Digital Economy

Policy reforms that will drive Rwanda's digital future

GSMA

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Executive Summary

Digitalisation is at the heart of Rwanda's national development strategy. The government of Rwanda has recognised ICT as a cross-cutting enabler for development and digitalisation is seen as a tool to accelerate economic growth and reduce poverty.

The national development vision is for Rwanda to become a knowledge-based society. The role of the ICT sector in achieving this vision is to develop the infrastructure, skills and competencies to help increase social, economic and environmental sustainability and to support productivity growth and economic competitiveness.[1]

Rwanda has been a pioneer of digitalisation, but broadband adoption remains low. Digitalisation is the process of integrating digital technologies into every sector of economy and society. A good measure of this in Rwanda is the level of broadband adoption and use within the population. Despite the country's digitalisation targets and concerted effort to promote digital technologies over a long period of time, and high level of network coverage, mobile broadband usage levels in Rwanda are low. The proportion of the population using mobile internet stands at only 21% - comparable to other countries within the region.[2,3]

Policies to promote digitalisation need to focus on Rwanda's low and middle-income households, particularly those in rural areas. Policies also need to be sensitive to the needs and priorities of particular sub-groups that may face additional barriers, including women, people with disabilities, older people and people with low levels of literacy. Rwanda has achieved near universal broadband network coverage but a significant usage gap remains. A big part of the explanation for this is low levels of household incomes. 62% of the population lived on less than USD 4.20 per day and nearly 40% of Rwanda's population lived on less than USD 3 per day in 2023.[4,5] 70% of Rwanda's population lives in rural areas and household incomes there are lower than the national average.[6]

These country characteristics are not abnormal in the regional context but Rwanda stands out for the importance of digital in the national development strategy. Low-incomes and the high rural population are therefore the key challenges for mobile internet adoption.

Rwanda has achieved nearly universal broadband network coverage. The government, including RURA, has implemented a number of successful supply-side policies to promote broadband penetration. Operators have invested in building out their broadband networks and Rwanda's 4G coverage is now nearly universal. On this metric, the country is a leader in Africa.[7] 5G networks have been launched recently. 5G population coverage already stands at 32% in urban areas and 9% overall.

Broadband services in Rwanda are the cheapest in East Africa but device affordability remains a barrier to mobile broadband adoption. Data prices have fallen and Rwanda has the cheapest data price per GB in East Africa. However, the affordability of mobile broadband as a whole (including the cost of devices as well as data usage) is still a challenge for a large part of the population, particularly for rural communities, women, people with disabilities, older people and people with low levels of literacy who tend to have lower incomes. This is largely driven by the cost of smartphones which remain beyond the financial reach of many people, particularly those on low incomes. Policies aimed at increasing smartphone adoption – particularly in rural areas - need to be designed carefully to respond to their specific needs.

1 Smart Rwanda Masterplan, Ministry of Youth and ICT, 2015.

2 Eastern and Southern Africa benchmarks are: Burundi, Comoros, Djibouti, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Tanzania, Uganda, Zambia, Zimbabwe, Somalia.

3 Source: GSMA Intelligence.

4 Source: World Bank.

5 7th Integrated household Living Conditions Survey, produced by the National Institute of Statistics of Rwanda in 2025 reported that 27.4% of population lived in poverty. Poverty line is set at RWF 560,127 per adult equivalent per year in the prices of January 2024.

6 Source: World Bank.

7 GSMA Intelligence

Lack of effective demand is another key reason why many people in rural areas do not yet use mobile internet. People in low-income households, particularly those in rural areas, do not view mobile broadband as a necessity which warrants spending the amount of money required to get online. They are able to satisfy their communications and financial needs using 2G voice and USSD-based services, together with agent-based access to broadband.

Initiatives to promote digital adoption should focus on making mobile internet relevant to the daily lives of people who do not currently use the internet. Programmes should combat the belief that 'internet is not for me'. Demonstrating the value of smartphone ownership to people in their daily lives is what will drive smartphone purchase and active usage of mobile data.

Rwanda has made strides towards digitalisation, but a significant usage gap persists. In order to further boost digitalisation, policy must focus on addressing the needs of low-income households. Rwanda has implemented numerous population-wide policies. The wealthier, urban population has successfully adopted mobile broadband and benefits from the digitalisation of public and private services. Going forward, policies should target the specific needs of those who do not currently use broadband.

This report has been built on the framework provided by the Digital Africa Index (DAI). The DAI, developed by GSMA, is a comprehensive analytical framework that is used to evaluate the policies and performance of the digital sector in Africa. It provides an evidence-based analysis of policy and regulation which can be used to accelerate the adoption of digital technology in the region.

The report provides recommendations that target the specific challenges facing the sector. It analyses the sector performance and provides recommendations for policies and initiatives that will drive digital adoption among the target groups of the population in which levels of digital adoption are currently low.

Policy challenge 1

Network regulation changes threaten to hinder the speed of digitalisation progress

Recommendation 1.1 – Ensure that the final version of the QoS regulations balances the need for quality of service with the speed of 5G rollout and service affordability

Low uptake of broadband services leaves a significantly underutilised network. Operators already face difficulty in providing sustainable service in rural areas. Investing in higher quality of services may therefore slow down investment in other areas of the network and may also feed through into higher prices. Finding the right balance between ensuring a decent quality of service while also ensuring that broadband is as affordable as possible is a challenge for all regulators.

It is recommended that RURA ensures that the final QoS regulations achieve this balance in a way that enables the industry to accelerate digitalisation, particularly among those people living in rural areas. 5G QoS obligations should not result in reducing investment into other areas of the network or result in higher prices for consumers.

Recommendation 1.2 – Reverse the increase in electricity tariffs and bring tariffs for mobile networks in line with other businesses (e.g. hospitality)

Energy cost is a significant component of mobile operators' costs. It currently forms 19% of the annual site opex. The recent 44% increase in energy tariffs for mobile towers raises operators' already high running costs.

Raising the energy prices that operators face is likely to exacerbate the affordability problem because producers pass on some of the price increase down to the end consumers. Higher prices will lead to lower adoption rates which may in turn slow down the progress of the digital transformation.

Policy challenge 2

Data is needed to support evidence-based decisions on tax policy in the mobile sector

Recommendation 2.1 – Analyse the impact of the reintroduction of VAT on devices and the increase in excise taxes

It is important that policy changes are rooted in evidence and reflecting Rwanda's specific context. The VAT in Rwanda would have been back in place for a year in July 2026. There has been a progressive increase in excise taxes applied to the sector in recent years and further increases are planned.

It is recommended that data is collected and analysed on the impact of these measures on prices paid by customers and their demand response. This will provide the evidence base that the government needs to make an informed decision on future tax policy for the sector.

If this analysis indicates that consumer decisions are adversely affected by these changes in tax policy, it is recommended that the government reconsider the decisions to reintroduce VAT and raise the excise tax levied on the sector.

Policy challenge 3

The rate of digital adoption among the lower-income rural population is low

Recommendation 3.1 – Work with private-sector to expand financing initiatives for devices, targeting the rural population

The most sustainable way of expanding access to smartphones in Rwanda is through private-sector led initiatives to lower prices, expanding financing and create other mechanisms to improve affordability.

Although these are best led by the private-sector, the government has an important role to play in supporting and accelerating the programmes.

This includes:

- Subsidising financing mechanisms for target groups of the population. These should focus on groups of the population who are likely to find value in using mobile broadband and will be able to sustain the cost of operating them.
- Supporting the consumer finance players through lower financing costs, loan guarantees and other forms of upstream assistance to the sector.
- Expanding the existing credit scoring system to include more information about borrowers and to increase the coverage of users in rural areas and those outside of the formal economy.
- Educational advertising campaigns to promote the use of financing schemes and address any cultural barriers to adoption.

It is recommended that the government works with the private-sector to develop an agreed plan of action to implement these initiatives.

Recommendation 3.2 – Promote digital literacy programmes that target rural population's individual needs and drive active adoption

Digital literacy programmes should build on the foundations of the success of programmes such as the Digital Ambassadors' Program (DAP) and should be centred around the ability to use applications that are directly relevant to the priority customer group - lower income rural households. These should be applications that are relevant to and can be used in their daily lives.

E-government, health and agricultural applications are examples but entertainment, culture and religious applications are also in high demand in rural areas and they can be a key driver of digital adoption.

Policy challenge 4

There is a lack of effective demand for the internet, particularly among the low-income rural population

Recommendation 4.1 – Review dependence on USSD based systems and explore potential for migration to mobile broadband-based applications

Digital apps should be reviewed and assessed as to the potential for migration to mobile broadband. Basic functionality of each service should be preserved over USSD to ensure inclusion. Advanced, personalised experience should be offered over mobile data and promoted to users.

Recommendation 4.2 – Design digital government initiatives to incentivise migration to broadband, particularly among rural users

Accelerate programmes that target the rural population. Focus on integration of the systems with the Single Digital ID as a national authentication platform, both in the public and the private sector.

Recommendation 4.3 – Extend use of Kinyarwanda as a default application language to make content more accessible for the rural population

Content must be relatable and perceived as relevant to the target customer group. Kinyarwanda is the prevalent language among the rural populations, and lack of apps in the local language presents a barrier to adoption. Language preferences of the target customers should be the decisive factor and Kinyarwanda should therefore be considered a default language alongside those currently used.

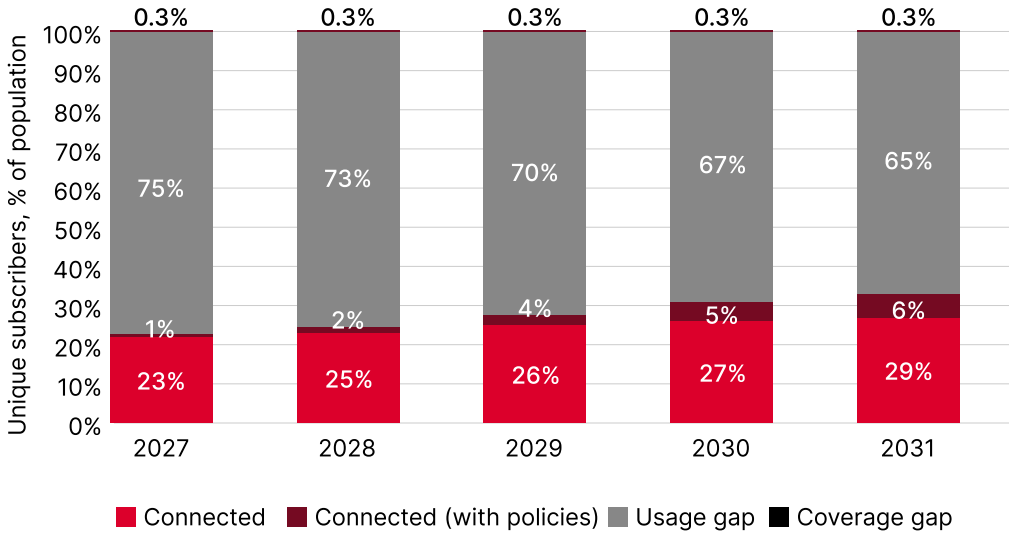
Recommendation 4.4 – Review the type-approval and customs clearance processes in order to incentivise the migration to 4G

Review the current approach to type approval and customs clearance as part of the government's strategy on 2G and 3G sunsetting. Adopt an approach that incentivises the migration to 4G devices without unduly burdening 2G mobile users.

These recommendations will have significant impact on the mobile broadband adoption and the digital transformation of the society. Implementing the proposed policies will generate over a million additional unique mobile internet subscribers by 2031, a 22% increase over the base case.

This would reduce the internet usage gap by 6 percentage points (Figure 1). This scenario assumes that the recommended tax policy changes are implemented – this would be subject to support from evidence on consumer behaviour in response to tax changes implemented in 2025.

Figure 1
The impact of recommended policies on the usage gap, 2027-2031.



Source: GSMA Analysis

These recommendations will also have a net positive impact on government finances despite the proposed tax removals. These policy recommendations include a reduction in the tax rates imposed on the industry. This will have a negative direct impact on the amount of tax revenue generated by the MNOs but will be more than offset by the economic growth stimulated by accelerated digital adoption. The net effect is a significant boost to government revenue. By 2031, annual government revenues would be RWF 218 billion higher than in the base case.

1. Rwanda's national development strategy

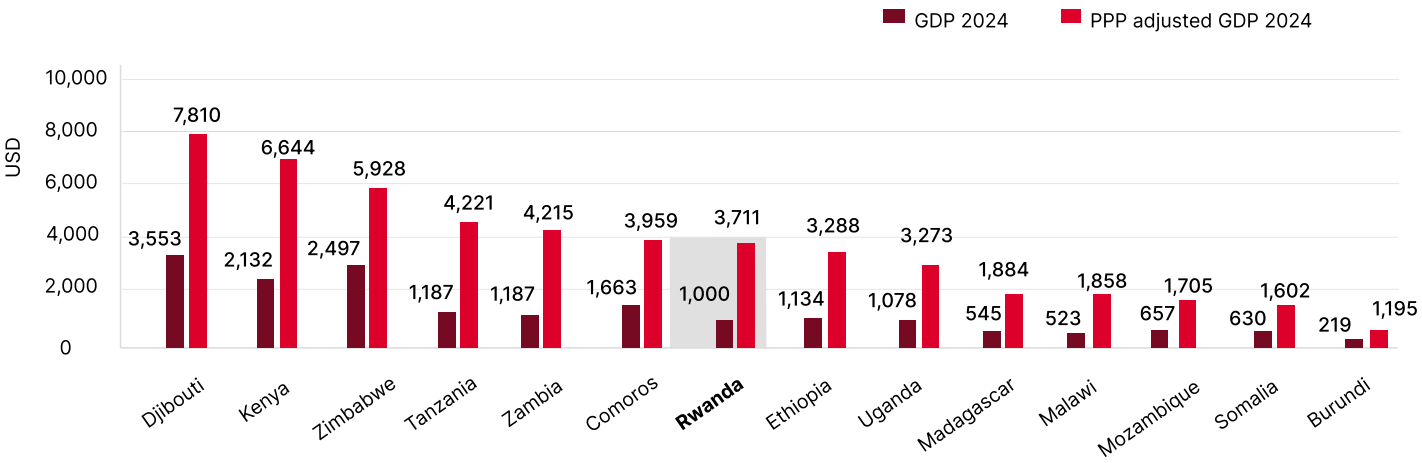


1. Rwanda's national development strategy

1.1. Rwanda economic development strategy

Rwanda is a low-income, landlocked country with around 14 million people. The population is projected to increase to 15.7 million by 2030.[8] 70% of the population lives in the rural areas and over half of all workers are involved in agricultural activities.[9] The country's GDP per capita is around average for the region (Figure 2, Table 1).

Figure 2
GDP per capita (USD) in selected countries for Eastern and Southern Africa, 2024.



Source: World Bank

Table 1
Rwanda economic indicators, 2024.

Gross Domestic Product (GDP, RWF)	18,785 bn
Gross Domestic Product (GDP, US$)	14 bn
GDP growth (annual %)	9%
GNI per capita (Atlas method, current US$)	1,040
Infant mortality rate (per 1,000)	31%*
Life expectancy (years)	67.8*
Population, total (million)	14.2
Percentage of rural population	70%
Poverty headcount ratio at $3.00 a day (2021 PPP) (% of population)	39%*

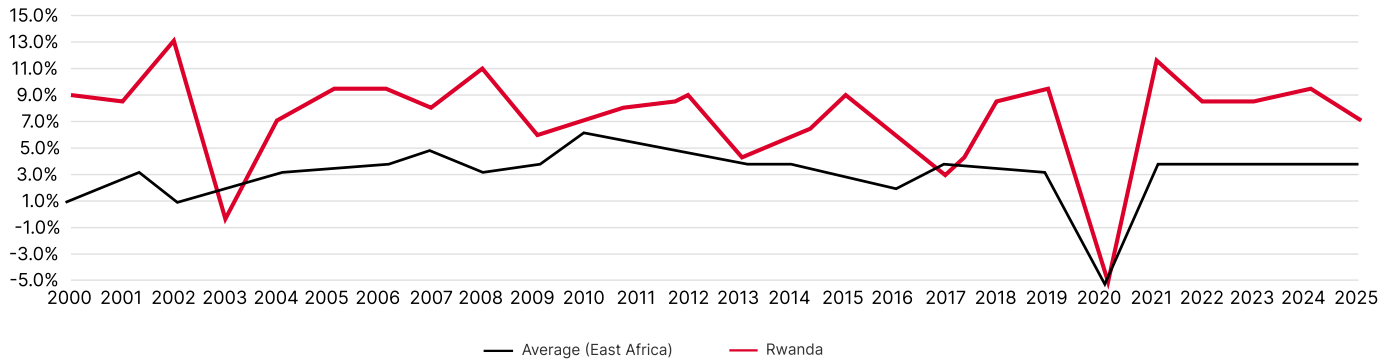
Source: World Bank
* indicates that the figure is from 2023, as later data was not available

8 Source: National Institute of Statistics of Rwanda, 2025. Medium projection scenario.
9 Source: World Bank, National Institute of Statistics of Rwanda.

Rwanda's long-term economic development strategy has focused on transformation of the economy and society to one based on knowledge and services rather than agriculture and commodities. Over the past 30 years, the government successfully stabilised the economy and initiated a programme of long-term economic growth and development. The objective of this strategy was to develop Rwanda from a low-income to a middle-income country. One of the key features of this strategy has been a transition from an economy largely based on agriculture to one based on services.[10]

The result has been sustained economic growth over a long period of time. Since 2000, GDP growth has outpaced the average for the East Africa region.[11] Rwanda's average annual economic growth between 2000 and 2026 has been 7.5%, significantly higher than the regional average of 4.2% (Figure 3), and its post-COVID recovery has been strong compared to peers.[12]

Figure 3
GDP growth of Rwanda compared to the average for East Africa, 2000-2025.

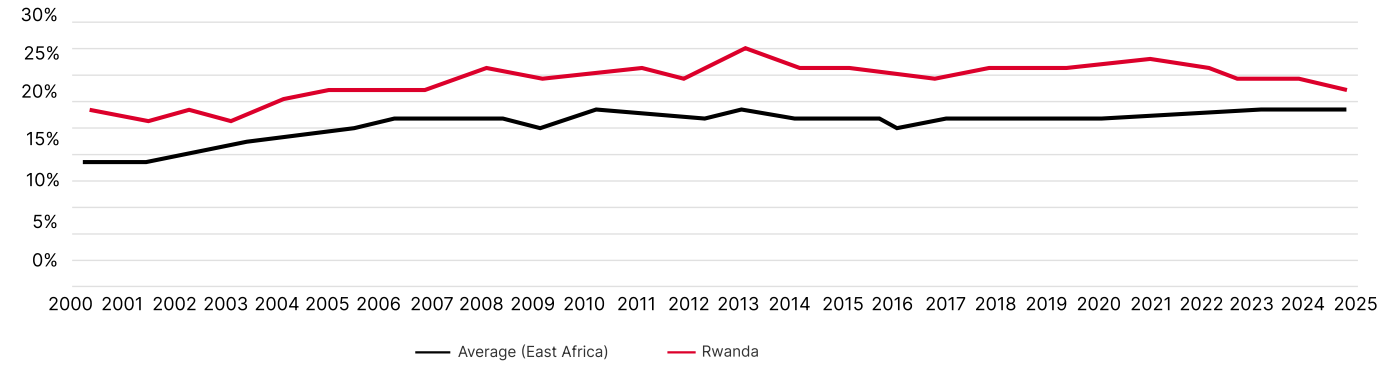


Source: International Monetary Fund

Tax revenue as a proportion of GDP is higher in Rwanda than in other East African countries. The average ratio of government revenue to GDP in Rwanda over the past 20 years was 22%.

This is a relatively high level, given Rwanda's national income level and reflects the effectiveness of government administration (Figure 4).

Figure 4
Rwanda – government revenue as a proportion of GDP, 2000-2025.



Source: International Monetary Fund

10 Rwanda Vision 2020, Ministry of Finance and Economic Planning, 2000.

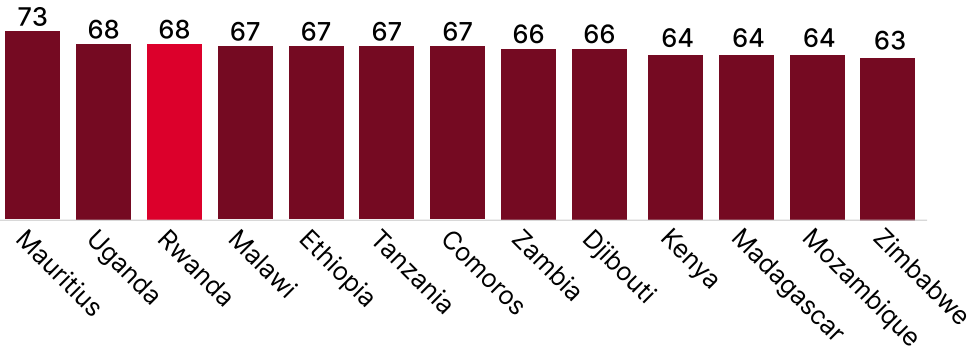
11 Burundi, Comoros, Djibouti, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Rwanda, Somalia, Tanzania, Uganda, Zambia and Zimbabwe.

12 Source: International Monetary Fund.

The government's strategy of reducing economic dependence on agriculture has had some success. The proportion of the population employed in agriculture has decreased from 70% to 62% between 2015 and 2025. However, despite this decline, agriculture remains the biggest employer in the economy.[13]

Rwanda's social and institutional development has matched economic growth. Rwanda has also focused on increasing the quality of life of its citizens. Indicators such as life-expectancy at birth in Rwanda are good compared to other countries in East Africa (Figure 5).

Figure 5
Life expectancy at birth in selected countries of Eastern and Southern Africa, 2023.



Source: World Bank

Institutional reforms have supported the economic development of the country. The Rwanda Development Board (RDB) was created in 2008 to centralise, coordinate and promote dealings with investors. This has helped to promote FDI, increase exports and has created employment opportunities. The government has focused on improving business freedom and ease of doing business, government integrity, judicial effectiveness, and security of property rights.[14] Rwanda is currently placed 97th in the world according to the Economic Freedom of the World index which is significantly higher than most countries in the region (Table 2).

Table 2
Economic Freedom of the World index ranking for selected countries in East and Southern Africa, 2023.

Country	Rank
Mauritius	21
Uganda	72
Kenya	81
Rwanda	97
Somalia	101
Tanzania	102
Zambia	104
Mozambique	105
Djibouti	110
Madagascar	117
Comoros	136
Malawi	147
Burundi	152
Zimbabwe	164

Source: Fraser Institute

13 7th Integrated household Living Conditions Survey, National Institute of Statistics of Rwanda, 2025 Rwandan Integrated Household Living Conditions Survey – 2013/14, National Institute of Statistics of Rwanda, 2015.

14 "Economic Development in Rwanda – Institutional Perspective", David Sharangabo, Małgorzata Szczepaniak, Zeszyty Naukowe WSG, 2019.

The Second National Strategy for Transformation (NST2) articulates the strategic direction of Rwanda's social and economic development for the period 2024 to 2029.

It aims to facilitate sustainable, long term improvements in the quality of life of all citizens. It emphasises capacity and skills building by harnessing the power of innovation and evidence based decision making. Digital transformation is one of the key strategic priorities of the NST2.[15]

Table 3
The Second National Strategy for Transformation.

The Second National Strategy for Transformation (NST2) provides the strategic direction for national development on the way to achieving the overall national aims of Vision 2050. Vision 2050 articulates the path towards achieving the 'Rwanda we want' and aims to bring Rwanda to high-income status by 2050. NST2 specifies the steps to be taken between 2024 and 2029 in achieving these goals.

NST 2 builds on the successes of the NST1 (2017 – 2024) such as steady economic growth and building of critical infrastructure, including digital networks.

