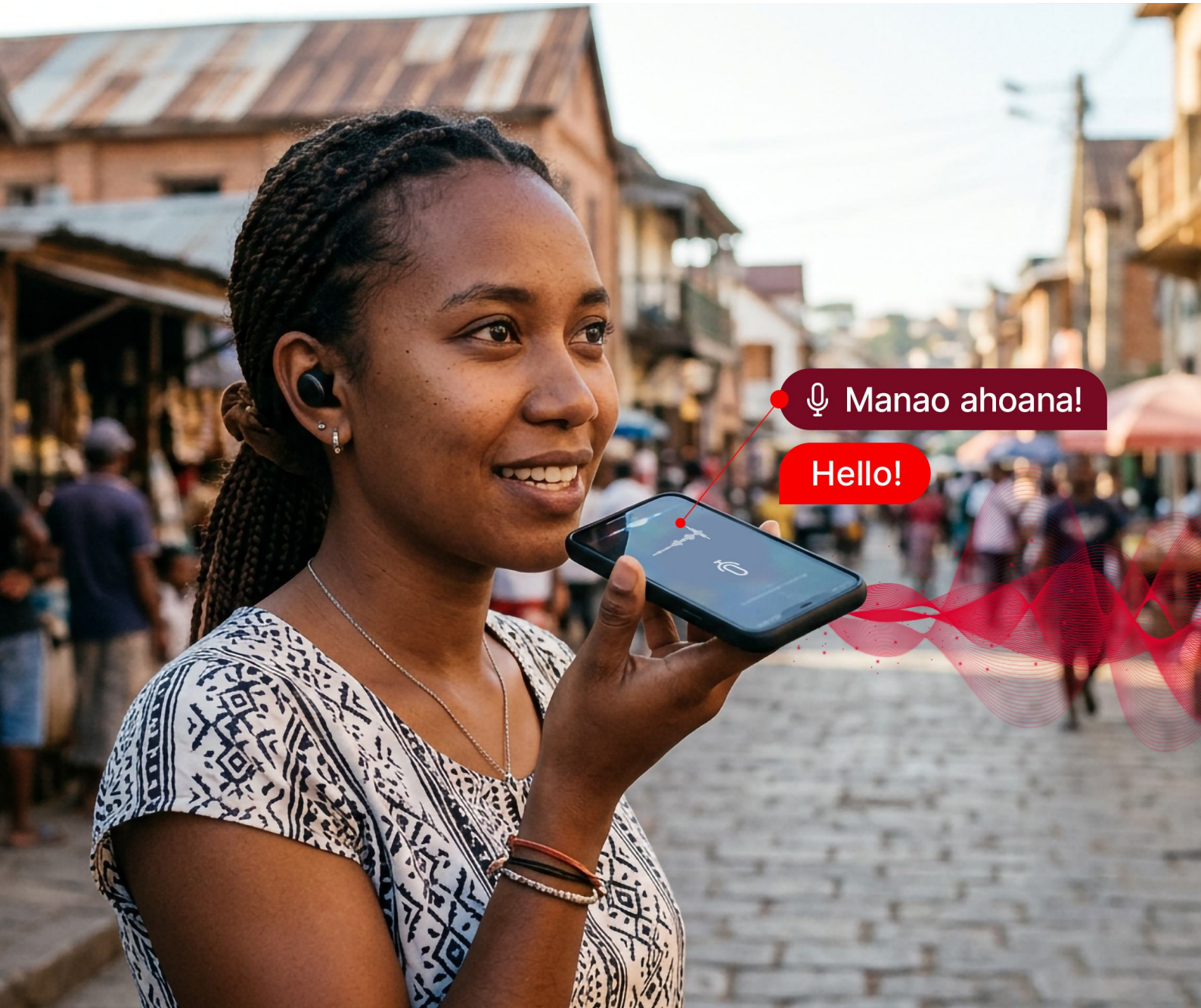
GSMA

Madagascar digital economy

Policy reforms that will drive Madagascar's digital future



Contents

Executive Summary 3

1. Madagascar's national development strategy 7

- 1.1. Economic and social context 8
- 1.2. National development strategy 14
- 1.3. Telecommunications sector development 15
- 1.4. National digital economy strategy 17
- 1.5. Digital government 20
- 1.6. Digitalisation of agriculture 22

2. Current status of digitalisation in Madagascar 23

- 2.1. Broadband adoption and network coverage 24
- 2.2. Broadband affordability 30
- 2.3. Use of mobile financial services 33
- 2.4. Conclusions on digital adoption in Madagascar 35

3. Policy Recommendations 36

- 3.1. Smartphone affordability 38
- 3.2. Financial sustainability of mobile networks 43
- 3.3. Taxes, fees and levies 53
- 3.4. Increasing demand for digital 58

4. Impact analysis 67

- 4.1. Scenario impact 68
- 4.2. Combined impact 69
- 4.3. Impact on government revenues 71
- 4.4. Additional impact from mobile money 73