Digital transformation specifies 3 key objectives:

- Accelerating the transformation towards a knowledge-based economy
- Facilitating universal access to smart devices and basic technology
- Enhancing digital service delivery

Digital literacy is planned to increase to 100%, reflecting the need for all citizens to be ready to fully benefit from the digital transformation.

Adoption of digital technologies is to be harnessed by universal device ownership and affordable connectivity. The Strategy voices the need for the private and public sectors to work together in achieving this goal.

Government services are to be fully digitalised with the Single Digital ID rolled out nationally, Digitalisation of public services will drive quality, efficiency and security of service delivery.

1.2. Telecommunications sector development

Telecommunications sector development in Rwanda has long been a government priority. MTN entered the market in 1998 to provide mobile services. An independent regulatory authority, the Rwanda Utilities Regulatory Authority (RURA) was established in 2001. Rwandatel, the national fixed line operator, was privatised and granted a mobile licence in 2006.[16] A third mobile licence was issued to Tigo, which entered the market in 2009.

The 2013 National Broadband Policy document defined the country's priorities in the area of broadband development. It identified the goal of transforming Rwanda into an Information society driven by "universal access to high speed, reliable, affordable and secure broadband infrastructure and services by 2020". It aimed to facilitate this by moving from infrastructure-based competition to service-based competition where outcomes are driven by quality of service and efficiency.[17]

15 National Strategy for Transformation (NST2), 2024.

16 Leveraging Investments in Broadband for National Development: The case of Rwanda and Senegal, UN – OHRLLS, 2017.

17 National Broadband Policy for Rwanda, Ministry of ICT and Innovation, 2013.

As a landlocked country, access to undersea cables capacity has historically been a key challenge for Rwanda. Procurement of capacity on undersea fibre optic cables via Kenya and Tanzania secured lower international bandwidth costs which supported the development of broadband. The Rwanda Internet Exchange was launched in mid 2004, reducing dependence on international connectivity, and lowering costs. In 2007, the government agreed a deal with Korea Telecom (KT) to roll out a national fibre optic backbone at a cost of USD 40 million, financed by the sale of the Rwandatel for USD 100 million.[18]

Following the launch of the 2022 National Broadband Policy and Strategy, the government issued 4G licences to the MNOs. The 2022 National Broadband Policy and Strategy established a set of ambitious targets for broadband in Rwanda, designed to support the country to reach its Vision 2050 goals. Technology neutral mobile licences were issued and further spectrum in the 700 MHz, 900 MHz, 1800 MHz, and 2100 MHz bands was assigned. This resulted in increased investment, coverage and infrastructure competition which drove down prices, improved quality of services, and expanded coverage.[19, 20, 21]

1.3. National digitalisation strategy

ICT has been at the centre of the national economic strategy for 25 years. Digitalisation has been seen as a tool to accelerate economic growth and reduce poverty in Rwanda. ICT was integrated into the Vision 2020 national strategy in two ways:

- Comprehensive human capital development equipping people with ICT skills;
- ICT infrastructure development.[22]

> **Investment in ICTs is essential in taking any country to the next level of productivity and efficiency. Investing in ICTs is not at the expense of other sectors, investing in ICTs results in benefits for every sector and the earlier you start the better.**
>
> **H.E. President Paul Kagame**

The subsequent five National Information and Communication Infrastructure plans (NICI) placed ICT at the heart of Rwanda's development strategy. ICT was to be incorporated at every sector, and at every level of the society.

- NICI I focused on institutional development and ICT sector liberalisation. The 2001 Telecommunications law opened the market to new entrants to join Rwandatel ending a single-player market and introducing a regulator to enforce competition and regulate industry conduct where competition was insufficient.
- NICI II prioritised infrastructure development, with the national broadband backbone development plan and subsequent national fibre-optic backbone network.
- NICI III focused on digital services development. Government introduced initiatives to boost digital literacy, introduced consumer financing facility, and applied a tax exemption for digital devices.[23]

18 Rwanda – Digital Trade Review and Next Steps, World Bank, World Trade Organization, 2025.
19 National Broadband Policy and Strategy, October 2022, Government of Rwanda.
20 "Abandoning its single wholesale network unlocks significant connectivity growth for Rwanda", GSMA, 2025.
21 Rwanda – Digital Trade Review and Next Steps, World Bank, World Trade Organization, 2025.
22 Rwanda Vision 2020, Ministry of Finance and Economic Planning, 2000.
23 Smart Rwanda Masterplan, Ministry of Youth and ICT, 2015.

Smart Rwanda 2020 placed particular focus on digitising the economy and positioning ICT as one of Rwanda's key exports. Launched in 2016, it built on the foundations of NICIs I - III. It identified the ICT sector's role in developing the infrastructure, skills and competencies to increase social, economic and environmental sustainability and to support productivity and competitiveness.[24] The strategy objectives included:

- Government digital transformation: 24-hour self-service Government with 95% of government transactions to be online by 2018;
- Broadband for all by 2020: This was to be realised through 4G rollout program and smart device penetration; and
- Digital literacy: To transform Rwanda into a digitally literate nation.

Table 4
Role of ICT in SMART Rwanda strategic objectives.

Goal	Objective	ICT's role
Economic transformation	Expand medical and health services to enhance citizens quality of life	Digitalisation of healthcare.
	Utilize ICT for education as a tool to enhance teaching and learning	Digital education tools.
	Boost Agricultural productivity, industrialisation and commercialisation	Digitalisation of agriculture.
	Improve financial infrastructure to expand access to financial services	Digital financial services.
Jobs and productivity	Improve and expand access to ICT skills and innovation capacity	Digital literacy.
	Advance women and youths social economic empowerment through ICT	Digital inclusion.
	Build a shared, robust & resilient infrastructure to underpin service delivery & support national ICT initiatives	Development of network infrastructure.
Governance	Enhance the national ICT Governance and Regulatory structure	Legislation and sector regulation.
	Transform digital Government through E-Gov and effective service delivery	Digital government.

Source: Ministry of Youth and ICT

24 Smart Rwanda Masterplan, Ministry of Youth and ICT, 2015.

The SMART Rwanda plan projected that realising its digital goals would bring significant economic benefits to the country. These included:

- GDP contribution effect: ICT contribution to GDP was expected to reach USD 13.3 billion by 2020.
- Industry inducement effect: USD 1.2 billion worth of economic value and a 142% return on investment created if USD 519 million was invested between 2015 and 2020 through the SMART Rwanda Master Plan.
- Employment inducement effect: 100,000 jobs would be created if the USD 519 million was invested in line with the plan.[25]

In addition to the National Broadband Policy and Strategy of 2022, the government articulated its overall ICT strategy in the ICT Sector Strategic Plan 2024 – 2029 (SSP).[26] This continues to focus on the national strategic aim of becoming a knowledge-based, middle-income economy by 2035. The SSP is aligned with, and contributes to, the national strategic goals articulated in the NST 2 and in the Smart Rwanda Master Plan (Table 5).

Table 5
Support from the SSP to the national strategic objectives.

National strategy pillar	Corresponding strategic priorities	SSP objectives
Digital Citizen	Reducing Stunting and Malnutrition	ICT will play a role in developing and deploying innovative tools for better data collection and analysis in health and nutrition programme, supporting targeted interventions.
	Improving the Quality of Education	Training 1 million coders and 500,000 youth in advanced ICT skills, alongside increasing access to online learning and promoting creation of local digital content will improve access and quality of education.
Digital Business	Creating Decent Jobs	ICT training and universal digital literacy programmes aim to equip the youth and women with the necessary skills for the digital economy, targeting to create 50,000 jobs.
	Boosting Exports	Leveraging ICT, data and emerging technology will enhance competitiveness of Rwanda's exports, particularly through digital marketing, adopting use of e-commerce, and export of locally developed software applications.
Digital Government	Enhancing Public Service Delivery and Citizen Participation	Moving towards universal digital literacy and adopting emerging technologies across public and private sectors to drive productivity improvements.
Cross-cutting digital transformation	Enhancing Productivity via Technology and Digitalisation	Moving towards universal digital literacy and adopting emerging technologies across public and private sectors to drive productivity improvements.
	Leveraging Data and Research	Strengthening data governance for informed decision-making, fostering capitalisation of data and emerging technologies to create digital value, products and services.

Source: Ministry of ICT and Innovation

25 Smart Rwanda Masterplan, Ministry of Youth and ICT, 2015.
26 ICT Sector Strategic Plan (2024-2029), Ministry of ICT and Innovation, Government of Rwanda, 1 January 2025.

The SSP recognises progress in near universal 4G coverage but spells out the challenges in smartphone penetration and active adoption of digital services.[27] The implementation plan sets out KPIs to monitor progress to ensure objectives are met. These focus on practical adoption and digital inclusion (Table 6).

Table 6
ICT Sector Strategy Plan, selected KPIs.

Digital Literacy and Skills Development	
Indicators	**Targets**
Percentage of citizens above 15 years with basic digital literacy skills	100% have basic digital literacy skills
Number of individuals trained in advanced ICT skills	500,000 trained in advanced ICT skills
Number of people trained in basic coding skills	1,000,000 trained in basic coding skills
Broadband Connectivity and Infrastructure	
Indicators	**Targets**
% of individuals using the internet	47% households have internet
Geographical coverage by at least a 4G network	100% 4G Coverage
Mobile broadband subscriptions per 100 inhabitants	85% mobile subscriptions
Universal Device and Smartphone Ownership	
Indicators	**Targets**
% of individuals owning a smartphone	85% of population own a smartphone
Digital Service Delivery	
Indicators	**Targets**
% of government services fully digitised	100% Government services digitised
Number of digital public infrastructure (DPIs) available to citizens	10 digital public infrastructure available to citizens
Implement Single Digital ID	
Indicators	**Targets**
% of citizens with a Single Digital Identification	100% of population own SDID

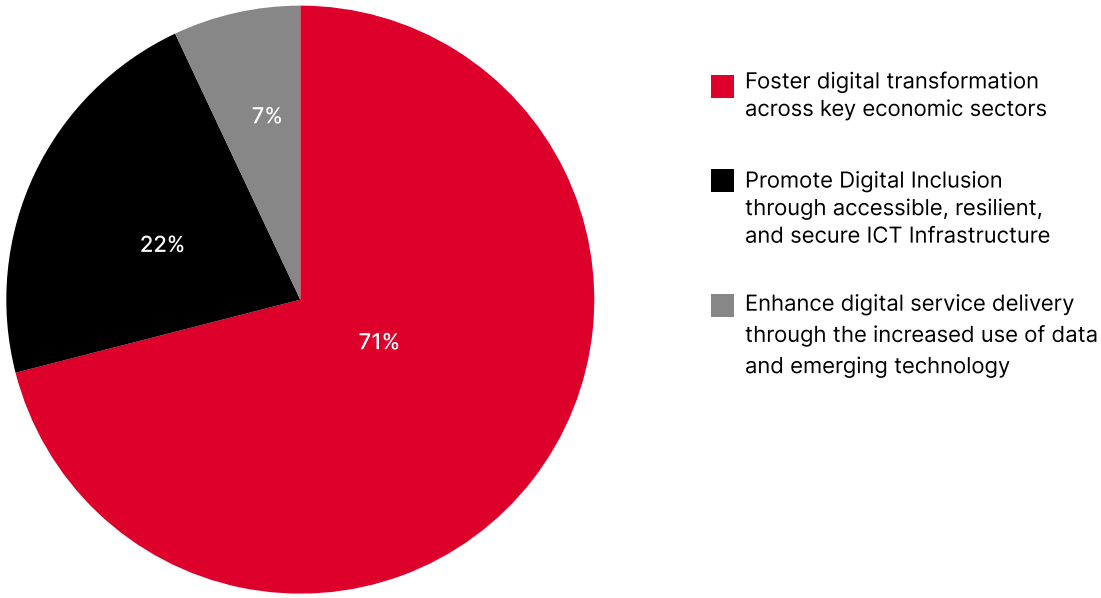
Source: Ministry of ICT and Innovation

27 ICT Sector strategic plan, Ministry of ICT and Innovation, 2025.

Expenditure under the SSP is split across digital infrastructure, digital transformation of the economy and enhanced digital service delivery. The total projected cost of the SSP is RWF 2 billion. 22% of the overall budget (RWF 455,194 million) is allocated to promoting accessible ICT infrastructure.

71% is budgeted for enhancing broadband connectivity and infrastructure modernisation, and 7% is dedicated to achieving smartphone ownership (Figure 6).

Figure 6
Breakdown of the total projected costs of SSP.



Source: Ministry of ICT and Innovation

Digitalisation of public services has resulted in significant increases in productivity and quality. By June 2024, 85% of government services were digitised.[28]

The Irembo platform had digitised 248 services across 40 different institutions by 2025 (Table 7).[29]

28 ICT Sector strategic plan, Ministry of ICT and Innovation, 2025.
29 "IremboGov: Scaling Adoption and Delivering a Better Experience for Civil Status Services", Irembo, 2025.

Table 7
The Irembo platform.

The Irembo platform is a national portal for public services. It enables a variety of services like IremboPay, IremboHealth, and IremboPlus (a marketplace).[30] It was launched in 2015 as a partnership of the technology company Irembo and the Government of Rwanda. It is designed to simplify citizens' and business' interactions with government.

Key facts about the Irembo platform:

- 49 million transactions processed by 2025[31]
- Between 2020 and 2024, the number of civil status certificates (birth, marriage, etc.) tripled to c. 2 million. 70% of the applications were processed within 1 hour. This has significantly increased productivity of the public sector - the number of applications processed by officers increased from 900 per staff member in 2020 to 3,000 by 2024.[32]
- The digitalisation of driving licence applications increased the number of processed applications from 353,681 in 2022 to 1,325,458 in 2023. Long-standing backlogs were cleared and process predictability and transparency improved.[33]

Source: Irembo

Other digital government initiatives that have been undertaken by the government include:

- **UMUCYO,** an electronic government procurement system, increased transparency, improved competition and saved public money; and
- **RRA's digital tax services** led to an increase in revenues, a reduction of fraudulent claims, improved administrative efficiency and improvement of taxpayers' convenience.

The rollout of the Single Digital Identification (SDID) system began in 2025. This replaces physical national identity cards which are due to be phased out by 2027. Government institutions, banks, telecommunication companies and hospitals are expected to transition fully to the digital ID authentication systems.[34]



30 "Modern governments run on data. Our Africa Data Leadership Initiative highlights exemplars of data integration and governance", Digital impact alliance, 2025.
31 "Unlocking Access, Accelerating Efficiency: The Digital Transformation of Driving Licence Services in Rwanda", Irembo, 2025.
32 "IremboGov: Scaling Adoption and Delivering a Better Experience for Civil Status Services", Irembo, 2025.
33 "Unlocking Access, Accelerating Efficiency: The Digital Transformation of Driving Licence Services in Rwanda", Irembo, 2025.
34 "Govt sets 2027 deadline for full shift to digital ID", The New Times, 2026.

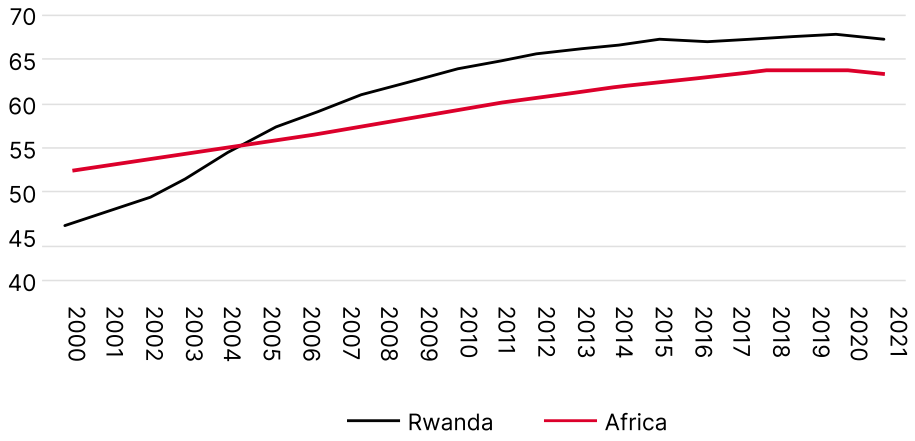
1.4. Digitalisation of healthcare

Healthcare is a key sector of Rwanda's economy. Total expenditure on health was equivalent to 7.3% of GDP in 2021[35] and the healthcare sector contributed 1% of Rwanda's GDP in 2025.[36] Government spend on healthcare has also increased in recent years. Healthcare expenditure as a percentage of total government expenditure increased from 3.5% in 2000 to 8.9% in 2023, compared to the average for Africa of 6.9%.[37]

Community health workers play an important role in the delivery of primary healthcare services. The community health program delivers essential healthcare services, including diagnosis, treatment, and referral, as well as public health programs such as WASH (Water, Sanitation, and Hygiene), disease surveillance, and health education for the entire population.[38] There were 58,567 community health workers operating in 2024.[39]

Rwanda's overall efforts to improve healthcare have been successful. One important indicator of overall healthcare is life expectancy at birth. In Rwanda, this has increased by 20 years between 2000 and 2021, to 68 years, compared to an average increase in Africa of 11 years over the same period (Figure 7).

Figure 7
Life expectancy at birth, 2000-2021.



Source: World Health Organization

SMART health is one of the seven pillars of government's national strategy Smart Rwanda. The overall strategy is to expand the health services available to citizens in order to improve their quality of life. Significant progress has been made in digitalising medical data, medical history management, basic disease information provision and the establishment of a digital training platform.

The current objectives of the healthcare digitalisation programme include better information sharing between government institutions, increased public access to medical information and healthcare services, and building an integrated health information system and digitalised insurance claim system.[40]

35 Health data overview for the Republic of Rwanda, WHO, 2021.
36 Source: National Institute of Statistics Rwanda.
37 Source: World health Organization.
38 "Three decades of community health workers in primary healthcare delivery in Rwanda: evolution, impact and policy lessons." Hezagira E, Gashema P, Harelimana JdD, et al. BMJ Glob Health 2025.
39 Annual Health Statistical Booklet, Ministry of Health, 2024.
40 Smart Rwanda Masterplan, Ministry of Youth and ICT, 2015.

Rwanda has many years of experience of using digital technologies to improve healthcare outcomes. The National Health Intelligence Center (NHIC) is a centralised platform for processing, integrating, triangulating, and analysing real-time health data. Rwanda was a pioneer in this area and was experimenting with drone-based transport of blood between medical facilities as early as 2016.[41] Rwanda also used digital technologies to improve its response to the COVID-19 pandemic. 'Mbaza' was a USSD based system used to spread the awareness of Covid-19 transmission, preventive measures to be taken, and to provide updates on restrictions and curfews to all Rwandans who owned a mobile telephone.[42] More recently, the Ministry of Health has integrated AI into its systems for managing community health workers and other public health systems.

The impact of digital technologies in healthcare is constrained by the level of digital adoption in the country. A 2025 evaluation study found that technological barriers limit adoption of digital healthcare in Rwanda. Insufficient tools and equipment, training of personnel, and unreliable internet connectivity, particularly in rural areas, all constrained further development of digital health.[43]

Internet connectivity was found to be a roadblock to implementation of digital health in the past. In 2022, healthcare workers explained that they chose to rely on USSD systems because insufficient internet connectivity made it difficult to reliably connect to other healthcare facilities. Community health workers pushed for as many services as possible to be accessible offline because internet connection could be a challenge in rural areas.[44]

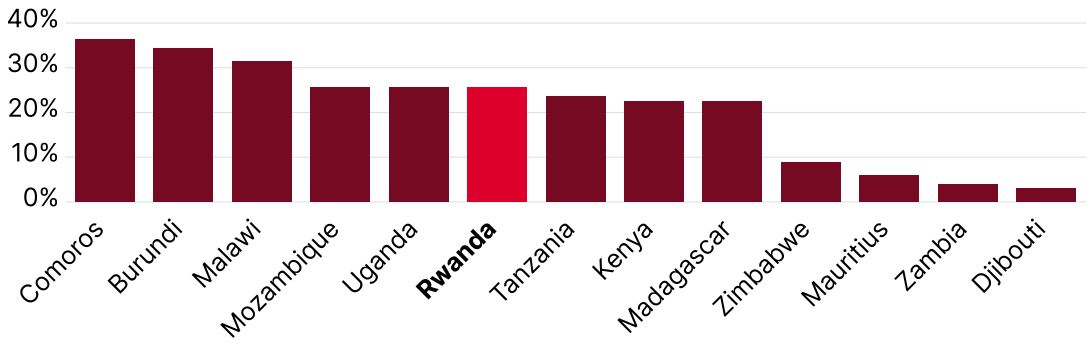
Network coverage is no longer a critical constraint on access to digital healthcare. With rapid expansion of broadband network coverage, the key constraint is no longer internet connectivity. Rather, it is now more about device availability and digital skills.

1.5. Digitalisation of agriculture

The agriculture sector accounts for one-fifth of the country's GDP but directly employs over one-third of the population.

Agriculture contributed 20% of Rwanda's GDP in 2025 and generated 37% of its export revenue (Figure 8).[45] [46] It employs over 60% of Rwanda's workforce.[47]

Figure 8
Agriculture as a share of GDP in selected countries in East and Southern Africa, 2024.



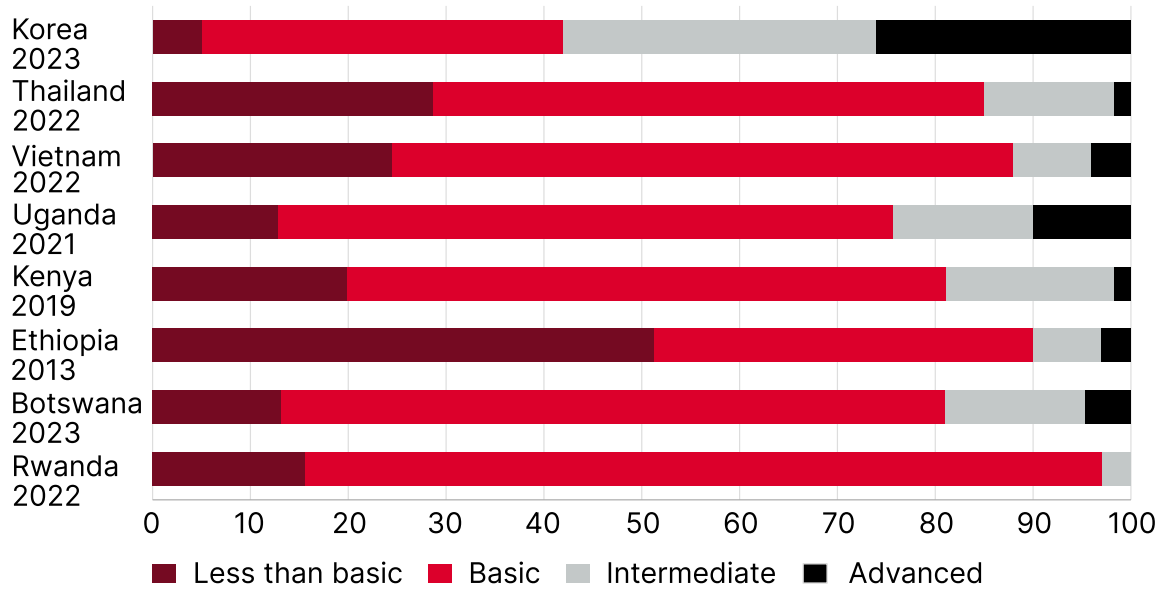
Source: World Bank

41 "Using drones to deliver blood products in Rwanda", Amukele, T., 2022.
42 "Revolutionizing Digital Health in Rwanda: Progress Toward Universal Health Coverage", Bananeza, R., Journal of Indian Physician Associates, 2025.
43 "Revolutionizing Digital Health in Rwanda: Progress Toward Universal Health Coverage", Bananeza, R., Journal of Indian Physician Associates, 2025.
44 "Challenges of mobile health implementation in Rwanda: Technical perspectives", Sezikeye J. P., 2022.
45 Source: National Institute of Statistics of Rwanda. Note that the World Bank's figure for agriculture GDP contribution is higher than that of the National Institute of Statistics of Rwanda.
46 Rwanda Economic Update April 2025, World Bank, 2025.
47 7th Integrated household Living Conditions Survey, National Institute of Statistics of Rwanda, 2025.

In recent years, Rwanda's agricultural sector has moved towards producing a more diversified range of crops. Over the past decade, production has diversified beyond traditional cash crops such as coffee and tea to include higher value products like macadamia and fruits. The most important export crops remain coffee (19%), malt extract (15%) and rice (10%).[48]

Low agricultural productivity remains a major constraint on the sector. The average annual growth of the sector was 4% between 2000 and 2023, with the rate of growth gradually falling. The expansion of total output has been driven by area expansion rather than improvements in farming practices. The sector continues to be characterised by low productivity and limited mechanisation. The most common type of farm unit is smallholder mixed farming which has limited scope for productivity improvements. In 2024, 39.7% of farmers used improved seeds, 39.8% applied pesticides, and 64.5% used inorganic fertilizers. Irrigation is limited with only 6% of cropped land being covered.[49] This is compounded by low levels of education and training among farmers (Figure 9).

Figure 9
Level of education of agricultural workers, selected countries.



Source: World Bank

Rwanda's agriculture production is also susceptible to climate shocks. Climate-related losses amount to 2-10% of agricultural GDP.[50] Improving the productivity and robustness of the sector is a key priority for the country's economic development.

Digital technologies offer an opportunity to address these challenges of low productivity and climate risks.

Farmer promoters in Rwanda play an important role because they serve as the primary link between formal agricultural research and smallholder farmers. One of the factors limiting their impact on agricultural productivity is their access to information and training. Digital technologies could help to address this but a 2024 survey found that the majority do not have access to digital assets and do not use the tools in their work.

48 Rwanda Economic Update April 2025, World Bank, 2025.
49 Rwanda Economic Update April 2025, World Bank, 2025.
50 Rwanda Economic Update April 2025, World Bank, 2025.

Rwanda's Fifth Strategic Plan for Agriculture Transformation sets out objectives of developing a more prosperous, food secure and resilient sector. Targets include agricultural growth at over 6% per year, annual agriculture export revenue over USD 1.5 billion and 644,000 off-farm jobs in agri-food systems.[51]

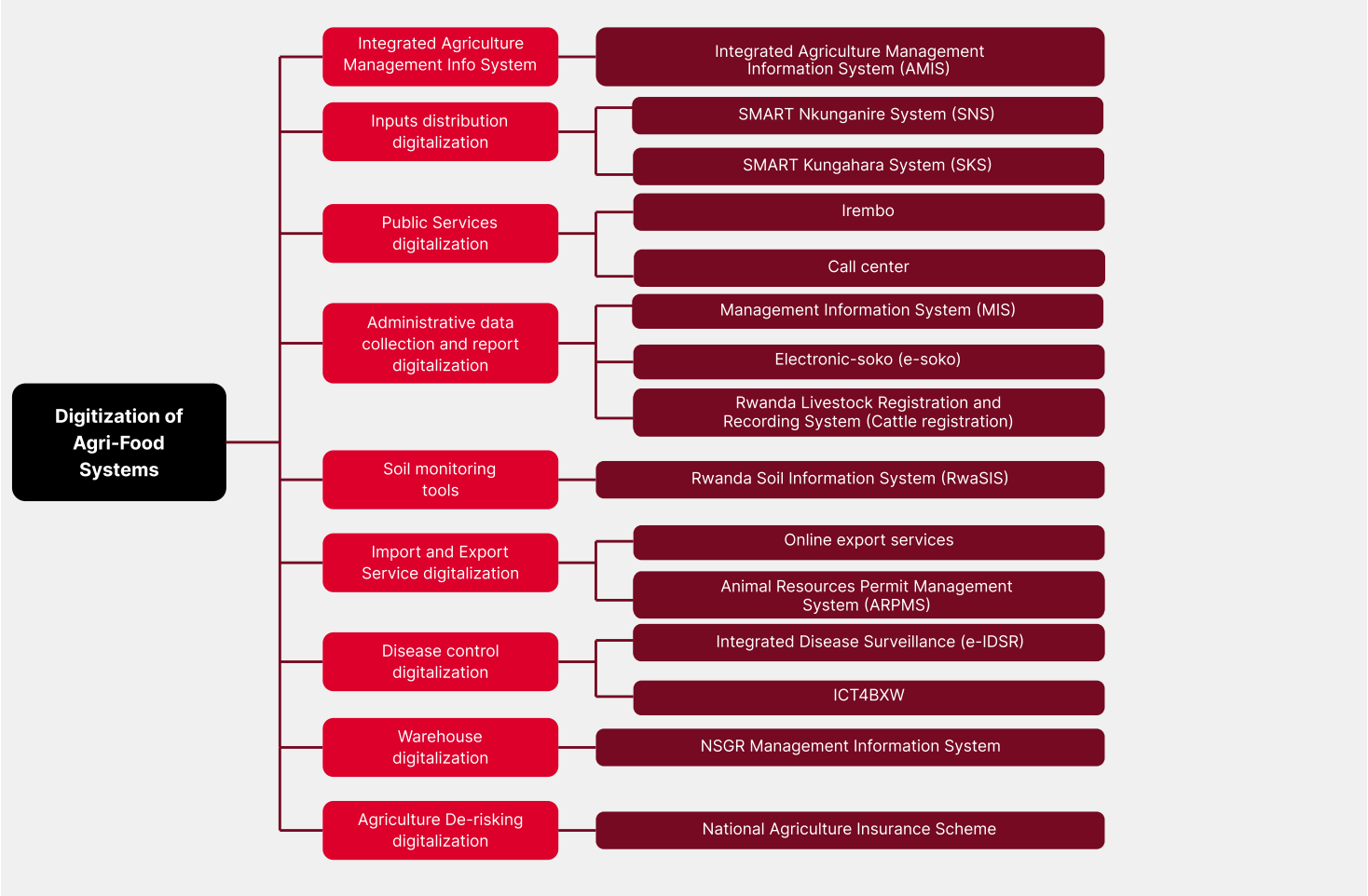
Digitalisation at farm-level is an important part of achieving the strategy goals but levels of digital adoption among farmers are low. 85% of farmers have access to mobile phones but smartphone ownership remains low - the majority of phones used by farmers are basic or feature phones. While feature phones aid communication and coordination, they do not change the production process in a way smartphones do. Feature phones cannot manage stock, compare prices, access maps or process more complex financial services. The level of adoption of digital tools among the rural-based population is therefore low.

To respond to these challenges, the sector strategy identifies the following strategic priorities:

- **Prioritising Device access and connectivity** through subsidies, partnerships, and tax incentives; and
- **Reducing Digital Adoption costs** through partnerships with private companies and other entities to subsidise access and transaction fees for essential agricultural services;
- **Establishing a Digital Public Infrastructure for Agriculture** through an Agricultural Management Information System (AMIS) as a comprehensive registry for farmers, farms, crops, and livestock.

Implementation of this strategy has involved development of a number of different digital applications in the agri-food systems and ensuring access to smartphones for 500,000 farmers that currently do not have them (Figure 10).[52]

Figure 10
Digitisation of Agri-Food Systems in Rwanda.



Source: Ministry of Agriculture and Animal Resources (MINAGRI)

51 Fifth Strategic Plan for Agriculture Transformation (PSTA 5), Ministry of Agriculture and Animal Resources, 2024.
52 Fifth Strategic Plan for Agriculture Transformation (PSTA 5), Ministry of Agriculture and Animal Resources, 2024.

The Smart Nkunganire System is an important component of this agriculture digitalisation strategy (Table 8).

Table 8
The Smart Nkunganire System.

The Smart Nkunganire System is a digital platform designed to deliver agricultural input subsidies to farmers. It streamlined the government's subsidy allocation system by using real-time data tracking in conjunction with a centralised database.[53] The platform does not rely solely on a mobile app, but functions on the basis of USSD as well.

Key facts about the system:

- Registered over 2.4 million farmers, over 100 distributor agents, over 1,900 agro dealers
- Facilitated the distribution of over 131,380 metric tonnes of agro-inputs
- Annual transaction value exceeded RWF 85 billion

Impacts on agricultural production include:

- Fertilizer purchases grew 23% between 2017 and 2023
- Productivity was reported to increase for 65% of farmers
- 72% to 80% of users reported satisfaction with the system[54]

Internet and mobile network challenges were identified as a bottleneck to further core innovation of the system. The use of mobile data-based applications, as opposed to USSD, could improve the efficiency of the system. For example, it takes 240 USSD steps to request fertilizer – a process which is time consuming and cumbersome.[55] Using smartphones to access the system is easier and allows users to benefit from the full functionality.

Low levels of digital adoption among farmers have also been a problem for other digital agriculture initiatives. The ICT4BXW project deployed digital technologies for monitoring and control of the Banana Xanthomonas Wilt (BXW) disease in Rwanda. Originally, it was meant to use smartphones to deliver digital tools and communicate with the farmers. However, following launch, it became apparent that low smartphone ownership and low levels of digital literacy would prevent farmers from meaningfully engaging with the applications. As a consequence, the project developed a USSD and SMS-based system and had to avoid over-reliance on a mobile data/smartphone based approach.[56]

53 Assessing Delivery and Business Models for High Impact Digital Solutions at Scale: The case of Rwanda Smart Nkunganire System (SNS), International Potato Center (CIP), International Institute of Tropical Agriculture (IITA) & International Livestock Research Institute, 2024.

54 Scaling Strategy for Smart Nkunganire System (SNS) in Rwanda: Increasing the Incomes of Smallholder Farmers between 2025 to 2028 in Rwanda, CGIAR, 2025.

55 Rwanda Smart Nkunganire System (SNS) Fertilizer Recommendation Tool – Innovation Packaging and Scaling readiness (IPSR) Analysis for Smart Agronomy, International Potato Center (CIP), 2024.

56 "Empowering smallholder farmers through digital innovations: Lessons from the ICT4BXW Project", IITA, 2025.

2. Current status of digitalisation in Rwanda

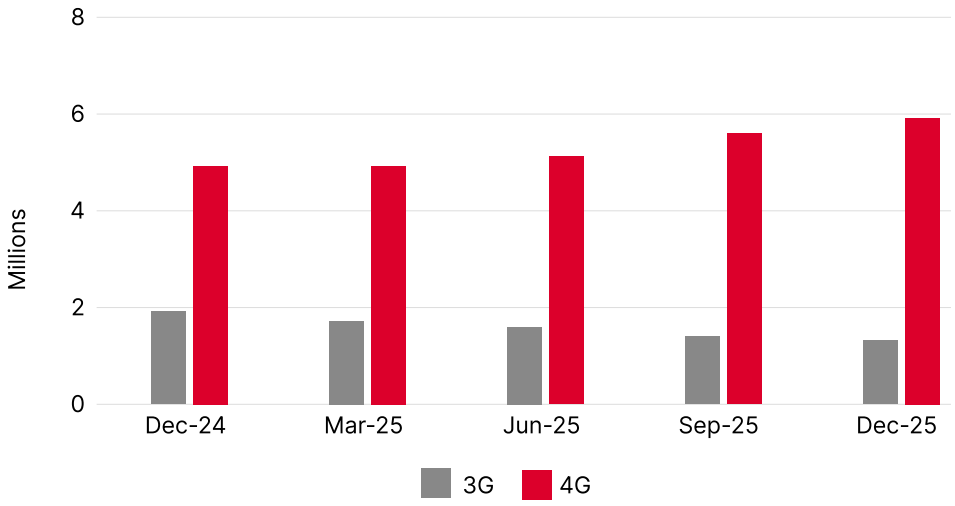


2. Current status of digitalisation in Rwanda

2.1. Broadband adoption and network coverage

About two-thirds of all mobile connections in Rwanda are broadband enabled. The total number of mobile connections in Rwanda grew by 53% between 2016 and 2025. By Q4 2025, there were 10.4 million mobile connections (i.e. active SIMs).[57] Of these, 7.2 million connections (i.e. 69%) were either 3G or 4G. There has been a steady migration towards 4G with the number of connections increasing to 5.8 million by 2025.[58] MTN has 66% market share in mobile subscriptions, while Airtel accounts for the remaining 34%.[59]

Figure 11
Rwanda - mobile internet connections by technology, 2024-2025.

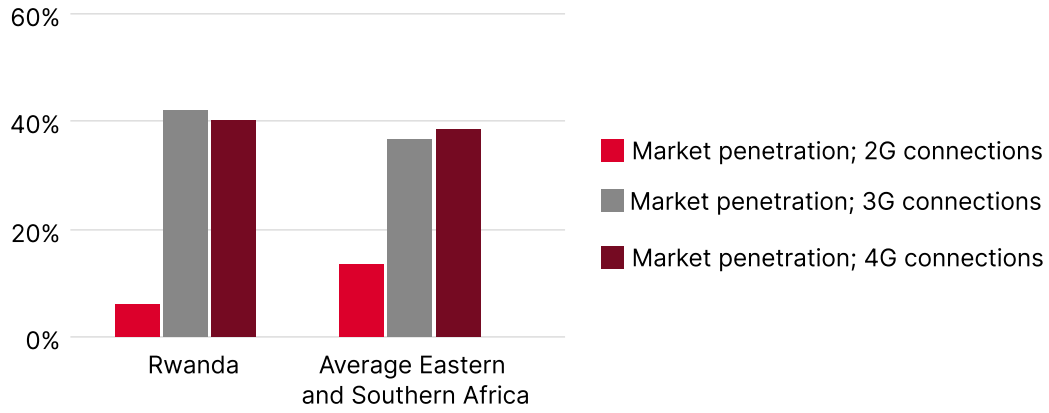


Source: RURA
Note: Internet connections shown here includes 3G and 4G only. RURA data on mobile internet includes 2G (EDGE) connections.

Rwanda has high levels of broadband connections compared to other countries in the region. Rwanda's 3G and 4G penetration is relatively high in comparison to its peers. Despite having lower GDP per capita than Comoros, Tanzania or Djibouti, Rwanda achieved higher levels of 4G market penetration (Figure 12).

57 GSMA refers to unique mobile subscribers as individuals with mobile subscription. 'Connections' refer to registered SIM cards. Individual may have more than one connection. RURA statistics report number of connections as opposed to individual users.
58 ICT Sector Statistics Report Fourth Quarter of 2025, RURA, 2025.
59 Source: RURA.

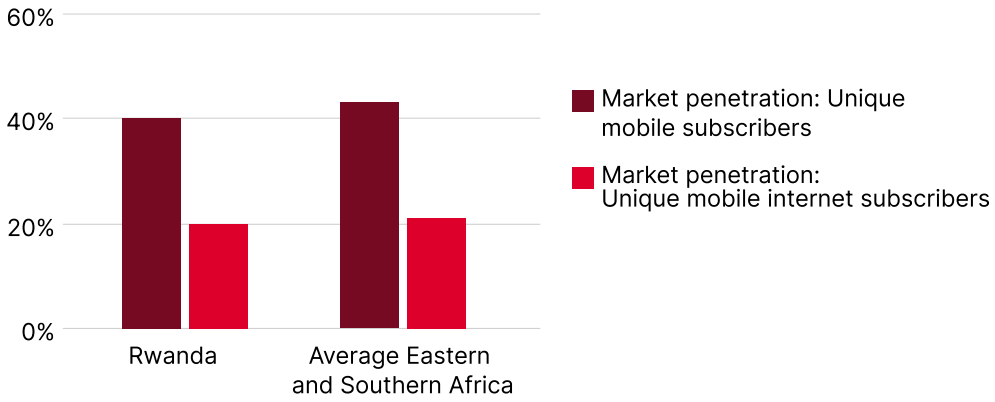
Figure 12
Market penetration (connections) by technology for selected countries in Eastern and Southern Africa, 2025.



Source: GSMA Intelligence

The country does less well on unique subscriber penetration and the level of digital adoption. The penetration of unique mobile internet subscribers stood at 21% in 2025, below the average for the region (Figure 13).[60]

Figure 13
Unique internet subscriber penetration for selected countries in Eastern and Southern Africa, 2025.

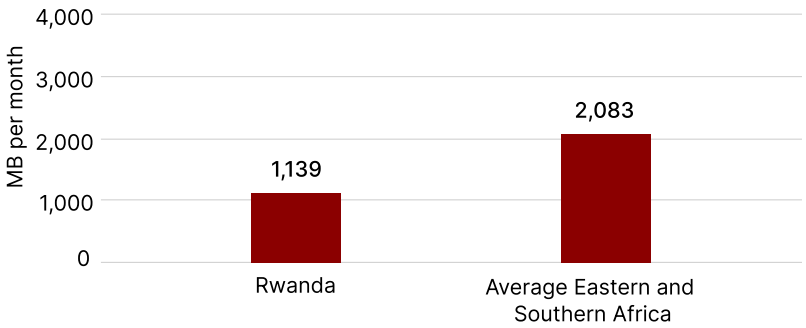


Source: GSMA Intelligence

The average monthly data traffic per connection in Rwanda is also low by regional standards. This indicates that mobile internet usage in Rwanda is low, even when customers do have access to internet enabled devices (Figure 14).

60 Source: GSMA Intelligence.

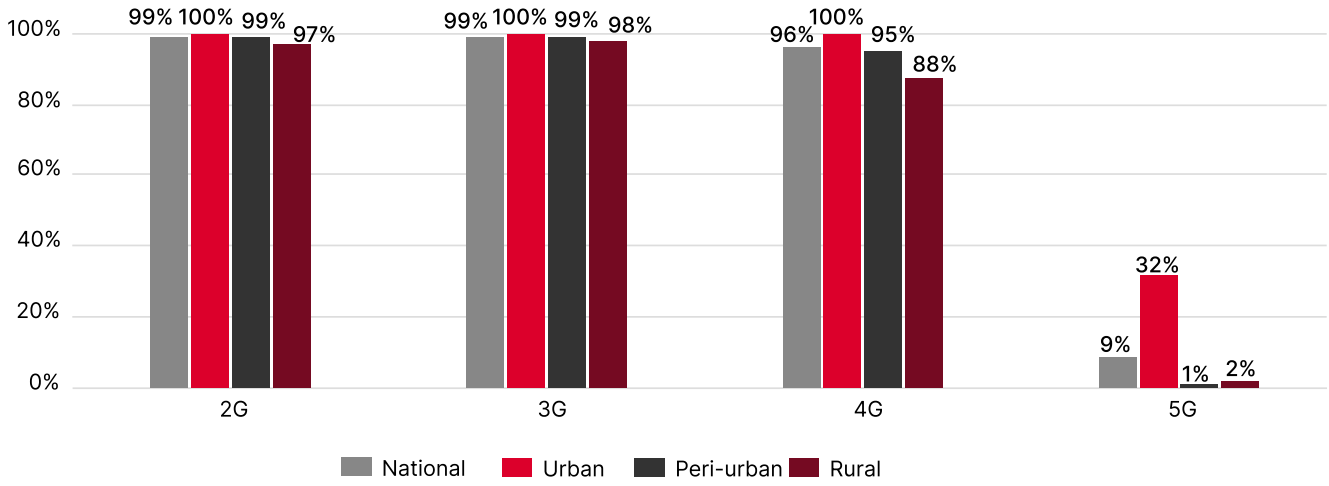
Figure 14
Data traffic (MB) per internet connection for selected countries in Eastern and Southern Africa, 2025.



Source: GSMA Intelligence

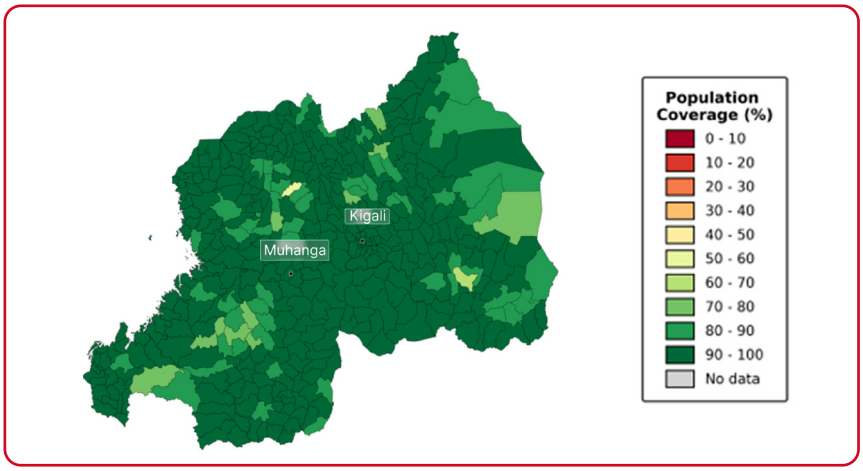
Rwanda has almost universal 3G and 4G population coverage. 3G population coverage stands at 99% while 4G population coverage reached 96%. 5G networks were launched recently and are currently only available in urban areas, covering 9% of the population (Figure 15, Figure 16).

Figure 15
Population coverage by network technology and urbanisation, 2025.



Source: GSMA analysis

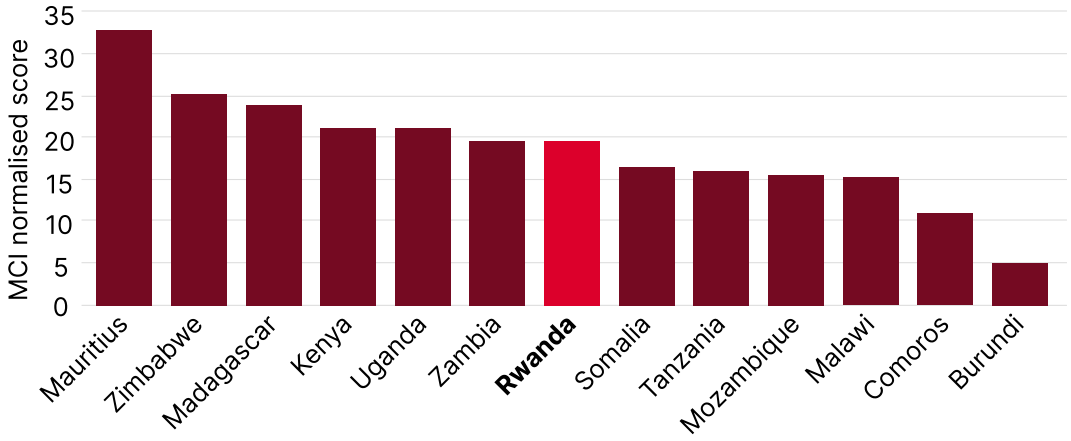
Figure 16
4G population coverage, 2025.



Source: GSMA analysis

Rwanda is a regional leader in broadband network coverage but does less well on network performance. Despite having one of the highest levels of broadband network coverage, Rwanda download speeds are around the average of the peer group of countries (Figure 17).

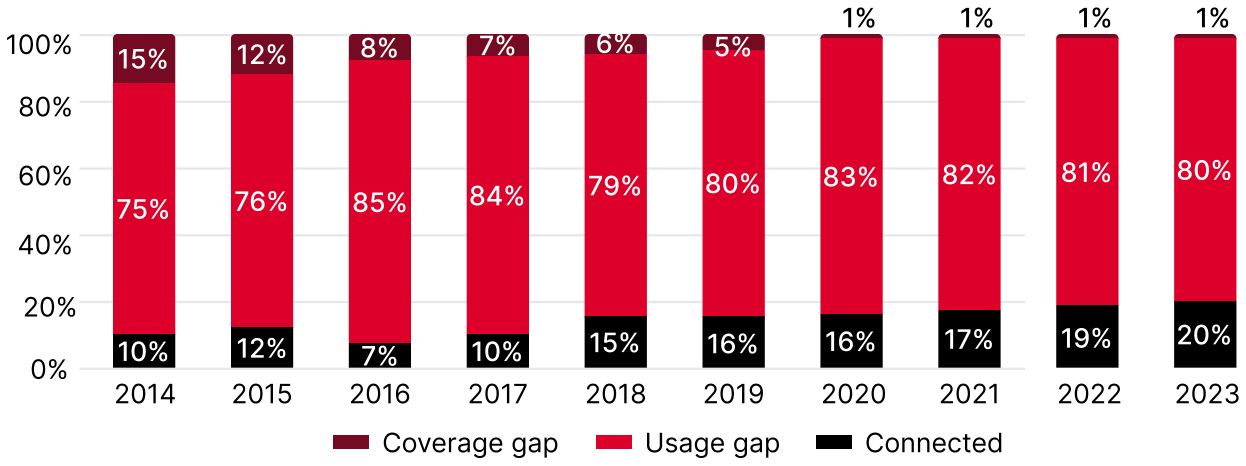
Figure 17
Mobile download speed, 2024.