5. Conclusion 74

Annex 1 – Methodology for estimating broadband adoption 75

Annex 2 – Methodology for estimating network coverage 77

Annex 3 – Institutional responsibilities for the recommendations 78

Annex 4 – Methodology for the impact analysis 80

References 82

Glossary 88

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Executive Summary

Digitalisation is central to Madagascar's national development strategy. The Transitional Government's General State Policy for Refoundation and its implementation programme make the digital transformation of the state a pillar of the transition. The Digital Strategic Plan (PSN) 2023–2028 provides the long-term framing, positioning digital technologies as tools to modernise public administration, expand financial inclusion and support economic modernisation, and the Ministry of Digital Development's Strategic Orientations 2026–2027 set the priorities to 2027, starting with affordable internet access for all.

The scale of the challenge is considerable. 67% of the population lives in rural areas, 69% lives below the international poverty line, and electricity access stands at 39% nationally and 15% in rural areas. The government's ambition is to deliver rapid improvements in the lives of its people, and digital channels offer the fastest route to households that traditional infrastructure and services have yet to reach.

The government has begun to build the foundations of a digital state. Under the World Bank-financed USD 143 million PRODIGY project, a biometric identity pilot was launched in January 2026, followed by nationwide enrolment in April; by June, more than 3.25 million adults had been enrolled. PRODIGY is also strengthening civil registration and digital identity systems, while the broader PSN 2023–2028 includes an X-Road interoperability pilot to connect government databases.

Madagascar's mobile market has grown strongly since 2021. GSMA Intelligence estimates total mobile connections rose from 12.3 million in 2021 to 22.5 million at the end of 2025.

The challenge now is to turn this growth into widespread mobile internet use. As of 2025, unique mobile subscriber penetration stood at 44.6% of the population and 14.3% of the population used mobile internet, meaning that around one-third of all mobile subscribers were using the internet.

Madagascar faces both a remaining coverage gap and a much larger usage gap. 3G and 4G networks covered 81% of the population in 2026, according to GSMA modelling[1], but around one-third of the rural population remained outside 4G coverage. The usage gap (people covered by mobile broadband but not using it) stood at 66% of the population in 2026. Coverage expansion remains necessary, but most of the digital opportunity lies among people who are already covered but are not yet online.

Expanding networks in rural areas is commercially challenging. Sparse populations, difficult terrain, weak road access, limited grid electricity and costly backhaul raise rollout costs. Only 24% of existing sites are within 1 km of a mapped electricity line, and 99.6% of the sites required to expand coverage are outside that range.

Mobile data prices have fallen sharply since December 2025, but affordability remains a challenge for low-income households, mainly because of the cost of the handset. In the ITU's 2025 benchmarks, which pre-date the cuts, Madagascar was in the regional mid-range, with low- and high-consumption baskets costing 7.8% and 18.8% of GNI per capita, above the UN Broadband Commission's 2% target. Tariff cuts agreed by the Transitional Government and operators in December 2025 have since reduced the price per gigabyte by around three-quarters on certain entry-level bundles and by a third to a half on most weekly bundles, and operators report that traffic rose immediately.

For low-income households, the cost of the handset rather than data prices is the main affordability barrier. Smartphone affordability is the largest upfront constraint: the cost of an entry-level smartphone represents more than one month's income for all but the highest income deciles. The 6% copyright fee, 20% import duty, 1% regulation levy and 20% VAT add significantly to retail prices. Tax relief, device financing and the informal market, through which around 80% of handsets arrive, need to be addressed together in a national smartphone affordability strategy.

1 Other sources give higher figures. Yas reports population coverage of 89.4% for 2G, 88.8% for 3G and 88.5% for 4G at the end of August 2026 on its own measurements (Yas Madagascar, 2026d), and ARTEC reports 86.7% for 3G and 85.4% for 4G for 2025 (ARTEC, 2026). Section 2.1 explains why estimates differ, and Annex 2 sets out GSMA Intelligence's coverage method and parameters.

Closing the usage gap rapidly would allow Madagascar to leapfrog traditional models of public service delivery and economic development. Enabling covered citizens to get online and use relevant services can extend digital government, financial services, agricultural information and market access faster and at lower cost. Speed matters because every year of delayed adoption postpones the productivity, inclusion and public service gains that the national digital strategy is intended to deliver.

Many of the people coming online have limited literacy, so text-based services will not reach them. Voice interfaces in Malagasy, built on AI speech-recognition and text-to-speech models, offer a way past that barrier. The government can help by releasing the material needed to build them, such as public broadcasting archives and other public-sector Malagasy speech and text, which it already holds.

Policies to promote digitalisation should focus on low-income and rural households, which face the greatest barriers and have the most to gain. Madagascar's next digital challenge is to complete rural coverage while converting existing coverage into regular, productive mobile internet use. The report uses relevant areas of GSMA's Digital Africa Index to assess the device affordability, network, taxation and demand-side measures most likely to achieve that transition.