Source: GSMA Mobile Connectivity Index

The broadband usage gap in Rwanda has grown rapidly as network coverage has grown faster than adoption. The broadband usage gap in Rwanda stood at 80% in 2023 and is currently estimated to be 78%. This compares with the Sub-Saharan Africa average of 61%. The size of the gap in Rwanda is due to the rollout of mobile broadband networks which has been rapid and sustained but broadband adoption has been growing much more slowly. In recent years, the annual rate of increase in the proportion of the population using the internet has been 1 percentage point. If broadband adoption continues to grow at this rate, it will be several decades before the country reaches universal adult broadband usage (Figure 18).[61]

Figure 18
Rwanda broadband coverage gap (unique subscribers), 2014-2023.



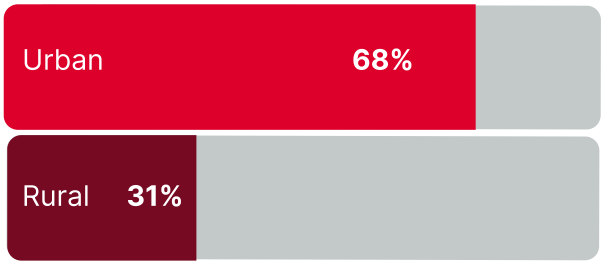
Source: GSMA analysis and GSMA Intelligence

61 Assessing Rwanda's mobile tax regime, GSMA, 2024.

There are large discrepancies in broadband adoption between rural and urban areas. 57% of urban households had access to internet at home, compared with only 18.7% of rural households.[62]

In rural areas, only 14% of adults over 31 years old own a smartphone (Figure 19). Rates of internet access also vary by region – the rate in Kigali more than double the national average (Table 9).

Figure 19
Proportion of households owning smartphone, 2025.



Source: National Institute of Statistics of Rwanda

Table 9
Proportion of households with internet access at home, 2024.

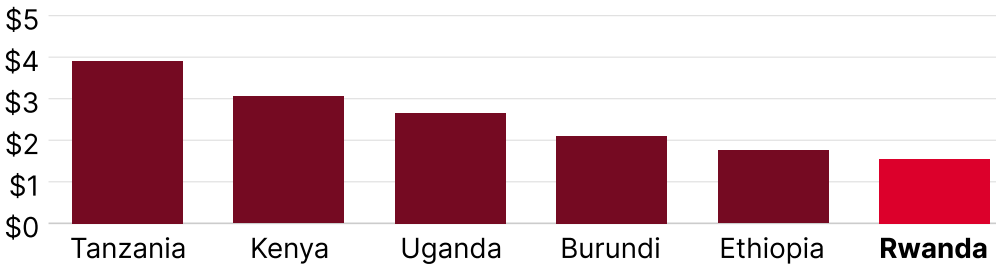
Kigali	Southern	Western	Northern	Eastern	Rwanda average
65.9%	21.1%	25.5%	23.5%	23.9%	29.8%

Source: National Institute of Statistics of Rwanda (NISR).

Data prices in Rwanda are low by regional standards but affordability for low-income households is still a challenge. The nominal tariff for standard mobile internet in Rwanda was between RWF 10/MB and RWF 5/MB in 2025. But most customers opted for bundled packages which offer a lower effective price.

The effective average unit price of active bundled internet services was RWF 0.2/MB for Airtel and RWF 0.9/MB for MTN.[63] These prices mean that data in Rwanda is cheap by regional standards (Figure 20).

Figure 20
Cost of cheapest mobile broadband, 2024.



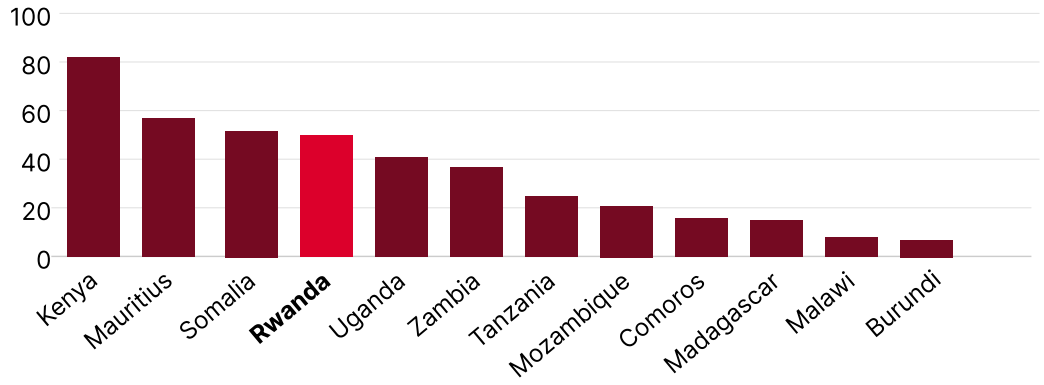
Note: Cheapest mobile broadband with at least 2GB of monthly data using at least 3G
Source: ITU

62 Source: National Institute of Statistics of Rwanda.
63 ICT Sector Statistics Report Fourth Quarter of 2025, RURA, 2025.

However, on measures of data affordability for low-income households, Rwanda is only just above the average for the region. Rwanda's affordability score in the Mobile Connectivity Index (MCI) is 50, suggesting that even low-cost data baskets represent a significant cost for this demographic.[64]

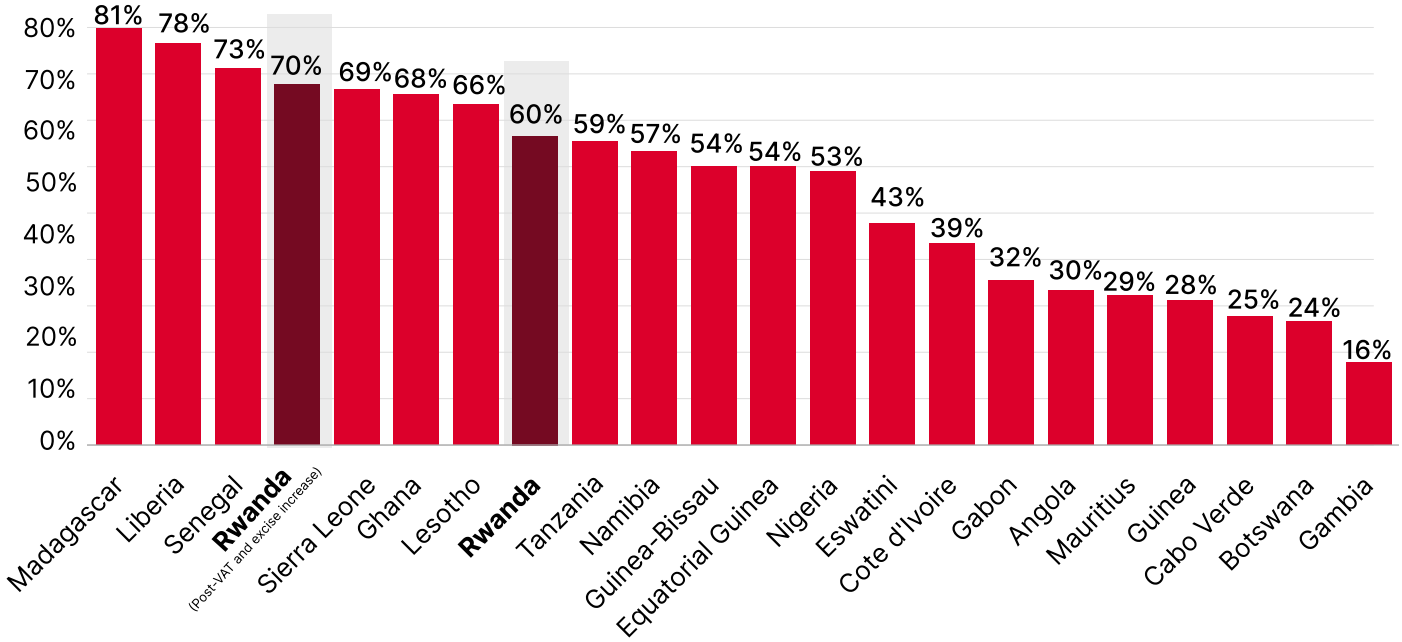
The price of smartphones is high relative to average income and recent tax increases are making them less affordable. Low GDP per capita in Rwanda means that even basic smartphones are unaffordable for a large proportion of the population. The increase in taxes on these devices has had a significant impact on the prices paid by customers and makes Rwanda more expensive than many other countries in the region (Figure 22).

Figure 21
Affordability of entry basket (1GB) for poorest 40%, 2024.



Source: GSMA Mobile Connectivity Index

Figure 22
Cost of basic smartphone and 1GB data as a proportion of monthly GDP per capita for the poorest 40% of the population for selected countries in Africa, 2023.

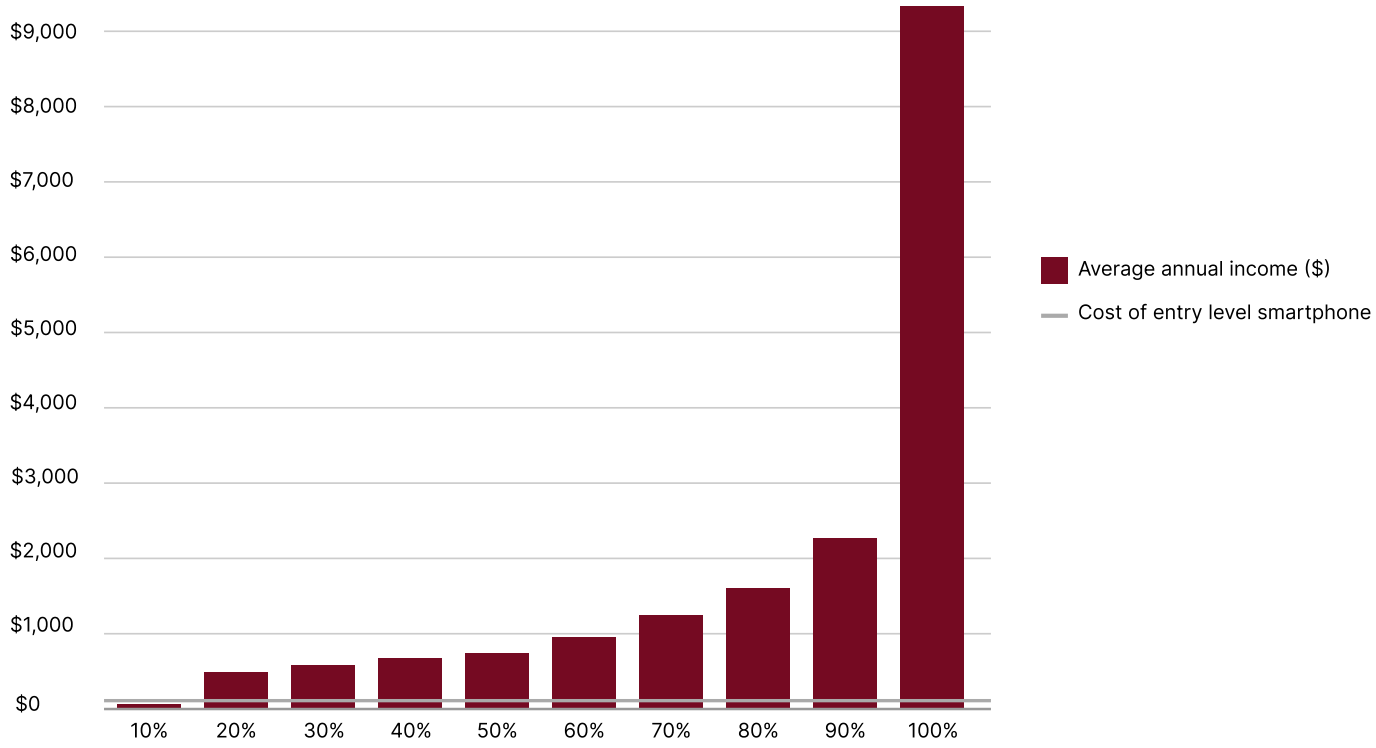


Source: GSMA Analysis and Tarifica data

64 GSMA Mobile Connectivity Index, 2014. GSMA's Mobile Connectivity Index includes a measure of affordability of mobile devices and services across the world. The affordability of entry level data basket for poorest 40% segment of the population is a normalized index capturing how affordable 1GB of data is for the low-income population. The higher the index score, the more affordable the services are.

The income distribution in Rwanda is highly skewed so the cost of entry-level smartphones is a barrier to adoption for a large proportion of the population. The high level of income inequality in Rwanda has a significant impact on the affordability of mobile services. The poorest 10% of adult Rwandans have an average monthly income of USD 3.3. A USD 100 smartphone is largely out of their reach, even with device subsidies. However, the average monthly income of the third to the seventh income decile of the population is USD 70.4.[65] A USD 100 smartphone still represents a high financial burden for such households but it is not completely impossible. This group of the population is likely to be highly responsive to changes in effective prices (Figure 23).

Figure 23
Population income distribution in Rwanda and the cost of an entry-level smartphone, 2024.



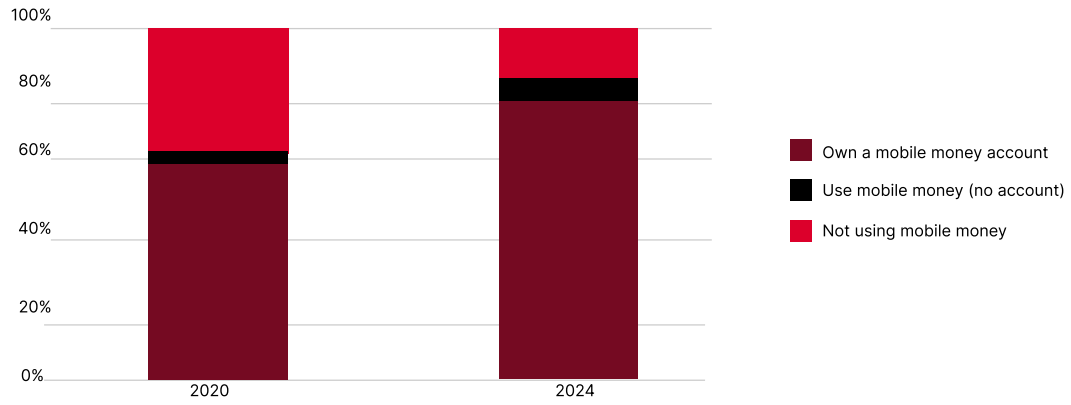
Source: World Inequality Database and GSMA Analysis

2.2. Use of mobile financial services

Mobile money adoption in Rwanda is high. 98% of Rwandans indicated that they are aware of mobile money services. Active use of mobile money has increased in recent years, with only 14% of the adult population indicating they do not use mobile money (Figure 24).[66]

65 World Inequality Database.
66 Access to Finance Rwanda (AFR), Rwanda FinScope, 2024.

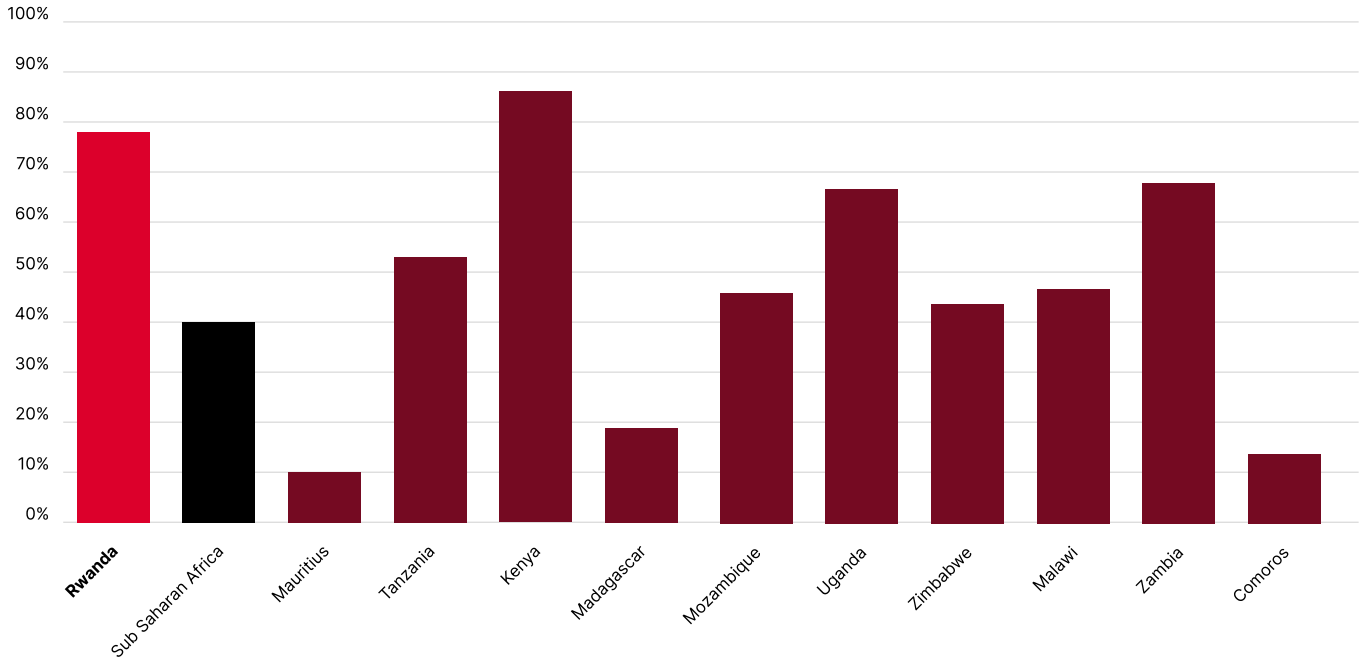
Figure 24
Proportion of adults in Rwanda using mobile money, 2020 and 2024.



Source: National Institute of Statistics Rwanda

This high rate of mobile money usage makes Rwanda one of the regional leaders in mobile money penetration, behind Kenya (Figure 25).

Figure 25
Mobile money account ownership, 2025.



Source: Global Findex Database and National Institute of Statistics Rwanda. Data for Rwanda from 2024

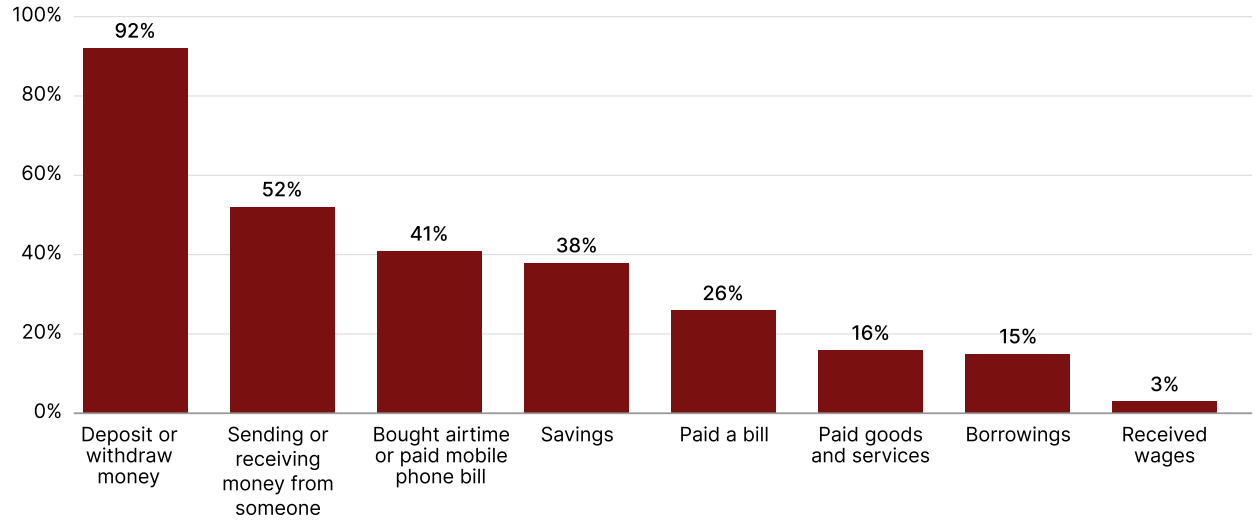
There is also a rural-urban divide in mobile money use. 87% of the urban population uses mobile money compared with 72% of the rural population. There is also a gender gap - 72% of adult women have adopted mobile money compared with 81% of men.[67]

The key barriers to mobile money adoption are not having a mobile phone and lack of product knowledge. Lack of mobile phone was cited as a key issue in 62% of cases.[68]

67 Access to Finance Rwanda (AFR), Rwanda FinScope, 2024.
68 Access to Finance Rwanda (AFR), Rwanda FinScope, 2024.

Mobile money accounts in Rwanda are used mainly for sending and withdrawing money. The use of mobile money for payments of bills and goods or borrowings is more limited (Figure 26).[69]

Figure 26
Uses of mobile money in Rwanda, 2024.



Source: National Institute of Statistics Rwanda

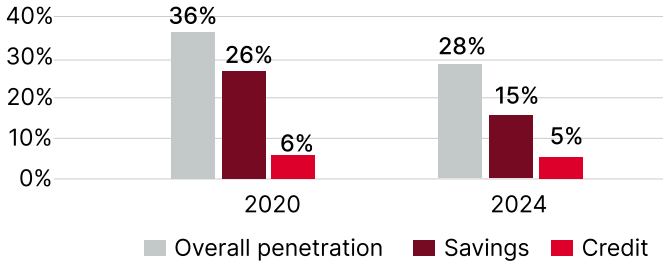
The Rwandan government has supported microfinance for low-income and rural households. 636,000 Rwandans had a microfinance account in 2024 (8% of the population), down slightly from 2020.[70]

Umurenge SACCO is a public initiative aimed at increasing rural access to financial services. The scheme was launched in 2009 when the rural population had few alternative options for participating in formal financial institutions.[71]

The cooperative operates by pooling members' savings and providing credit. It was digitalised in 2024 which improved efficiency and increased availability.[72]

Membership of the scheme increased rapidly following launch but has declined recently falling to 2.3 million members in 2024.[73]
The decline in membership coincides with the rise of mobile money and the development of other financial institutions, which may help explain the fall in importance of SACCO (Figure 27).

Figure 27
Umurenge SACCO penetration, 2020 and 2024.



Source: National Institute of Statistics Rwanda

69 Access to Finance Rwanda (AFR), Rwanda FinScope, 2024.
70 Access to Finance Rwanda (AFR), Rwanda FinScope, 2024.
71 "Rwanda: Umurenge Saccos in the Age of Mobile Finance - Is Mobile Money Adoption Signalling a Turning Point?", All Africa, 2025.
72 "Automation of 416 Umurenge SACCOs has been successfully completed", Ministry of Finance and Economic Planning, 2024.
73 Access to Finance Rwanda (AFR), Rwanda FinScope, 2024.

2.3. Conclusions on digital adoption in Rwanda

Key insights

Despite universal broadband network coverage and sustained efforts to digitalise public services, adoption remains low.

- Levels of broadband penetration (connections and unique subscribers) are around average for the region.
- A third of mobile connections in the country are 2G only.
- Mobile penetration rates are high but high levels of multi-SIMs (approx. 2.3 per unique user) means that the proportion of the population that has access to a device is relatively low.
- Mobile broadband network coverage has been very high for several years and is now universal.
- Only 21% of the population has a mobile broadband subscription which means that nearly 80% of the population lives within range of the mobile broadband networks but does not use them.
- Data prices in Rwanda are low by regional standards but handsets are more in line with other countries.

The government has made extended and sustained effort to promote digitalisation as a key part of its national development strategy. Its overall economic development strategy is focused on raising productivity in agriculture and shifting the structure of the economy towards services. The government has invested significant amounts in digitalising public services. Broadband network coverage has expanded rapidly in Rwanda and is nearly universal. Physical access to broadband networks is therefore no longer a significant constraint on digital adoption. Efforts at promoting broadband adoption to date have not been sufficient to achieve the level that is required to support the government's own strategy.

Household income is one of the key determinants of digital adoption. Low-income households are much less likely to have a smartphone and use digital services. The number of very poor people is higher in rural areas than in urban areas and also higher in the south and the west compared with other parts of the country. The average poverty rate is 16.7% in urban and 31.6% in rural areas. Kigali has the lowest poverty prevalence, while in the western region over 37% of the population lives below the poverty line defined as RWF 560,127 per adult per year (Table 10).[74]

Table 10
Rwanda poverty rates by province, 2024.

Region	Poverty rate
Kigali	9.1%
Southern	34.7%
Western	37.4%
Northern	20.2%
Eastern	26.8%
Rwanda average	27.4%

Source: National Institute of Statistics Rwanda

74 7th Integrated household Living Conditions Survey, National Institute of Statistics of Rwanda, 2025.

The large number of low-income Rwandan households is a critical constraint on broadband adoption. Overall income levels in Rwanda are in line with other countries in East Africa but significantly lower than the broadband leaders in the region such as Kenya. Rwanda still has a large number of people living on low incomes. 62% of the population lives on less than USD 4.20 per day and nearly 40% of the population lives on less than USD 3 per day.[75] Household expenditure prioritises essential items such as food and hygiene products. Kigali residents reported the lowest average share of expenditure going on food (43%), while residents of the Western province, which has the highest poverty prevalence, reported food expenditure at 51% of monthly spend (Table 11).

Table 11
Proportion of monthly expenditure, 2024.

Item	Proportion of monthly household expenditure
Food	47%
Hygiene products	17%
Property costs	10%
Cooking energy	8%
Education	8%

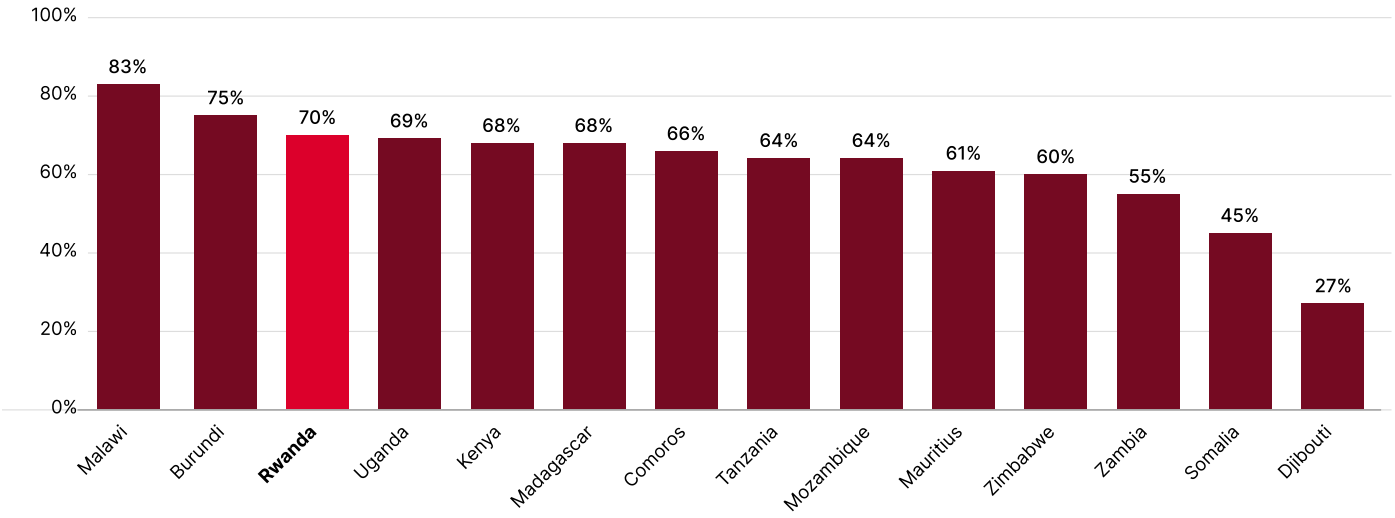
Source: World Food Programme

Low and variable incomes are a key factor in constraining household expenditure on non-essential items. The importance of food and other essential items in household expenditure budgets indicates that many households in Rwanda are vulnerable to shocks. Small reductions in incomes can threaten basic livelihoods. This is particularly true for some sub groups of the population. The highest levels of economically vulnerable households are reported among agricultural daily labourers.[76]

The proportion of the population living in rural areas is high by regional standards. 70% of Rwandans live in rural areas.[77] Rural households typically have low and unstable incomes compared to those in urban areas. Overall rates of literacy and digital literacy in rural areas are also lower than in urban areas. Most mobile functions that are relevant to rural households can be achieved using 2G/USSD functionality. This means that there is less demand for mobile broadband (Figure 28).

75 Source: World Bank, 2023.
76 World Food Programme, Comprehensive Food Security and Vulnerability Analysis (CFSVA), 2024.
77 Source: World Bank.

Figure 28
Proportion of population living in rural areas, 2024.



Source: World Bank

Some cultural factors also constrain broadband adoption. Levels of general literacy and digital literacy in particular in rural areas are lower than in urban areas. The government has taken steps to address this but it remains a major constraint for many rural people. The amount of content available in Kinyarwanda is also a restriction since it limits the demand for broadband, particularly in rural areas where people are less likely to speak other languages. Cultural perceptions in relation to credit and payments additionally curb mobile broadband adoption. Research indicates mistrust towards financing options for smartphones.[78]

Policies to promote broadband adoption need to focus on improving affordability and promoting demand. The people who currently do not own a smartphone in Rwanda are primarily in low or very low-income households. These individuals are highly price-sensitive, they are typically capital constrained and struggle to access credit. Data prices in Rwanda are relatively low by regional standards so device prices seem to be the primary price-related barrier to adoption – 56% of rural respondents identified it as their main constraint on using digital services.[79]

Policies that reduce prices and increase affordability of broadband will likely result in a significant increase in demand. Most individuals who are not yet broadband users are aware of broadband and live within range of networks. Their decision not to adopt digital is therefore because they do not consider that the benefits outweigh the costs to them. Increasing the benefits and lowering the costs will result in more people choosing to adopt.

The majority of individuals who are not yet broadband users live in rural areas. These individuals are also more likely to be low-income and low levels of literacy. Promoting demand among this group needs to focus on creating demand that is relevant to them. There is likely to be a strong response to any financial incentive (e.g. accessing government services or financial support), particularly if it is delivered in an accessible way.

78 Accelerating Smartphone Adoption in Africa, GSMA, 2025.
79 Affordability of internet-enabled handsets and data, GSMA, 2025.

3. Policy Recommendations



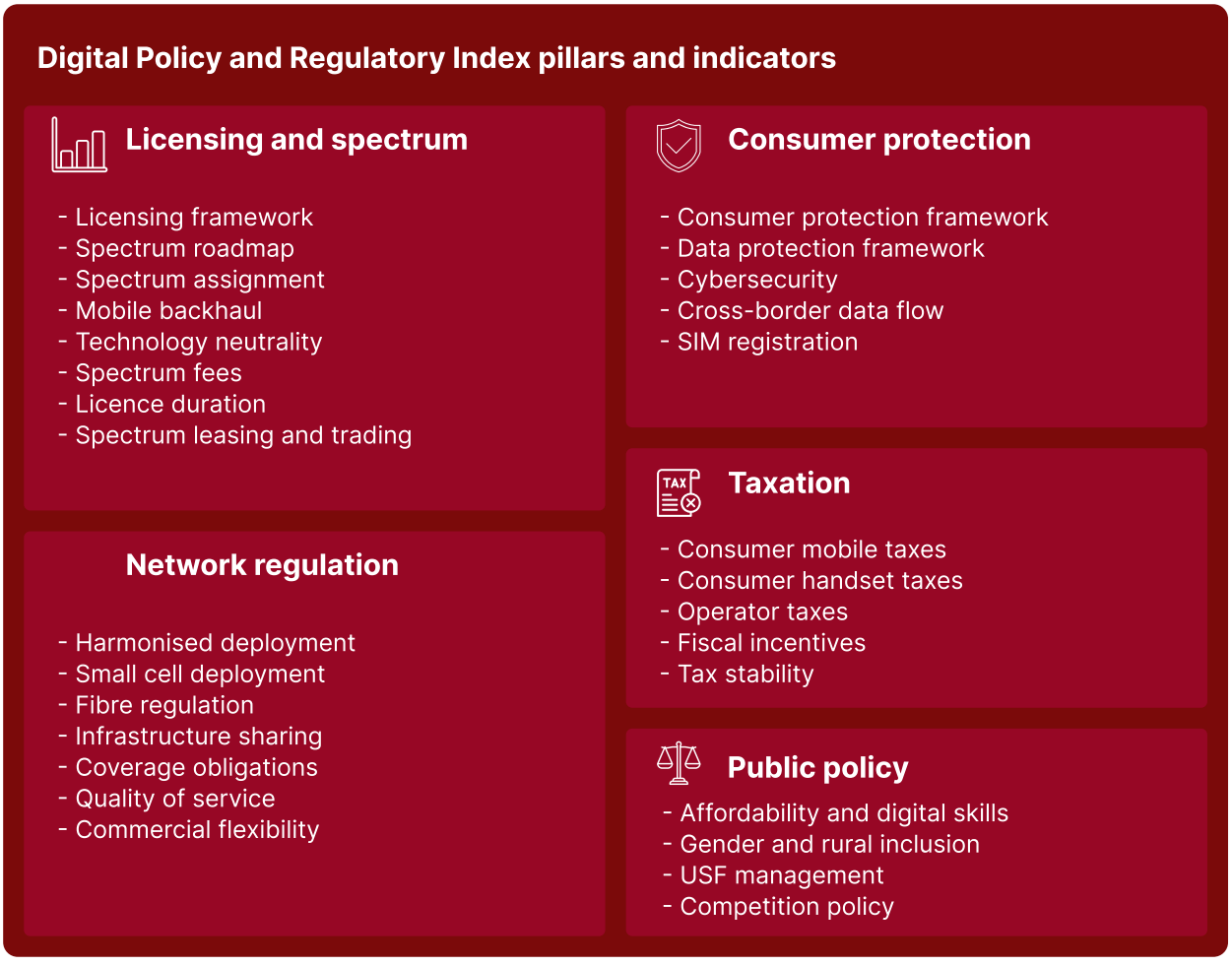
3. Policy Recommendations

The DAI provides a framework for targeted policy recommendations for Rwanda. The Digital Africa Index (DAI) provides an analytical framework for assessing country progress on digital development. It is also a foundation for designing policies to promote it.

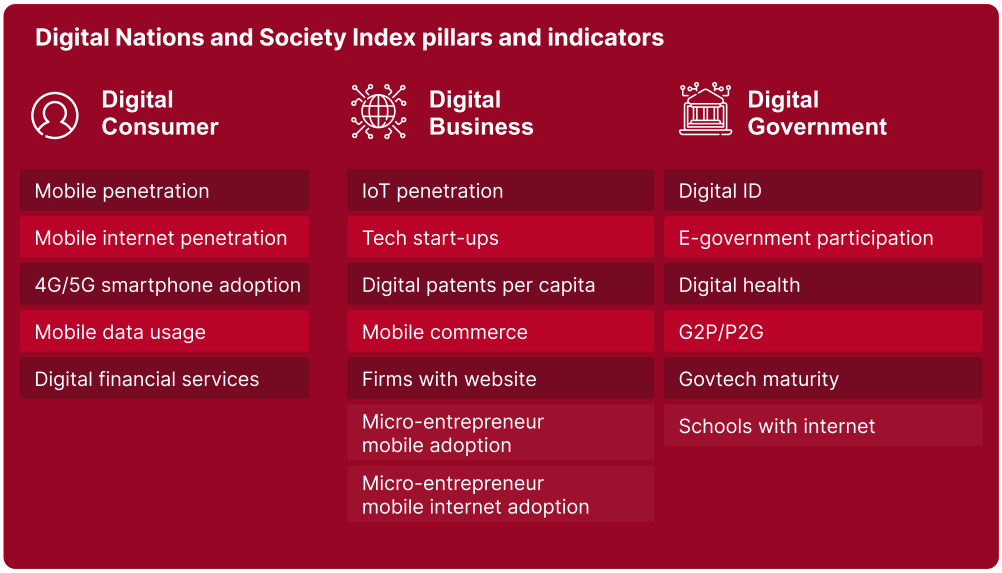
The DAI itself is made up of sub-indices that reflect particular areas of digital policy and performance.[80]

The Digital Policy and Regulatory Index (DPRI) focuses on the policy and regulatory environment. It evaluates how a country's policies are supporting the growth and development of digital services. The Digital Nations and Society Index (DNSI) measures how consumers, businesses and governments leverage mobile technologies to accelerate socioeconomic development.

Figure 29
DAI pillars and indicators.



80 DAI consists of four composite indices: the Digital Nations and Society Index ('DNSI'); the Digital Policy and Regulatory Index ('DPRI'); the Mobile Connectivity Index (MCI), and; the Mobile Money Regulatory Index (MMRI).



Source: GSMA Intelligence

This report provides short term policy recommendations within specific areas of the DAI framework. It does not aim to cover the full scope of the DPRI and DNSI but rather zeroes in on concrete policy steps that will drive digitalisation in the historical, economic and societal context of Rwanda.

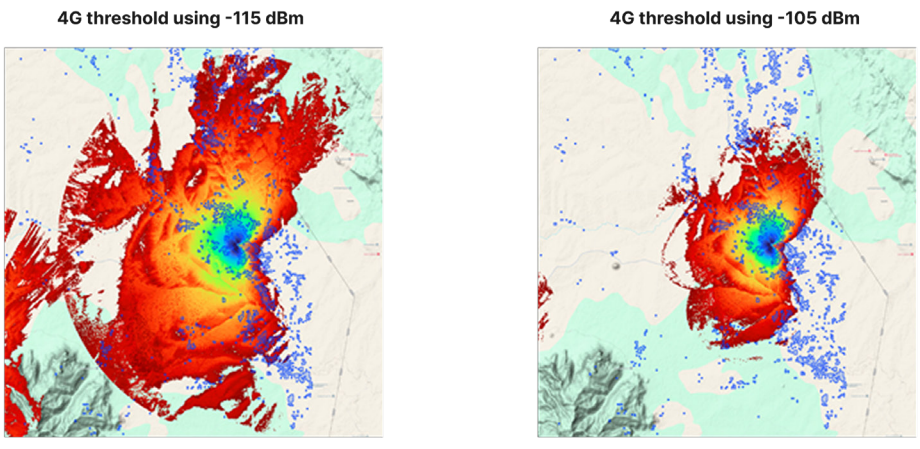
These recommendations cover four areas:

- Network regulation
- Taxation
- Public policy
- Stimulating demand for digital

3. 1. Network regulation
3.1.1. Quality of service obligations

QoS and signal strength regulations determine the amount that MNOs need to invest in network coverage. The higher the quality of service that is required (signal strength, throughput, latency etc.), the more MNOs need to invest in sites and equipment to serve a given area and population. As an example, in order to illustrate the effect of signal strength requirements on 4G coverage, Figure 30 shows the areas covered under two different signal strength requirements.

Figure 30
4G threshold using -115 dBm vs 105 dBm.



Source: GSMA Analysis

QoS obligations imposed on operators should be designed to maximise the benefits to users and to accelerate adoption. QoS obligations imposed on operators should be designed to maximize the benefits to users and to accelerate adoption. Operators already face difficulty in providing sustainable service in rural areas. On the cost side, capex and opex per subscriber in these areas are high because sites are typically further from the rest of the network. On the revenue side, household incomes are lower and there are fewer subscribers and using each site in rural areas. This means that operator revenue per site in rural areas can be as much as ten times lower than in urban areas.[81]

The priority should be to deliver network resilience and service affordability. Universal connectivity is necessary for the country to reach its digitalisation objectives. It is also a core component of Rwanda's national disaster management, as specified by the National Emergency Telecommunication Plan.[82] The policy priority should therefore be to deliver universal broadband coverage – including 5G - as quickly as possible and at the most affordable prices.

RURA has prepared draft QoS regulations to update the existing regulations (from 2019). The current draft regulations would not significantly change the signal strength and signal quality requirements for 2G and 3G. However, there would be an increase in some key quality and signal strength parameters for 4G and 5G.

The draft QoS regulations would impose costs on the operators in the form of increased investment requirements. Meeting the draft QoS regulations would require significant investment by the MNOs. It is estimated that it would cost USD 500-800 million in capital investment to meet the core QoS requirements contained in the current draft. This is a very significant amount of money in a relatively small market such as Rwanda.[83]

High QoS regulations may be more likely to constrain digitalisation than to promote it. There is a trade-off to be considered between increasing the quality of service provided and delivering rapid expansion of 5G coverage. The investment required to deliver higher broadband speeds ultimately needs to be recovered from customers through higher prices if the operators are to be financially sustainable. In finalising the QoS regulations in consultation with the MNOs, it is important that RURA consider this trade-off and settles on a final draft of the regulations that balances these different considerations.

Recommendation 1.1 – Ensure that the final version of the QoS regulations balances the need for quality of service with the speed of 5G rollout and service affordability

- ☑ Low uptake of broadband services leaves a significantly underutilised network. Operators already face difficulty in providing sustainable service in rural areas. Investing in higher quality of services may therefore slow down investment in other areas of the network and may also feed through into higher prices. Finding the right balance between ensuring a decent quality of service while also ensuring that broadband is as affordable as possible is a challenge for all regulators.
- ☑ It is recommended that RURA ensures that the final QoS regulations achieve this balance in a way that enables the industry to accelerate digitalisation, particularly among those people living in rural areas. 5G QoS obligations should not result in reducing investment into other areas of the network or result in higher prices for consumers.

81 Driving the digital revolution with improved mobile coverage, GSMA, 2020.

82 Ministry of ICT and Innovation, 2025.

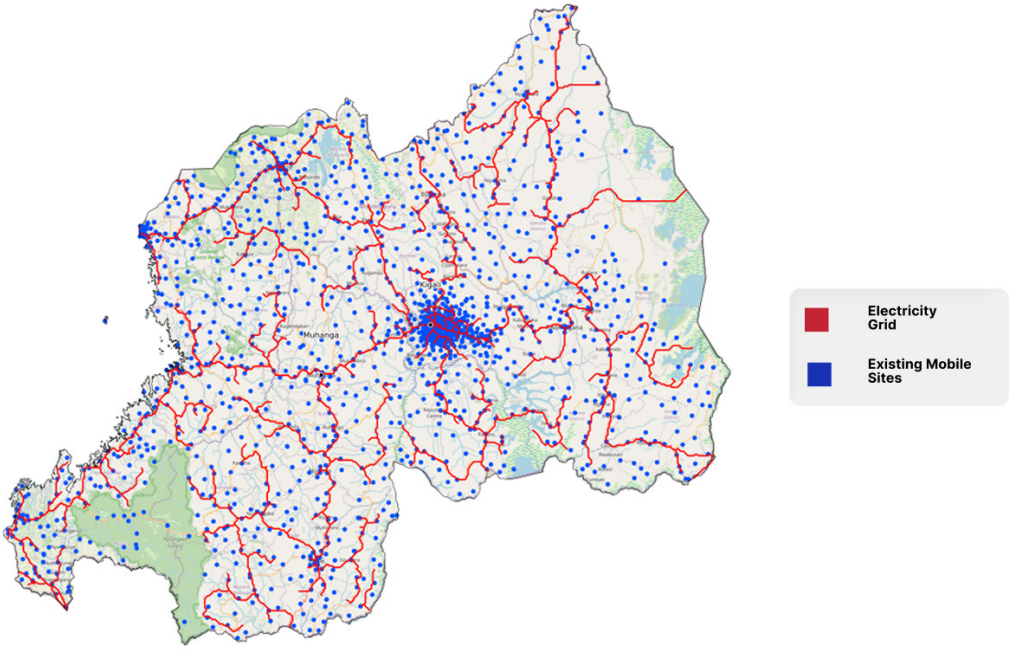
83 These costs are estimated based on the proposed QoS regulations for 4G and 5G throughput as of June 2026. While this is a significant sum, this compliance cost is lower than what would have been incurred meeting the QoS requirements that were originally proposed in 2025. The cost of complying with that version of the regulation would have been almost $1.5 billion. The final costs will be determined following publication of the final QoS Regulations.

3.1.2. Cost of energy

Electricity for mobile sites is a key component of MNOs' operating costs. The cost of running the network is heavily affected by the cost of providing power to sites. Changes in these operating costs ultimately feed through into the prices that operators charge consumers or the amount that they are able to invest in new network infrastructure and services.[84]

Energy costs in Rwanda have risen for both grid and off-grid sites. Electricity tariff revisions in 2025 led to price increases, directly impacting grid-powered sites and other network centres. The Ministry of Infrastructure plans to update tariffs every 3 to 4 months which results in pricing uncertainty and hinders investment planning. The position of mobile sites relative to the grid is shown in Figure 31.

Figure 31
Mobile sites and electricity grid.



Source: GSMA Analysis

Telecom towers are a distinct category of the energy tariff structure and these have recently been increased. The tariff increased from RWF 201 per kWh to RWF 289 per kWh in October 2025, an increase of 44%.[85] Modelling indicates that the changes increase total annual network opex by 6%.

The energy tariff for telecom towers is higher than any other industry category. Telecom towers are subject to prices which are 51% higher than the average tariff across all specified industries (Table 12). This imposes a high cost burden on mobile operators which is ultimately passed on to consumers. Placing telecom towers in a higher tariff categories is not consistent with the overall strategy of digitalisation of the economy.

84 Rural renewal: telcos and sustainable energy in Africa, Nov 2024, GSMA.
85 RURA Decision N°01/BD/ERENERGY /RURA/2025 OF 14/09/2025, replacing RURA Decision N°01/BD/ER-EWS/RURA/2020 OF 17/01/2020.

Table 12
Electricity tariffs by industries, 2025.

Industry	Tariff (RWF per kWh)
Telecom tower	289
Hotels	239
Health facilities, schools and higher learning institutions	214
Broadcasters	276
Small industries	175
Medium industries	133
Large industries	110
Steel, mining and cement industries	97

Source: RURA

Energy tariffs are supposed to be updated quarterly, however in practice this has not been the case and tariffs changes have been irregular.

In addition to the high overall level of tariffs, the frequent and unpredictable changes in energy prices introduces uncertainty and makes planning difficult for tower companies and MNOs.

Recommendation 1.2 - Reverse the increase in electricity tariffs and bring tariffs for mobile networks in line with other businesses (e.g. hospitality)

- ☑ Energy cost is a significant component of mobile operators' costs. It currently forms 19% of the annual site opex. The recent 44% increase in energy tariffs for mobile towers raises operators' already high running costs.
- ☑ Raising the energy prices that operators face is likely to exacerbate the affordability problem because producers pass on some of the price increase down to the end consumers. Higher prices will lead to lower adoption rates which may in turn slow down the progress of the digital transformation.

3.1.3. Spectrum

Spectrum holdings are a key determinant of network coverage and the quality of services that operators can offer. Both the total amount of spectrum and its fragmentation impact the cost for operators. Deploying additional spectrum on sites increases the coverage of each cell site, increases download speeds and reduces costs.

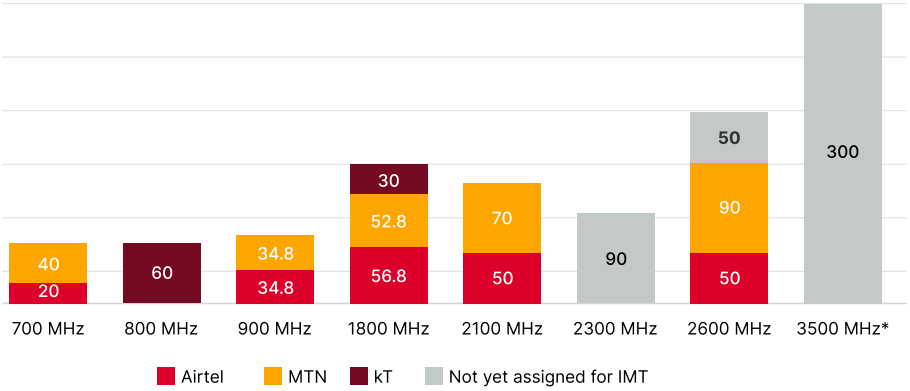
The GSMA has found that deploying 2 × 20 MHz blocks of 600 MHz spectrum leads to 33% decrease in the number of cell sites needed to cover an area.[86] Ofcom has found network costs savings of between GBP 200 million and GBP 900 million resulting from the deployment of an additional 2 × 30Mhz spectrum in the 700 MHz band.[87]

86 Vision 2030: Low-Band Spectrum for 5G, GSMA, 2022.
87 Assessment of the benefits of a change of use of the 700MHz band to mobile, Analysis Mason, 2014.

Spectrum has a significant impact on the quality of service that mobile networks offer. Lack of spectrum decreases operators' investment capability and limits the speeds that they can provide to customers. This issue will become more prominent with the move towards 5G. GSMA has found that globally additional spectrum assignments were responsible for 22% of the increase in download speeds seen in 2023.[88]

Current spectrum assignments in Rwanda are largely driven by the legacy market structure. While full liberalisation of the market allowed MTN and Airtel to develop 4G offerings, further spectrum assignments would enable them to offer better quality of service at lower costs (Figure 32).

Figure 32
Spectrum assignments in Rwanda, 2026.



Note: * 90 MHz is assigned to the MNOs but only used for WiMax or P2P and not for 5G
Source: GSMA Analysis

Together, the mobile operators, MINICT and RURA should work together to develop a sunsetting plan for 3G and consider the future for 2G. It is understood that MINICT, in partnership with stakeholders, is currently developing a strategy for sunsetting of 3G and addressing the future for 2G services. This will include treatment of spectrum holdings and licences, QoS regulations and the role of type-approval and import controls on devices. This requires balancing the requirement to launch new generations of mobile technology with maximising the efficiency of spectrum usage while also protecting the interests of consumers. A clear and coherent customer migration strategy will allow operators to plan their networks and refarm spectrum from legacy technologies to 4G and 5G in the most efficient way. International experience provides some lessons on the best approaches for this (Table 13).

Table 13
GSMA 5G Spectrum Policy recommendations.[89]

1	5G needs spectrum across low, mid- and high bands to deliver capacity in all areas and support the full range of use cases. All three ranges have important roles to play. • Low-band spectrum (below 1 GHz) is needed to drive digital equality, provide capacity in wider and rural areas, and for deep indoor coverage. • Increased low-band capacity creates greater equality between urban and rural broadband connectivity and supports addressing the digital divide. • Mid-bands (1-7 GHz) provide city-wide 5G capacity. They play a core role in delivering enhanced mobile broadband and applications which impact how we manufacture goods, deliver education, and build smart cities. To date, mid-band spectrum has been the most used to launch 5G networks around the globe. • High-bands or mmWave (above 24 GHz) deliver the fastest broadband speeds and lowest latencies. They deliver the highest performance for 5G but only cover shorter distances so are used for high-capacity hotspots.

88 GSMA Analysis.
89 5G Spectrum GSMA Public Policy Position.

2 Regulators should aim to:
- Award 100 MHz of contiguous mid-band spectrum per operator for 5G launch
- Increase low-band spectrum capacity by assigning all available bands (including 600 MHz)
- Make 2 GHz of mid-band spectrum available per market by 2030 (e.g. through 3.5 GHz and 6 GHz assignments)
- Consult with industry over the need for mmWave to cover busy hotspots, allowing for an initial assignment of 800 MHz per operator and potentially making 5 GHz available per market as demand grows.

3 High 5G spectrum prices should be avoided as this is linked to slower broadband speeds and lower coverage. Excessive reserve prices and poor auction design, high annual fees, or limited spectrum supply (including through set-asides) can all lead to high spectrum costs. Increased network investment can also be supported through coverage and QoS commitments in exchange for cash payments.

4 Spectrum policy measures should be adopted to encourage long-term investment in networks. Indefinite or long-term licences, with a presumption of renewal, should be used for spectrum assignment. Further certainty can be provided through a long-term, technology-neutral spectrum roadmap.

5 Spectrum for private and local networks can be made available through public mobile networks or through network slicing or sub-leasing of national licences. Setting spectrum aside for private networks in priority 5G bands could jeopardise the success of public 5G services and has no positive impact on enterprise digitalisation.

6 Voluntary spectrum sharing and sub-leasing between operators does not reduce the overall amount of spectrum required in any market. However, allowing spectrum sharing between operators may support efficient spectrum use, lower network costs and optimise connectivity.

7 Regulators should carefully consider 5G backhaul needs, including making additional bands available and supporting wider bandwidths in existing bands. Measures should also be taken to ensure mobile backhaul licences are affordable and designed effectively.

8 WRC harmonisation helps the evolution of mobile. Governments and regulators should adopt internationally harmonised bands in their national plans to support affordability through economies of scale. Further harmonisation of mobile spectrum at future WRCs should be sought.

3.1.4. Infrastructure Sharing

Infrastructure sharing has proven to be an effective way of increasing coverage and improving quality. Voluntary network sharing can avoid duplication of network, thus reducing the cost burden. Operators' investment capacity increases, and focus can be placed on quality of service and innovation.

Infrastructure sharing can be helpful in both dense urban and rural areas. Joint use of masts, buildings and antennae allows for additional capacity in areas where space for new sites is limited. In rural areas, where customers are geographically dispersed, infrastructure sharing lowers the investment needed to deliver mobile services and therefore increases the incentive for operators to expand networks in otherwise unprofitable areas of the country.

In most cases, mobile infrastructure is undertaken on a commercial basis between operators. These arrangements are made between operators on a commercial basis without regulatory intervention. This allows operators to design and implement the sharing arrangements in a way that delivers mutual benefit. This model has been successful in both small and big markets around the world. In some cases regulators have established guidelines and best practices to encourage operators to share infrastructure and this can be helpful.[90]

90 See GSMA (https://www.gsma.com/solutions-and-impact/connectivity-for-good/public-policy/mobile-policy-handbook/business-environment/infrastructure-sharing/) for more details on mobile infrastructure sharing.

3.2. Taxation

Digital services in Rwanda are heavily taxed and the tax burden on consumers is expected to increase. The mobile sector faces a disproportionately high tax burden relative to its share of GDP. GSMA estimates that, in 2022, the mobile market revenue accounted for 2% of the country's GDP, while the sector's tax contribution was 3% of the total tax revenue.[91]

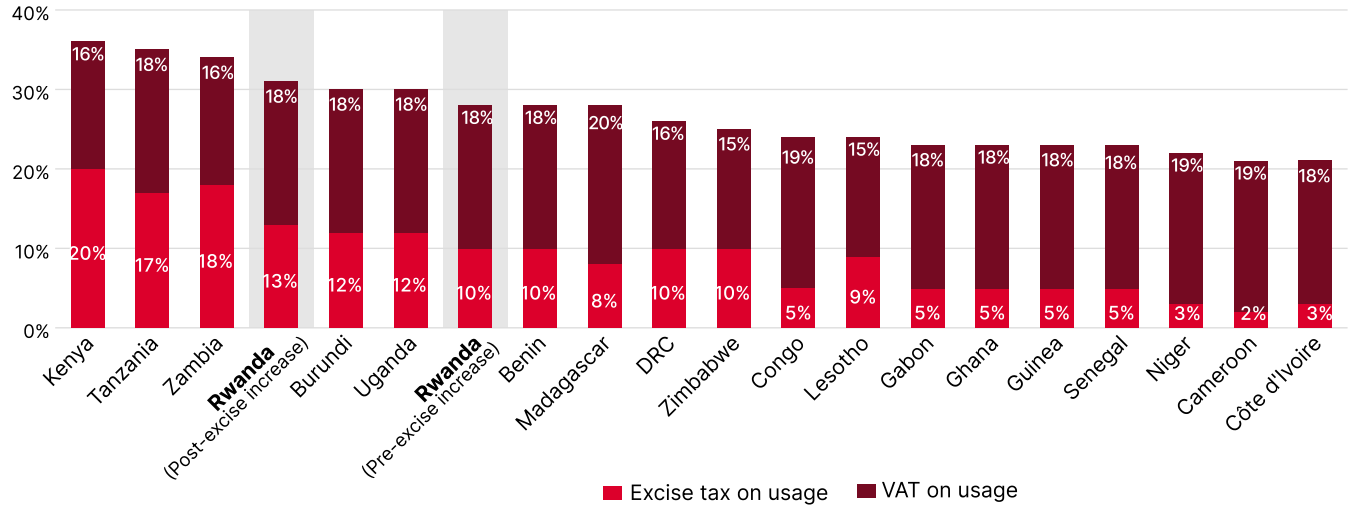
Table 14
Mobile taxation in Rwanda, current and proposed.

Current	Changes
The sector faces VAT as well as sector-specific taxes: • Value Added Tax (VAT): mobile services are subject to 18% VAT • Excise duty: sector-specific tax of 12% is applied to all mobile services (data, voice, and SMS) • Numbering tax: fixed tax of RWF 90 ($0.07) per number Mobile operators are additionally subject to a number of sector-specific taxes and fees: • Annual license fees 1% of operating revenue • Annual spectrum fees 3% of operating revenue • Universal service fund 2% of gross revenue	Increases in consumer taxes • Increase in excise duty tax from 12% to 14% in June 2026 and 15% in June 2027 • Reintroduction of 18% VAT on imported handsets

Source: GSMA Analysis

The tax burden in Rwanda is high relative to comparable markets. In 2024, GSMA estimated that implementing the increase in excise duty from 10% to 12.5% and the reintroduction of VAT would place Rwanda among the countries with the highest combined mobile tax rate on consumers (Figure 33).

Figure 33
Combined tax rate on mobile services, 2024.



Source: GSMA Analysis

91 Operator calculations.

Mobile operators in Rwanda are subject to an increasing tax burden. The average effective tax rate (AETR) is a way of measuring the total burden of taxes and levies borne by consumers and companies. It also allows a comparison of the total burden between sectors. It includes general taxes on both operators and consumers, sector-specific taxes and other levies and charges imposed on companies. The AETR on the mobile operators in Rwanda is equal to 83% of profits.

This is significantly higher than the equivalent figure for the retail finance or agro-processing sectors. This difference arises primarily from the sector-specific taxes and fees levied on the mobile operators and consumers with revenue-based taxes accounting for more than 1/3rd of the total mobile telecoms AETR. This is expected to increase as the employer pension scheme contributions reach 10% by 2030 (Figure 34).[92]

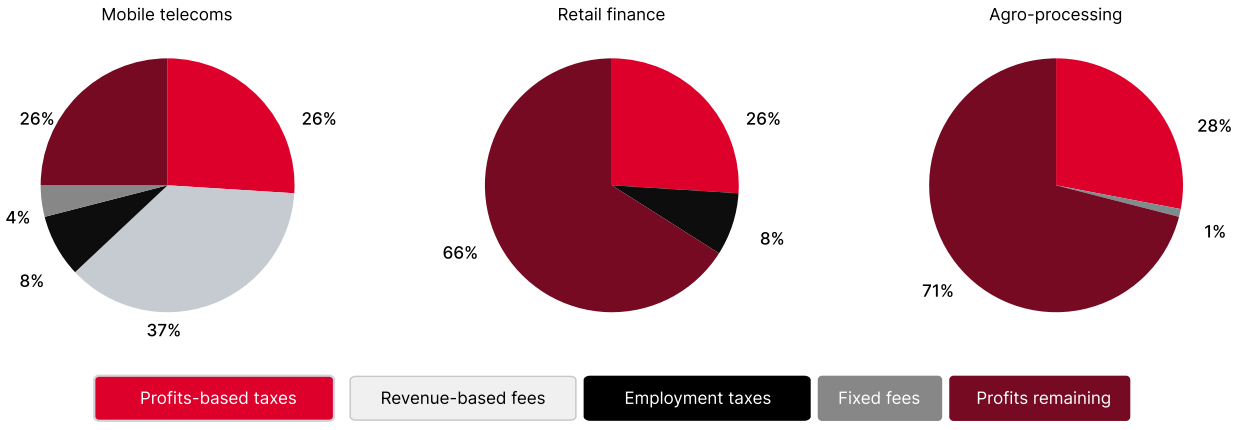
Revenue-based levies are disincentivising investment in rural areas. Rural expansion is capital intensive due to the dispersed population but generates low revenue due to low household incomes. Imposing high taxes on operators' revenue reduces the amount of investable resources available for network expansion and upgrades.

Figure 34
Average effective tax rate on mobile operators in Rwanda.

Across the three sectors, mobile telecoms have the highest AETR of 74%, followed by 34% for retail finance and 29% in agro-processing.

The high fiscal burden on mobile sector is driven largely by sector-specific fees based on operators' revenue which absorbs 37% of the pre-tax profits. These fees are imposed directly on revenues or as fixed charges. This significantly reduces operators' free cash flow, which is the primary and, in some cases, the only source of funding for infrastructure investment and network upgrades.

	Mobile telecoms	Retail finance	Agro-processing
AETR (tax as a % of pre-tax profits)	74%	34%	29%
AETR (tax as a % of revenues)	12%	10%	10%



Source: Mobile Sector Taxation: Comparative Fiscal Burden in Rwanda, GSMA, 2026

92 Mobile Sector Taxation: Comparative Fiscal Burden in Rwanda, GSMA, 2026.

Some taxes and levies are imposed on companies but the overall burden of taxes and levies on the sector is ultimately paid by customers in the form of higher prices. Taxes imposed on mobile operators will need to be covered by revenues generated from customers. If this is not the case, investors will not be able to earn their cost of capital and they will either increase prices or reduce their capital expenditure. In competitive markets like mobile telecoms, changes in taxes and sector levies are largely passed through to customers via changes in prices. Empirical evidence from African mobile telecoms markets indicates that 90% of changes in consumer taxes are passed through to consumers while 85% of changes in operator taxes are passed through to prices.[93] In specific cases in the past, operators in Rwanda may have avoided passing full tax increases through to customers in an attempt to promote adoption. However, this is not sustainable in the long run.

The high level of taxes and sector levies impacts the affordability of mobile services. One of the key features of the mobile sector in Rwanda is high broadband network coverage but low rates of adoption. The problem of affordability of smartphones is one of the key drivers of this low adoption rate. Taxes on smartphones – particularly entry-level ones – contribute to this issue.

Further increases in consumer taxes will slow progress on digitalisation. This is particularly important for low-income households who constitute the next group of broadband adopters in Rwanda. It will make the purchase and use of smart devices even less affordable for this group.

Empirical evidence suggests that targeted tax breaks can be effective in encouraging entry-level smartphones. Imports of handsets into Rwanda were exempted from VAT for 15 years between 2010 and 2025. VAT of 18% was reintroduced from 1 July 2025. Market penetration of unique subscribers rose from 4% to 21% in that time. Without this tax exemption, prices would have been higher and broadband adoption would likely have grown more slowly. The effect of any policy that changes the prices of smartphones will evolve over time. The initial cohorts of adopters were typically middle and higher-income groups, particularly in urban areas. These customers are less price sensitive than low-income households. A blanket VAT exemption would have a limited impact on the purchasing behaviour of this customer group. However, the large current usage gap is primarily in the low-income and rural population who are extremely price sensitive. Prices changes resulting from the reintroduction of VAT, even if limited to entry level devices, will affect these customers directly.

Tax exemptions targeted at entry-level smartphone devices have had an effect on customer behaviour in other countries. Other countries in Africa have experimented with tax exemptions for digital services. This indicates that such changes in tax rates have a material impact on customer behaviour (Table 15).[94]

Table 15
Targeted tax exemptions on entry-level smartphones in South Africa.

Case study: South Africa removed excise duty on smartphones priced below ZAR 2,500 (USD 156)

The government removed the 9% excise duty on cheaper smartphones on 1 April 2025. The aim was to improve affordability and incentivize low-income households to start using mobile broadband.

The tax exemption brought entry-level smartphones at the same price as some feature phones. Sales of entry-level smartphones increased by 49% between March and July 2025. At the same time, sales of feature phones fell 40%.

93 World Bank 2022: Using Geospatial Analysis to Overhaul Connectivity Policies.

94 "Real connectivity progress requires affordable devices", IT Web, 2025 "Cheaper smartphones can close Africa's digital divide, says GSMA", African Business, 2026.

Tax incentives targeted at entry-level smartphones can be effective in improving affordability for new digital adopters. The difference in price between entry-level smartphones and higher end devices is very large. This means that, although the majority of smartphones sold in Rwanda can be considered as entry-level, the proportion of revenue generated by these sales is lower than the share of the units sold. Reduction or removal of VAT on entry-level devices would therefore have a smaller impact on total tax revenue collected than the exemption of all devices. Further, any loss of tax revenue that would arise from such an exemption would be offset by the increase in tax revenue generated by higher levels of usage of mobile services. In addition to this, the increased productivity driven by accelerated digitalisation across different sectors of the economy will result in further offsetting increases in tax revenues.

What is an entry-level smartphone?
In Africa, GSMA works with leading mobile operators, Airtel, Axian Telecom, Ethio Telecom, MTN, Orange, and Vodacom, to accelerate digital inclusion across Africa as part of the GSMA Handset Affordability Coalition. Recognising that smartphone affordability remains the key barrier to mobile broadband adoption, the initiative engages with manufacturers and technology companies to bring a 4G enabled low-cost device.
GSMA estimates that a $40 smartphone could enable 20 million people in Sub Saharan Africa online. At the current global market, entry-level smartphones are considered to be those priced below $100.

Further data on the impact of the reintroduction of VAT on handset imports would assist the government in making an evidence-based decision on tax policy in the mobile sector. The government is committed to making policy decisions informed by evidence. There is empirical evidence on tax pass-through rates and consumer demand responses from other African countries but there is need for further research in Rwanda. The progressive increases in excise taxes on the sector over recent years and the reintroduction of VAT on handsets in July 2025 provides an opportunity to study the effect of these policy changes on the Rwandan market. If this evidence is consistent with data from other countries and finds that consumers are sensitive to tax-induced price changes, it would support the reconsideration of the policy to increase the overall burden of taxes and levies on the sector. The analysis of customer behaviour must also consider the effective price increases, as the recent tax changes have not been fully passed to end consumers.

Recommendation 2.1 – Analyse the impact of the reintroduction of VAT on devices and the increase in excise taxes

- ☑ It is important that policy changes are rooted in evidence and reflecting Rwanda's specific context. The VAT in Rwanda would have been back in place for a year in July 2026. There has been a progressive increase in excise taxes applied to the sector in recent years and further increases are planned.
- ☑ It is recommended that data is collected and analysed on the impact of these measures on prices paid by customers and their demand response. This will provide the evidence base that the government needs to make an informed decision on future tax policy for the sector.
- ☑ If this analysis indicates that consumer decisions are adversely affected by these changes in tax policy, it is recommended that the government reconsider the decisions to reintroduce VAT and raise the excise tax levied on the sector.

3.3. Public policy

3.3.1. Affordability

Operators have undertaken several initiatives to support digital adoption. This has included reducing the price of devices, making consumer finance available to customers and targeting low-income households with entry-level devices (Table 16).

Table 16
Operator initiatives to promote smartphone adoption.

MTN

- **MTN launched smartphone financing options: the Macye Macye, and subsequently the Tunga Taci initiative in cooperation with fintech Yellow**
- **MTN partnered with stores to offer customers a dedicated MTN space in areas where MTN does not have own presence**
- MTN offers a trade-in program for smartphones
- Airtel offers a smartphone bundle with larger upfront cost and monthly subscription

airtel

- Airtel's Imagine 4G smartphone targets entry level demand.
- Partnership with Watu credit company to buy now pay later

GSMA

- **Handset Affordability Coalition aims to bring $40 4G enabled smartphone to 6 markets and to accelerate digital inclusion.** The proposed requirements set baseline specifications for memory, RAM, camera quality, display size, battery performance and other features to ensure a viable, long-lasting 4G smartphone experience at a significantly reduced cost.

There have been several previous attempts at promoting device ownership. In its first year, the Macye Macye programme distributed 120,000 smartphones. However, it was subsequently closed and replaced with the Tunga Taci initiative. Financing schemes generally faced customer distrust stemming from high perceived financial risk.[95]

Government has also played an active role in encouraging smartphone uptake. The Connect Rwanda public-private partnership distributed 20,000 smartphones to low-income households. The Connect Rwanda 2.0 programme was focused on providing affordable smartphones. IKOSORA+, an affordable enabled 4G smartphone was launched in 2024 and builds on the previous IKOSORA 3G. The Device Access Fund under World Bank-funded Rwanda Digital Acceleration Project aims to start subsidies for smart devices and data bundles during 2026.

The Ministry of Agriculture recognised that the rural areas do not fully benefit from existing digital agricultural initiatives due to lack of access to devices and the expansion of access to affordable devices for farmers was identified as a strategic priority.[96]

Past initiatives targeting only the ownership of devices have proved to be unsustainable. The 2008 subsidy programme distributed handsets to the rural population. Most of these were subsequently found to be registered in urban centres and are thought to have been sold. This illustrates one of the challenges of increasing digital adoption in a sustainable way. Subsidising devices without a) ensuring financial sustainability for the owners; and b) ensuring that they see the benefit of ownership, will be unlikely to succeed in raising digital adoption rates.[97]

95 Accelerating Smartphone Adoption in Africa, GSMA, 2025.
96 Fifth Strategic Plan for Agriculture Transformation (PSTA 5), Ministry of Agriculture and Animal Resources, 2024.
97 "The Effect of Network Adoption Subsidies: Evidence from Digital Traces in Rwanda", Björkegren, D. and Karaca, B, Journal of Development Economics, 2022.

Device financing schemes offer a practical solution to overcome the lack of funds for initial device purchase while ensuring the commitment of customers. Successful initiatives need to respond to the needs of the rural demographics. Consumer research indicates negative perceptions around financing schemes, with respondents strongly favouring up-front cash payments for mobile devices. These reservations are particularly pronounced among agricultural workers and those without steady employment. Seasonal work makes income irregular and uncertain, making it difficult to commit to set monthly or daily device repayments.

Given its importance of this sector in the economy, financing schemes should be designed to cater to this group. The One Acre Fund in Kenya is an example of how flexible repayments can work for farmers in similar situations and the lessons learned from this scheme could be applied in Rwanda.[98]

Government should further engage with the private sector – both MNOs and consumer finance companies – to improve the design and promotion of schemes that will suit the Rwandan market.

The device financing ecosystem in Rwanda is still underdeveloped. The experience from other countries indicates that, with sufficiently low prices and innovation around device financing, it is possible to significantly boost digital adoption, even among very low-income households. The consumer financing ecosystem faces four key barriers described below. The government should work in partnership with the private sector to address the above barriers and promote the development of a healthy financing industry.

Case study: Kenya's One Acre Fund's flexible farm financing model
The system recognises the uncertainty and irregularity of future income smallholder farmers face. The loans can be repaid flexibly, both in terms of time and the amount available at the time. Only a fixed end deadline is given, and farmers can choose their own repayments. The loan is tied to farm inputs or assets, and repayments are aligned to farming seasons.

Table 17
Barriers to financing schemes.

Barrier	Detail	Recommendation
Unreliable income streams	The majority of the target population works in agriculture. The sector is characterised by seasonal variability in incomes as well as its sensitivity to climate events. Agricultural workers are less likely to be willing to commit to monthly repayment plans because they pose too much risk for them.	☑ Introduce financing schemes aimed at seasonal workers. ☑ These should include flexible repayments tied to seasons rather than calendar days. ☑ Incorporate insurance and government guarantees to soften the impact of adverse weather and loss of output.
Cultural perceptions	People are wary of personal debt and prefer to pay for goods and services upfront.	☑ Develop educational and awareness campaigns together with private providers promoting understanding of the new targeted financing schemes.
Limited credit scoring infrastructure	The credit scoring system is underdeveloped which limits lenders' ability to reliably screen potential customers. The centralised CRB system is limited to information on loan repayment.	☑ Strengthen the existing credit scoring system by including other elements. This should include MNOs, utilities, agricultural input systems such as the SNS, and actors who collect information on borrowers.
Wholesale cost of financing	The profit margins are too low to attract lenders.	☑ Work with private providers to reduce the wholesale cost of financing by providing concessionary loans and loan guarantees. ☑ Encourage Development Finance Institutions to enter the segment.

98 "Flexible Repayment at One Acre Fund", One Acre Fund, 2015.

The need for establishing practical financing models to promote universal device ownership has been identified as a priority by the government. NST2 calls for cooperation with the private sector to develop financing options for smart devices in particular.

Subsidised financing could help reduce the cost and attract low-income customers. Financing becomes more expensive the less secure the borrowers are. The introduction of interest-free financing would reduce the effective cost of purchasing a smartphone. Such initiatives could be piloted and the results analysed to determine effectiveness. If evidence proves that this type of initiative significantly improves smartphones uptake, the government should consider promoting them among target population groups nationwide.

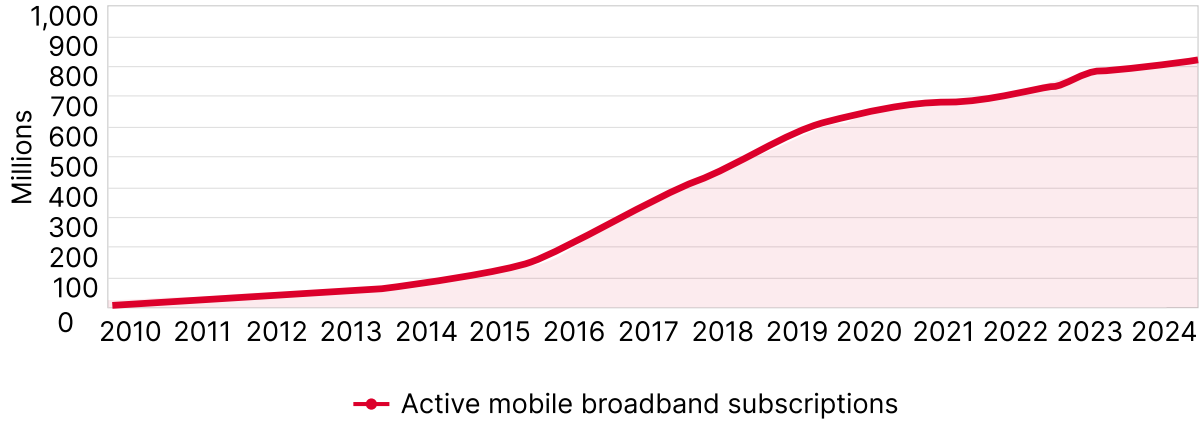
Financing incentives may overcome the affordability barrier if tied to usage. Unlike many other nations, Rwanda has the benefit of having implemented many adoption initiatives in the past, and is therefore in a position to incorporate the lessons from these initiatives into future programmes. Affordability remains the key barrier to adoption and financial incentives need to be developed to address the problem. Future initiatives should move away from one-off subsidies and focus on longer term support. This should encourage the use of specific applications in a way that promotes continuous usage and allows consumers to experience the benefits of mobile broadband, while contributing to the cost of the service.

Refurbished devices offer an alternative to accelerate smartphone adoption. Purchasing refurbished smartphones at a lower price overcomes the initial affordability barrier. Currently, formal retail outlets largely do not sell refurbished smartphones.[99] Policies promoting quality standards, guarantees and legitimised refurbished device sales could promote this area.

Kenya and India's experience shows that overcoming the initial affordability barrier has a lasting impact on the market. Kenya adopted a multi-step approach to overcome the upfront payment barrier. It reduced upfront device costs by introducing VAT exemptions that lowered the initial costs for new subscribers. Operators introduced low-cost devices to encourage ownership, notably the Neon 3G and Neon 4G smartphones, and financing programmes such as Lipa Mdogo Mdogo encouraged migration of customers to 4G. The result was a significant growth in smartphone adoption and usage, even among low-income households.

India's rapid digitalisation demonstrates that prices are the key driver of mobile internet uptake. The launch of Reliance Jio introduced effectively free services and internet enabled devices. Low data prices allowed for rapid growth in mass usage which was subsequently sustained (Figure 35).[100] [101]

Figure 35
Active mobile broadband subscriptions in India, 2010-2024.



Source: World Bank

99 Accelerating Smartphone Adoption in Africa, GSMA, 2025
100 "Reliance rattles Indian telcos again by unveiling 'free' 4G phone", Reuters, 2017.
101 Note that the affordability measures were not run in isolation. Both Kenya and India simultaneously rolled out mass scale digital literacy programmes.

Recommendation 3.1 – Work with private-sector to expand financing initiatives for devices, targeting the rural population

The most sustainable way of expanding access to smartphones in Rwanda is through private-sector led initiatives to lower prices, expanding financing and create other mechanisms to improve affordability.

Although these are best led by the private-sector, the government has an important role to play in supporting and accelerating the programmes. This includes:

- ☑ Subsidising financing mechanisms for target groups of the population. These should focus on groups of the population who are likely to find value in using mobile broadband and will be able to sustain the cost of operating them. This could include zero percent financing for specific target customer groups.
- ☑ Supporting the consumer finance players through lower financing costs, loan guarantees and other forms of upstream assistance to the sector.
- ☑ Expanding the existing credit scoring system to include more information about borrowers and to increase the coverage of users in rural areas and those outside of the formal economy.
- ☑ Educational advertising campaigns to promote the use of financing schemes and address any cultural barriers to adoption.

It is recommended that the government works with the private-sector to develop an agreed plan of action to implement these initiatives.

3.3.2. Digital skills

The national economic development strategy prioritises the need to increase digital skills. Lack of digital skills and confidence to use them translates to limited meaningful online engagement. Rwanda's government set an ambitious objective to increase digital literacy in Rwanda from 53% in 2024 to 100% by 2029 (NST2) to support its objectives of accelerating the transformation towards a knowledge-based economy.

Rwanda has had success in implementing digital literacy programmes. The Digital Ambassadors Program (DAP) has trained around 6.5 million citizens in basic digital literacy and the use of digital services since 2017.[102] Private initiatives also focused on digital literacy with MTN and Airtel teaming up with the GSMA on the We Care digital inclusion initiative.

The GSMA Mobile Internet Skills Training Toolkit (MISTT) was used by Tigo Rwanda in 2017 in the Kigali-Kicukiro, Kigali-Gasabo, Musanze, Muhanga, Ruhango districts. The programme trained sales agents who in turn educated 250,000 customers on mobile internet use. The aim was to drive mobile internet uptake alongside promoting digital skills.

The impact was particularly high in rural areas, where customers reported that use of internet helped them to connect with the world by accessing news, information and job opportunities. 77% of customers who participated in the training increased their data usage following the pilot (Figure 37). 31% of customers recorded usage increasing by 100-500%.[103]

102 Digital Ambassadors Program (DAP), RISA.

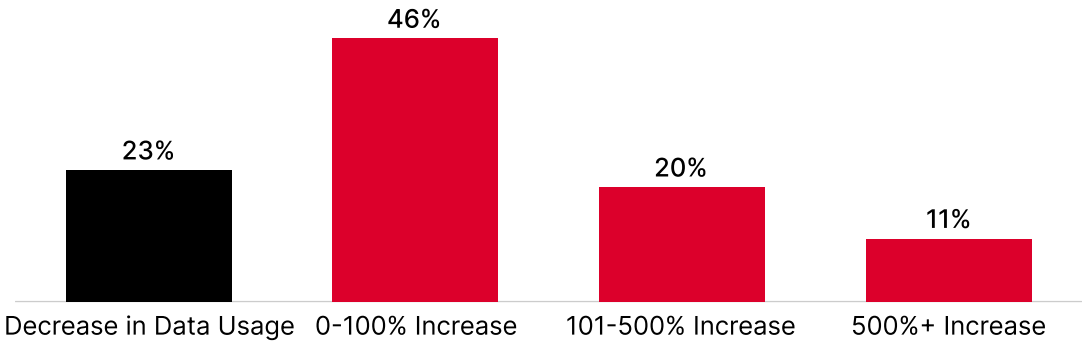
103 Mobile Internet Skills Training Toolkit: Tigo Rwanda Pilot Evaluation, GSMA, 2017.

Figure 36
The GSMA Mobile Internet Skills Training Toolkit (MISTT) mission.



Source: GSMA MISTT

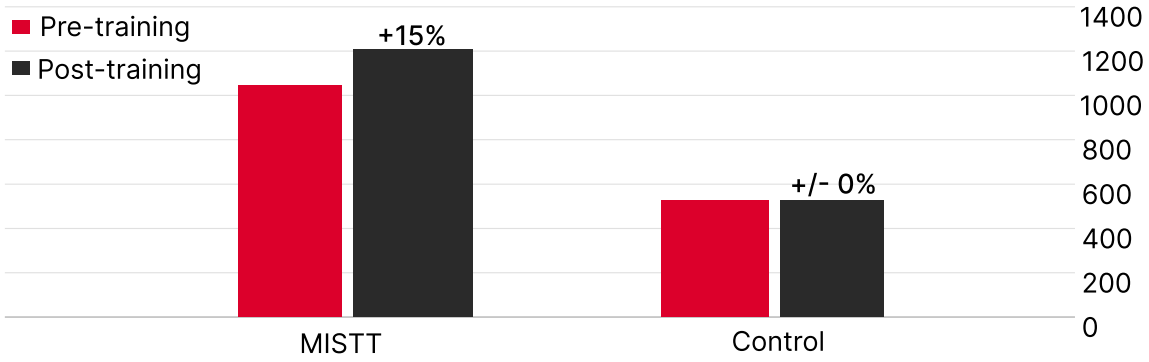
Figure 37
Percentage change of customers who decreased/increased their data usage post MISTT training.



Source: GSMA MISTT

New mobile data subscribers increased by 15% following the MISTT training (Figure 38).

Figure 38
Data subscriber growth - MISTT trained customers versus control group.



Source: GSMA MISTT

The MISTT experience also shows that the impact of digital literacy programmes is not limited to the direct beneficiaries. Participants in the programmes typically share what they have learnt with friends and family. This creates a ripple effect across communities that expands the impact of the programmes.[104]

International experience shows digital skills programmes are a necessary component of digital transformation. DigiSchool, a digital literacy programme in Kenya, focused on building the foundational skills and familiarity with internet enabled devices in primary education. It provided over 1 million devices, including tablets for students and laptops for teachers, together with teacher training. By 2023, 99.6% of public primary schools in Kenya had access to digital devices.[105] India's large scale rural digital literacy programme, Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA), was launched in 2017 and helped rural population to build digital skills and confidence, hoping to stimulate demand for mobile data.

Despite previous efforts at promoting computer literacy in Rwanda, the overall level remains low and is unevenly distributed across the population. On average, women have lower levels of computer literacy than men and levels in rural areas are much lower than in urban areas. There is also a difference in age groups with the younger cohort of the population reporting significantly higher levels of digital literacy. Only 3.4% of the rural residents over 31 years old are considered to have computer literacy (Table 18).

Table 18
Computer literacy skills in Rwanda.

	15–24 years	16–30 years	31 years and above
Rwanda	15.6%	18.2%	9.0%
Sex			
Male	16.5%	19.9%	12.2%
Female	14.7%	16.6%	6.4%
Area of residence			
Urban	27.8%	32.1%	24.2%
Rural	10.3%	11.3%	3.4%

Source: National Institute of Statistics Rwanda

Initiatives to promote digital adoption should focus on making mobile internet relevant to the daily lives of people who do not currently use the internet. Programmes should combat the belief that 'internet is not for me'. The target population is not a homogenous group, and the needs and interest of particular socioeconomic groups should be considered. Demonstrating the value of smartphone ownership to people in their daily lives is what will drive smartphone purchase and active usage of mobile data. Digital skills training may initially focus on a particular application but should eventually introduce participants to a wider range of use and build their confidence to explore further. Private and government led initiatives should strive for coordination and integration where possible to reach maximum impact.

104 Mobile Internet Skills Training Toolkit: Tigo Rwanda Pilot Evaluation, GSMA, 2017.
105 "DigiSchool", Education Above All's Public Policy Observatory, 2023.

Table 19
Digital literacy barriers and recommendations to overcome them.

Barrier	Recommendation
Uneven progress across demographic groups	☑ Focus on rural, lower-income segments of the population. Initiatives should use applications relevant to the target customers' lives, such as e-government and digital agricultural apps. ☑ The aim must be to demonstrate the value of having and using a smartphone.
Future proofing	☑ While the younger cohort demonstrates consistently higher levels of digital literacy, this should not be a sign to reduce the pace of youth educational programmes. ☑ Highlight the job opportunities that digital literacy can bring them.
Computer versus smartphone literacy	☑ Programmes should focus on individual smartphone usage as opposed to computers. Accessible entry-level smartphones should be promoted while teaching
Incentivise smartphone ownership	☑ Evidence suggests that participants of educational programmes are more likely to purchase a device and start using it following the completion of the programme. This should be further incentivised by partnering with mobile operators to prepare offers for the participants.

Recommendation 3.2 – Promote digital literacy programmes that target rural population's individual needs and drive active adoption

☑ Digital literacy programmes should build on the foundations of the success of programmes such as the Digital Ambassadors' Program (DAP) and should be centred around the ability to use applications that are directly relevant to the priority customer group - lower income rural households. These should be applications that are relevant to and can be used in their daily lives.

☑ E-government, health and agricultural applications are examples but entertainment, culture and religious applications are also in high demand in rural areas and they can be a key driver of digital adoption.



3.4. Stimulating demand for digital

The digital ecosystem is currently focused on urban dwellers. The needs of the rural population are different and these are unmet by the current digital offerings. Locally relevant content should focus on the issues critical to the rural population and need to be as accessible as possible.

There is growing experience from Rwanda and around the world of using digital channels for public services. During the Covid-19 pandemic, the Rwandan government ran a campaign to promote cashless payment systems to minimise the spread of the virus. During a 3-month period, charges on transactions between bank accounts and mobile wallets were eliminated, mobile transfers were free, merchant fees on contactless payments were removed, and limits on mobile money transfers were increased. This resulted in a significant increase in the level of digital payments over the period.[106]

Policies should encourage and not hinder the growth of a robust content ecosystem. Data privacy policies in particular need to balance safety with support to the industry to host global digital content partners through cloud services in order to drive usage.

In other countries, e-government services have created incentives for people in rural areas to get access to broadband. Migration of existing support programmes to digital platforms benefits all stakeholders. It improves the performance of the programmes while also incentivising digital adoption. ZIAMIS in Zambia illustrates the potential benefits such initiatives bring.[107]

Case study: Zambia's Integrated Agriculture Management Information System (ZIAMIS)

ZIAMIS is the government's integrated platform for e-vouchers, e-registers, e-extensions and advisory services which aims to drive efficiency and transparency in agricultural support. The electronic register covers 4.3 million verified and traceable farmers. Each farmer, cooperative and vendor gets unique digital ID, which improves traceability and compliance. Over 1 million farmers, 22 suppliers and 1200 agro dealers actively participate annually. The transactions are fully tracked and verified.

The digital platform brought significant improvements to the system. Farmers receiving digital advisories and e-extension services recorded up to 60% higher maize productivity.

The platform operates on Android or Windows applications, but basic functionality can be accessed via SMS and USSD. This overcomes connectivity issues in poorly connected areas. The SMS and USSD is used for basic access and essential updates but the full suite of services can only be accessed via a broadband-enabled device.

Renewed emphasis on digital-first government services that incentivize broadband adoption is needed. The Rwandan government has made extensive efforts to digitalise government services and make them available to the population via smartphones. These have been successful with increases in transaction volumes, improvements in efficiency, public-sector productivity and transparency. The initiatives provide an additional incentive to adopt broadband since it provides access to better quality services compared with the traditional manual process.

However, many of the existing initiatives benefit primarily urban-dwellers and those on higher incomes (e.g. driving licenses, passport applications etc.). The impact of this type of application on digital adoption in rural areas is therefore likely to be more limited.

106 Access to Finance Rwanda, Digital Transformation of Livelihoods Research Study, 2021.

107 "Driving Regional Resilience Through Digital Agriculture: Lessons from Zambia", Food and Agriculture Organization of the United Nations, 2025.

The SDID provides a means of accelerating the development of the digital ecosystem. This is the type of initiative that has the potential to transform the way ordinary Rwandans use mobile broadband in their daily lives. The SDID is already used by many government apps such as the Ejo Heza Long-term saving scheme and others. A central ID with biometric security could facilitate access to a wide range of government services. The private sector should adopt the same approach to enable secure authentication to its apps. The centralisation of a single authentication system would offer a service that is reliable, transparent and quick to use.

Phone sharing and access via agents are prevalent in rural areas. GSMA survey data suggest that people in rural areas often prefer face-to-face contact with an agent over self-service. Digital financial services, which are an important driver of mobile data adoption, can often be accessed via digital agents. Phone sharing is particularly prevalent in rural communities and it provides an opportunity for low-income groups to access smartphones and appreciate the services they can access in a low-cost and low-risk way. But it does have implications for the way that digital services are designed. E-government and other services should be developed on the basis that many users access services via shared phones. Phone-sharing should be considered as an intermediate step towards digital adoption by individuals.

USSD-based services continue to deliver critical content to low-income rural populations. Mobile money services have successfully been provided via USSD, enabling transactions on 2G phones and not requiring mobile data. This has allowed delivery of services to otherwise marginalised populations. USSD continues to be a critical infrastructure for low-income, rural population that cannot access smartphones. It has made mobile financial services available to a large majority of the population but dependence on this technology has constrained demand for broadband which can deliver additional functionalities. Users must see significant additional value in broadband, over and above what they can achieve from USSD-based services, if they are to migrate to smartphones and broadband.

Future digital government initiatives should be designed to incentivise the use of smartphones and broadband rather than USSD-based services. In doing so, it is important to ensure low-income population groups do not become marginalised due to lack of smartphones. Careful attention needs to be given to the balance between incentives to migrate to broadband and the disadvantages faced by people who do not have access to those devices. It is recommended that USSD based systems are reviewed and where possible, non-basic functions migrated to mobile data.

Effort is required to enhance the digital content ecosystem for rural users in Rwanda. Content targeted at rural users should be developed and promoted so that they see greater benefit from adopting digital. 2G phone penetration is relatively high among rural users so they have access to basic communications services but lack access to the richer set of content that is available via broadband. If more such content is developed, the incentives for this type of user to migrate to broadband will increase.

The Smart Nkunganire System is widely used by farmers across Rwanda. The basic functionality is available over USSD and it is important that it remains so to ensure inclusion. Farmers can register, order inputs that they require, and receive information on the fertilisers, seeds and subsidies for their farms based on the information they entered. The app or web-based platform offers much richer customer experience. Agro-dealers with large orders can manage inventory, follow orders, and record sales. Public as well as private stakeholders can access dashboards and reports to systematically track registrations, orders and deliveries.[108]

108 Enabling Environment Dynamics for Scaling Digital Agriculture: Institutional, Policy, and User Perspectives on Rwanda's Smart Nkunganire System (SNS), International Potato Center, 2025.

The design of the SNS system should be reviewed and assessed to see what functionalities could be further developed as internet only. This could include a range of areas of the system:

- The SNS already supports cashless payments and digital subsidies management. Further integration with the financial system should be promoted. Agricultural insurance, credit scoring companies, and other financial institutions could provide better service to the clients if they could access SNS data.
- Farmers could be provided with interactive, personalised advice. The basic messages and alerts should remain available over USSD but users who choose to use the mobile app should benefit from advice that takes into account their farms' past yields, crop diseases, soil condition, weather patterns, local logistical and societal conditions.
- Advanced ordering functions should be expanded. Farmers should have the visibility of supplier stock to decide on suitable order quantities. They should also be able to edit their orders and track deliveries in real time.
- Market comparison. Farmers could compare agro-dealers' current offers to choose the best combination of price, quality and delivery timelines.

Mobile financial services have the potential to attract new customers to mobile internet due to the personalised user experience it can deliver. Mobile money has had a widespread impact across rural communities in Africa. Currently, most of the core wallet functions are available over USSD. This could be reviewed to see whether there is potential to add more internet-based advanced functionalities to incentivise users to adopt mobile broadband (Table 20).

Table 20
Proposed mobile money functions by technology.

Basic functionality required over USSD	Advanced functionality accessed over mobile data
Cash deposits	Transaction history downloads
Cash withdrawal	Virtual cards
Transfers between persons	Online purchases
Check of balance	Personalised services – pre-filled payment, saved profiles etc
Airtime top up	Status tracking
Merchant payment	Advanced security such as biometric passwords
Essential utilities payments	Tickets for events
Essential government payments such as taxes IremboGov fees	
Bank transfers	
International transfers	
QR merchant and government payments	

Source: GSMA Analysis

In all cases, users should be incentivised to migrate to mobile broadband, but basic functionality should continue to be provided over USSD. The tiered system should be expanded, where users with mobile broadband connection can access more advanced functionalities. These can include real life status tracking, full self-service applications, personalised advisory content and integration with other government apps. The idea of a tiered system has been suggested by CGIAR in the agriculture apps which are already widely used among Rwanda's farmers. It would allow for more innovation and personalisation of recommendations suited to their different needs.[109] This is in line with the NST2 objective of promoting transition from USSD to mobile broadband.

Mobile money provides a unique opportunity to connect marginalised communities to Rwanda's financial ecosystem. It is important that mobile money policies keep inclusivity in mind and promote, rather than hinder access. Interoperability between individual mobile money schemes is likely to improve access and to grow the industry over time. However, this needs to be balanced with the costs and complexities to implement. Market context and characteristics of existing financial infrastructure determine the optimal scope for interconnection. As such, commercial agreements offer greatest potential for success.

The use of Kinyarwanda as a default application language should be extended to make user experience more relevant to a wider population, particularly in the rural areas. If customers are to use mobile broadband on a daily basis, the content available to them needs to be made as accessible as possible. The lack of availability of content in the local language has been raised as a key concern among users, particularly in rural areas. While apps such as Irembo are available in Kinyarwanda, many private sector apps are not. The government should promote the use of local language across all mobile apps, from communication and social media platforms to information, entertainment and business apps.

Limiting the import of 2G and 3G devices into the country may have a role to play in promoting digital adoption. The customs clearance and type-approval process allows government to control the development of the device ecosystem within the country. Although the 2G and 3G sunsetting strategy is still under development by the government, it is clear that the primary broadband technology needs to be migrated from 3G to 4G as soon as possible in order to free up spectrum. As 4G device costs have fallen globally, there is no longer a clear need for large numbers of 3G-only devices to be imported into the country. The government could therefore consider its approach to type-approval and customs clearance of such devices and reduce the number of them entering the country. This would help accelerate the transition to 4G. However, it is important that the import controls are aligned with sunsetting plan to cater for existing 3G user base and prevent exclusion of low-income users. The treatment of 2G devices in particular requires careful consideration as a large share of the population are still dependent on 2G services for both mobile communications and mobile financial services. It is therefore unlikely to be feasible in the near term to dramatically reduce the number of 2G handsets entering the country without undue harm to consumers. However, in developing the technology sunsetting strategy, the government should consider ways in which it can encourage the transition from 2G to 4G devices.

109 Assessing Delivery and Business Models for High Impact Digital Solutions at Scale: The case of Rwanda Smart Nkunganire System (SNS), International Potato Center (CIP), International Institute of Tropical Agriculture (IITA) & International Livestock Research Institute, 2024.

Recommendation 4.1 – Review dependence on USSD based systems and explore potential for migration to mobile broadband-based applications

Digital apps should be reviewed and assessed as to the potential for migration to mobile broadband. Basic functionality of each service should be preserved over USSD to ensure inclusion. Advanced, personalised experience should be offered over mobile data and promoted to users.

Recommendation 4.2 – Design digital government initiatives to incentivise migration to broadband, particularly among rural users

Accelerate programmes that target the rural population. Focus on integration of the systems with the Single Digital ID as a national authentication platform, both in the public and the private sector.

Recommendation 4.3 – Extend use of Kinyarwanda as a default application language to make content more accessible for the rural population

Content must be relatable and perceived as relevant to the target customer group. Kinyarwanda is the prevalent language among the rural populations, and lack of apps in the local language presents a barrier to adoption. Kinyarwanda should be considered a default language alongside those currently used.

Recommendation 4.4 – Review the type-approval and customs clearance processes in order to incentivise the migration to 4G

Review the current approach to type approval and customs clearance as part of the government's strategy on 2G and 3G sunsetting. Adopt an approach that incentivises the migration to 4G devices without unduly burdening 2G mobile users.

4. Impact analysis



4. Impact analysis

The challenge of increasing levels of digital adoption in Rwanda has multiple dimensions. The underserved population is living mainly in rural areas, has limited disposable income and does not view mobile broadband as adding enough value to justify the spend, both in terms of upfront device costs and ongoing data bundles. The affordability of smartphones is a key barrier, as without an internet enabled device, demand stimulation initiatives cannot have a meaningful impact. On the other hand, the availability of devices does not guarantee usage, as past experience has demonstrated.

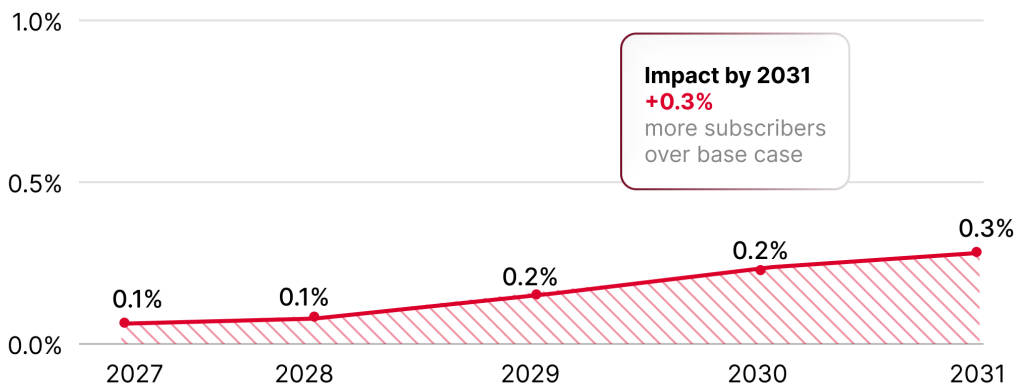
This report has discussed each barrier and recommended practical policies to address each of them. This section presents the results of the impact analysis of the recommendations presented earlier. The scenarios are first presented individually to isolate the impact of each. This is followed by the results of a combined scenario. The current GSMA forecast of mobile internet subscriber growth is the base case which all scenarios are measured against.

4.1. Scenario impact

Scenario 1: Reduction in electricity costs

The recent increase in electricity tariffs inflates the operating costs that MNOs face. Evidence suggests that 85% of the cost increases are passed onto end customers in the form of higher prices. If the tariffs were reversed to pre-October 2025 levels, and operators would not need to bear the higher prices, customers could benefit from lower mobile data prices. Lower prices make the services more accessible to wider population. The reduction in data prices is projected to lead to **an additional 12,326 unique mobile internet subscribers** by 2031.

Figure 39
Impact of the reduction of electricity costs on unique mobile broadband subscribers, 2027-2031.

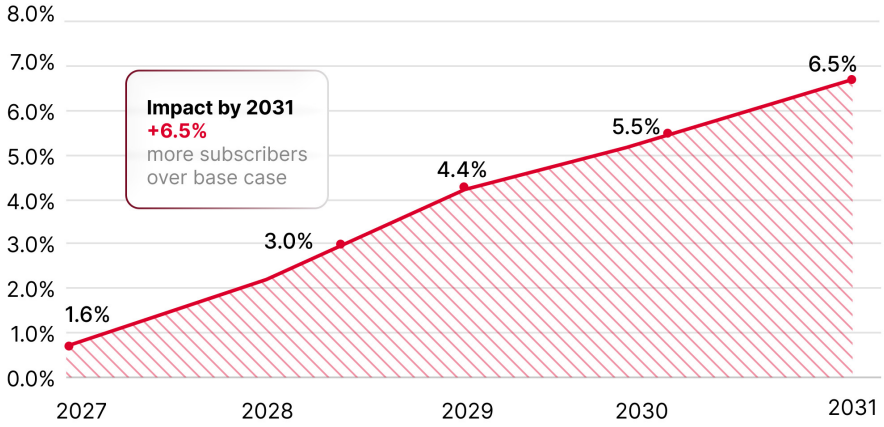


Source: GSMA Analysis

Scenario 2: Targeted reduction in taxes

This scenario models the potential impact of removing VAT on entry-level handsets and a reduction of excise duty to 10%. In practice, the introduction of this policy would be subject to comprehensive analysis of data on customer behaviour from the recent policy changes, namely the reintroduction of VAT and gradual increase of excise duty. The scenario models a situation where this evidence support the conclusion that lower-income customer groups are price sensitive and tend to adjust their decisions on smartphone ownership in line with price changes. Removing VAT on entry-level smartphones would reduce the cost of devices for the target group of end consumers. Reduction of excise duty to 10%[110] throughout the modelling period would likewise reduce the costs of smartphone ownership. Overall, implementing the recommended tax policies is projected **to increase the number of unique mobile internet subscribers by 315,946 by 2031.**

Figure 40
Impact of targeted tax reductions on unique mobile broadband subscribers, 2027-2031.



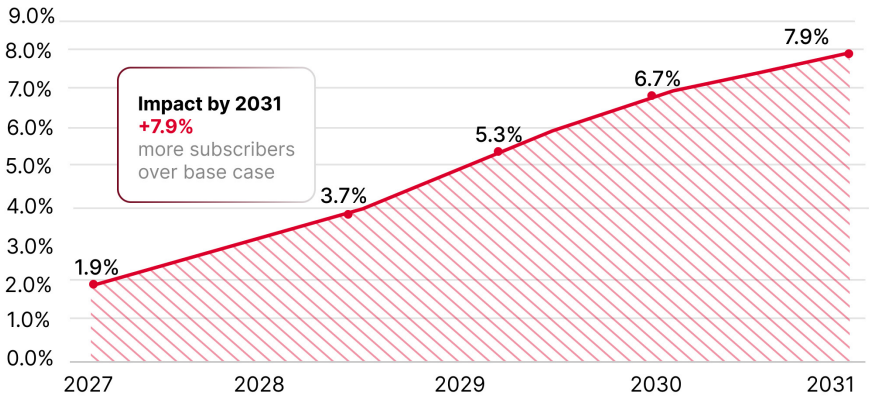
Source: GSMA analysis

Scenario 3: Improved handset affordability

Handset affordability remains the key barrier to mobile broadband adoption. This report discusses a number of policies that could reduce the cost of devices for the target population.

A 20% reduction in handset costs would result **in 383,900 unique mobile internet subscribers** by 2031, which represents a 7.9% increase in the subscriber base compared to the base case.

Figure 41
Impact of improved handset affordability on unique mobile broadband subscribers, 2027-2031.



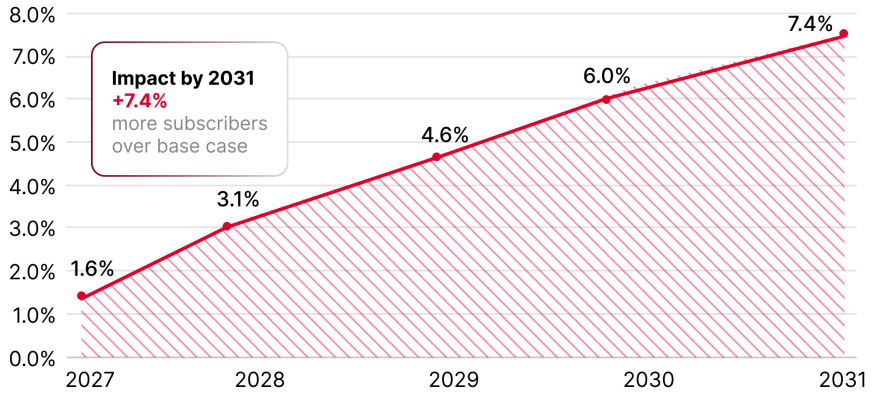
Source: GSMA analysis

110 Base case scenario considers excise duty at 12% from 2025 to June 2026, 14% between June 2026 and May 2027, and 15% from June 2027 onwards.

Scenario 4: Demand stimulation

This scenario estimates the potential effects of demand stimulation policies. It assumes that Rwanda implements the initiatives with the aim of closing the mobile penetration gap between Rwanda and Kenya by 50% by 2031. The impact of such policies would be **an increase of unique mobile internet subscribers by 358,765** by 2031. This is a 7.4% increase over the base case.

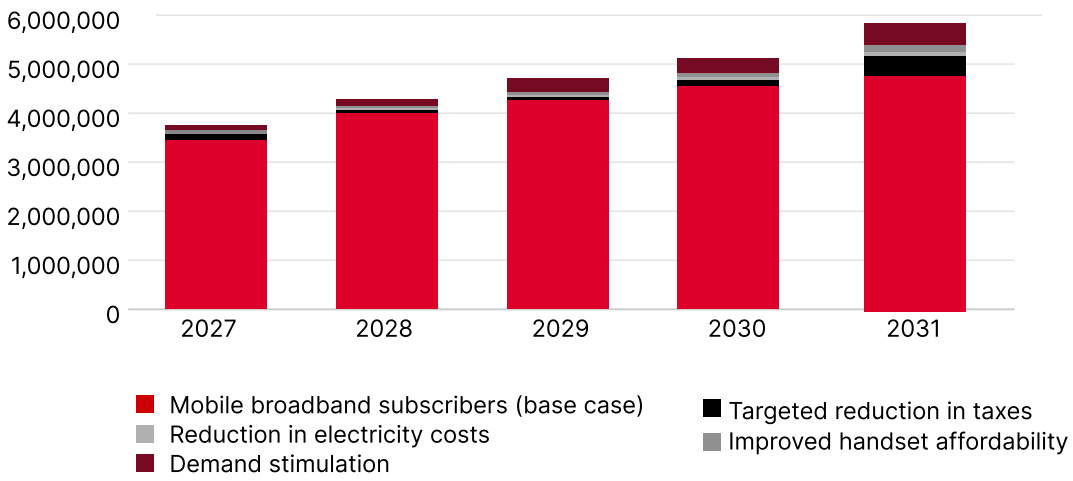
Figure 42
Impact of demand stimulation on unique mobile broadband subscribers, 2027-2031.



Source: GSMA Analysis

Figure 43

Impact of policies on mobile internet subscribers, 2027-2031.



Source: GSMA analysis

4.2. Combined impact

Implementing all of the recommendations would result in over 1 million additional unique mobile internet subscribers by 2031. The proposed policies target both the customers' ability and willingness to pay, as well as the mobile operators financial sustainability.

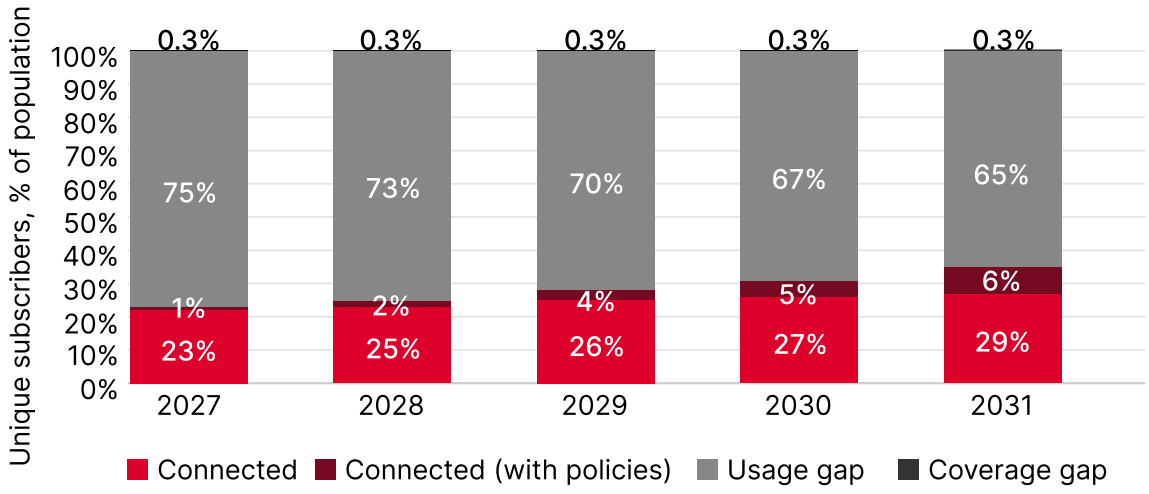
The modelling suggests that the overall impact of the policy recommendations would lead to an additional 1,070,938 unique mobile internet subscribers, 22% more than the base case.

Table 21
Combined impact of policy recommendations.

Scenario	Additional unique mobile internet subscribers vs base case, 2031	Percentage increase over base case, 2031
Scenario 1: Reduction in electricity costs	12,326	+0.3%
Scenario 2: Targeted reduction in taxes	315,946	+6.5%
Scenario 3: Improved handset affordability	383,900	+7.9%
Scenario 4: Demand stimulation	358,765	+7.4%
Combined impact	1,070,938	+22.1%

Source: GSMA analysis

Figure 44
The impact of policy recommendations on the usage gap, 2027-2031.



Source: GSMA analysis

4.3. Impact on government revenues

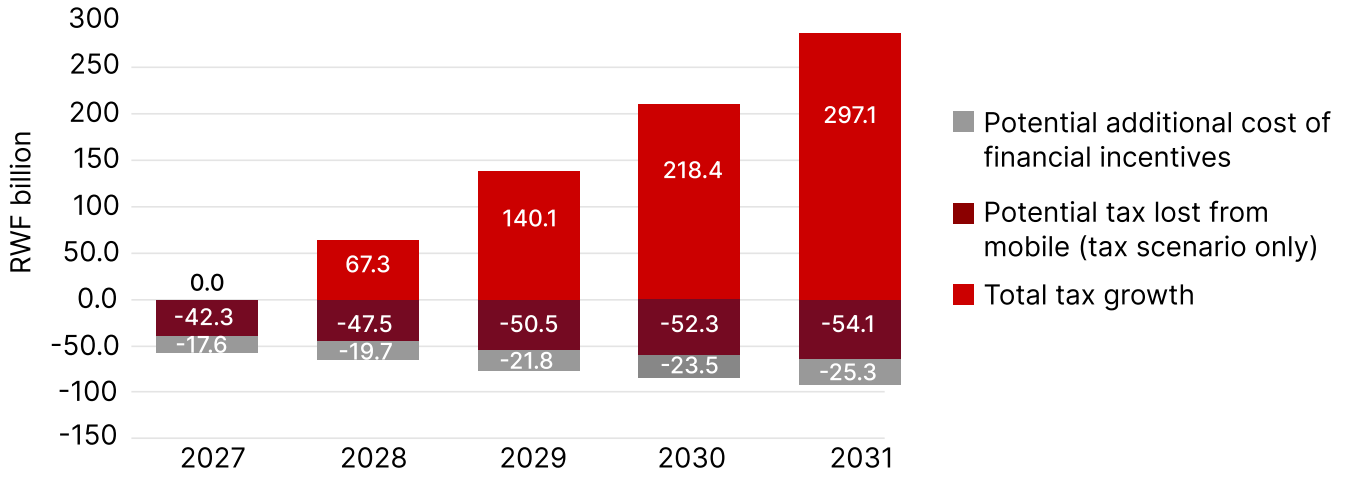
These recommendations would reduce the amount of tax revenue generated directly from the sector. The reduction of excise duty and removal of VAT on entry level smartphones would decrease the direct government tax revenue. However, the tax loss on VAT is projected to be moderate because the purchase price of entry level smartphones is low (below $100). Government revenue would further decrease due to the reduction in electricity tariffs. The financial incentives designed to improve device affordability would also incur some costs however, it is expected that these would be borne jointly by public and private players.

This cost would be more than compensated for by the increase in tax revenue arising from the growth in the mobile sector. The growth of subscribers and mobile internet usage would generate increased tax revenue which would partially offset the loss arising from the reduction in tax rates.

Government revenues would further grow as a result of productivity increase and GDP growth. Mobile broadband adoption feeds through into an expansion of the digital economy and subsequently other sectors. Digitalisation improves productivity through faster access to information, markets and payments. This in turn translates to higher economic output. As the economy's productivity increases, so do government revenues. The growth of the economy would more than compensate for the reduction in direct tax revenues generated by the mobile industry.

The positive impact on government revenues is greater than the additional costs. Additional annual tax revenues generated by these positive effects would reach RWF 297 billion by 2031. The loss of tax revenue from excise duty decrease and removal of VAT on entry level smartphones would be RWF 54 billion. The cost of direct financial incentives and electricity subsidies is estimated to be RWF 25 billion
(Figure 45).

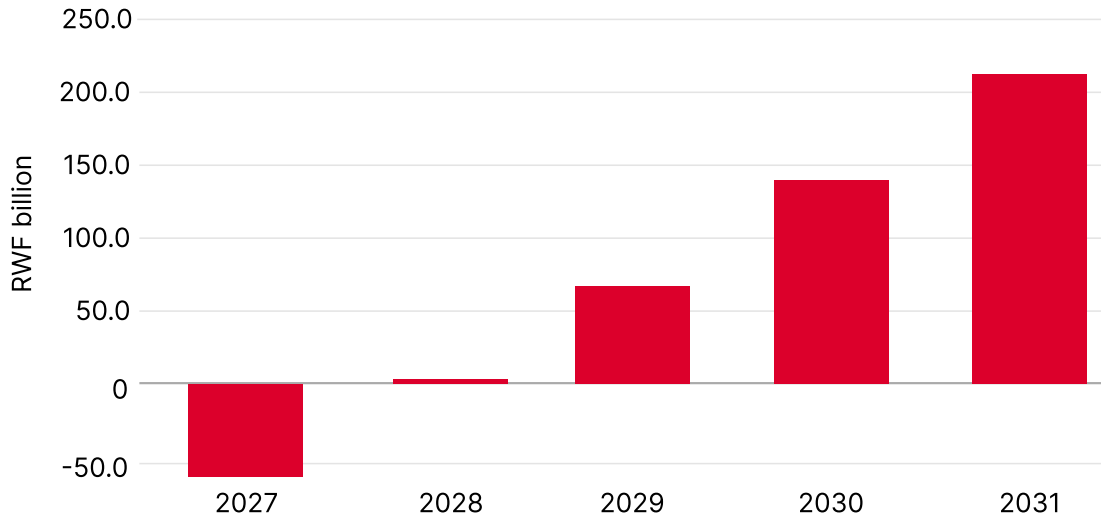
Figure 45
Impact of policies on government revenues, 2027-2031.



Source: GSMA analysis

These policy recommendations would have a net positive impact on government revenue. The net annual financial benefit to government would be RWF 218 billion by 2031. While the revenue is expected to be negative in the first two years, this is expected to change in 2028. By 2031, the net positive impact is projected to reach RWF 218 billion. The negative impact in the first two years is more than offset by the positive impact in the later years (Figure 46).

Figure 46
The net impact of policies on tax collection, 2027-2031.



Source: GSMA analysis

5. Conclusion

Digitalisation has been a government priority in Rwanda for over two decades. It is an essential component of the national strategy of moving the country from one based on agriculture to one based on knowledge.

This focus has been successful in many areas. Rwanda has invested in the sector over this period and the result has been an almost universal level of mobile broadband population coverage. Rwanda is now one of Africa's leaders on 4G coverage.

Despite the infrastructure being ready, the rate of broadband adoption remains low. Increasing digital adoption in Rwanda is a top priority for the country. Without this, efforts to raise productivity and improve public services through digitalisation will not succeed.

Broadband has been widely adopted by higher-income households, mainly in urban areas. The next challenge is to expand adoption among the lower-income, rural population. Going forward, digitalisation policies must target this population segment and respond to the particular needs of the people.

Affordability of smartphones is one of the key challenges for lower-income Rwandans. Rwanda has some of the lowest data prices in the region but device affordability remains a problem. Experience with past initiatives showed that policies should focus on long term commitment as opposed to distribution of free devices. Developing the ecosystem of consumer financing that is suited to the rural population is necessary to overcome the challenge of high upfront costs.

Demand stimulation programmes should focus on the rural population. The rural population does not yet view mobile broadband as a necessity which responds to their specific needs. They are able to satisfy these needs with USSD based services on feature phones and agent-based access to broadband. Policies need to be carefully crafted to respond to the needs of the rural population while keeping inclusivity in mind. This requires government to work with operators to increase incentives for low-income households to migrate from USSD-based services and feature phones to broadband-based services.

This report has presented a range of policy recommendations which would boost the broadband sector in Rwanda. Implementing the policies proposed in this report could bring more than 1 million additional unique mobile internet subscribers by 2031. This would have a net positive effect on the Rwandan economy and provide a direct boost to its strategy for digitalisation. It would also have a net positive effect on government finances.

Annex – Methodology for estimating broadband adoption

Unique subscribers	Unique subscribers represent the number of individuals in a market who have access to and use their own mobile handset. Unique subscriber estimates are derived through a combination of consumer survey data and market-level mobile connection data, allowing subscriber penetration and multi-SIM ownership patterns to be reflected in each market.
Unique mobile internet subscribers	Mobile internet subscribers represent unique subscribers who use their mobile phone to access internet services. Estimates are derived from consumer survey data and are validated against market-level mobile internet connection data by technology generation.
Adult unique subscribers	Adult unique subscribers represent the number of unique subscribers aged 18 years and above.
Smartphone internet subscribers	Smartphone internet subscribers represent mobile internet subscribers who access internet services using a smartphone. Estimates are based on consumer survey responses and are cross-checked against the number of registered smartphones in each market.
Internet users	Internet users represent all individuals who access the internet, regardless of whether they personally own a mobile subscription. This includes: • Mobile internet subscribers; • Individuals who access the internet using another person's device; • Individuals who access the internet through non-mobile devices such as PCs, tablets, or fixed broadband connections.

Methodology

GSMA Intelligence subscriber and internet user estimates are primarily based on consumer survey data that captures mobile ownership, smartphone ownership, and internet usage behaviour. Survey respondents are asked whether they own or have access to a mobile phone, whether they use mobile internet services, and the type of device used to access the internet.

The survey also collects information on children within households, including whether children have access to a mobile phone and whether they access the internet. This information is used to estimate mobile ownership and internet usage among individuals below the age of 18.

Survey coverage extends across markets representing approximately 90% of the global population. For countries not covered directly by the GSMA Consumer Survey, estimates are supplemented using a combination of third-party research sources, including government surveys, regulator publications, national statistics agencies, and other reputable market research providers.

All estimates are reviewed against market-level indicators, including mobile connections, mobile internet connections by technology generation, and smartphone adoption levels, to ensure consistency and realism across markets.

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