Policy challenge 1
Smartphone affordability is the largest upfront barrier to adoption

Recommendation 1.1 – Remove the 6% copyright fee, 20% import duty and 1% regulation levy on entry-level smartphones

Recommendation 1.2 – Exempt entry-level smartphones from VAT below a published price threshold

Recommendation 1.3 – Scale device financing through the DECIM mechanism and adoption incentives

Policy challenge 2
Network expansion costs are limiting rural coverage

Recommendation 2.1 – Review network expansion barriers and publish a costed Rural Connectivity Plan

Recommendation 2.2 – Reform the FDTIC into a transparent, results-based fund for rural coverage

Recommendation 2.3 – Align electricity-grid expansion with telecommunications infrastructure needs

Recommendation 2.4 – Support mini-grid deployment with mobile towers as anchor customers

Policy challenge 3
Sector taxation increases the cost of mobile services and weakens adoption

Recommendation 3.1 – Review mobile-service taxation, with a view to eliminating the 8% excise duty

Recommendation 3.2 – Reduce the regulation tax from 2% to 1% and link it to published regulatory costs

Recommendation 3.3 – Zero-rate imports of broadband network and rural-site energy equipment

Recommendation 3.4 – Remove the 5% mobile money transaction tax (TTM)

Policy challenge 4
Digital services must be useful enough to create demand

Recommendation 4.1 – Deliver task-based digital literacy training in Malagasy through local channels and release public Malagasy-language data for voice AI

Recommendation 4.2 – Deliver high-value e-government services under a published plan

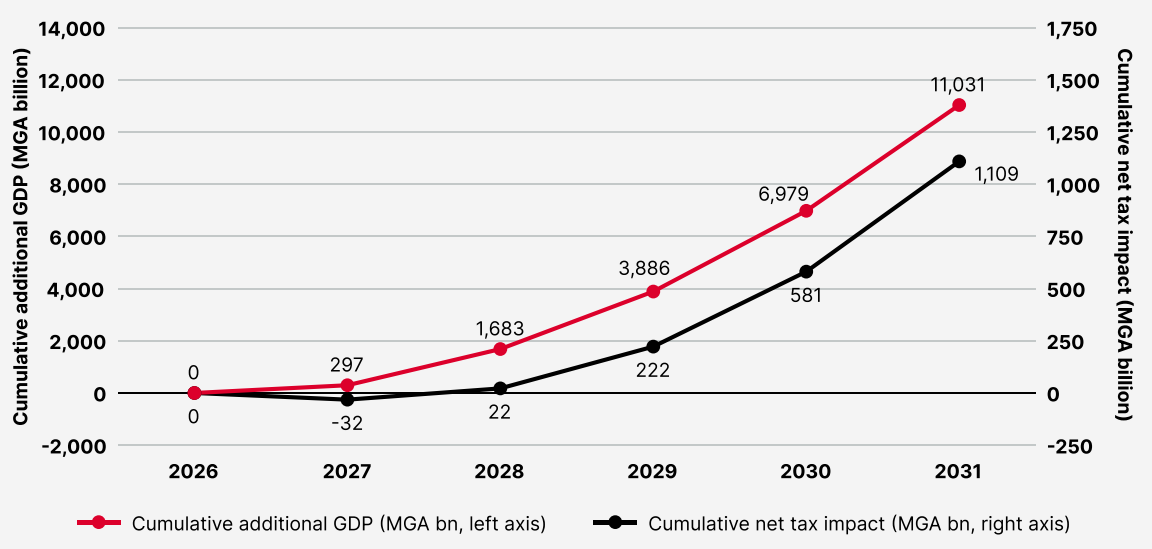
Recommendation 4.3 – Complete digital ID enrolment and sustain the civil-registration system

These recommendations would have a significant impact on mobile broadband adoption and Madagascar's digital transformation. Implementing the proposed modelled policies would grow unique mobile internet subscribers by 62% between 2026 and 2031, to 7.98 million, compared with growth of 39% (to 6.9 million) in the business-as-usual case. This would reduce the mobile internet usage gap by three percentage points, to 64%, by 2031 compared to the base case.

Under the combined policy package and the model assumptions, the additional GDP generated rises each year, reaching MGA 4.1 trillion in 2031, or 3.3% above the base case, and MGA 11.0 trillion cumulatively over 2027–2031.

Lower tax rates on the sector would reduce direct tax receipts from operators, but this would be more than offset by the growth in the wider economy and in the coverage of digital tax-collection systems. The net fiscal balance turns positive in 2028 and reaches MGA 529 billion a year in 2031, with a cumulative gain of MGA 1.11 trillion over 2027–2031 (Figure 1). Removing the mobile money transaction tax is assessed separately. Over the 2027–2031 period the receipts forgone, about MGA 157 billion, are outweighed by about MGA 431 billion of additional receipts from higher mobile money use.

Figure 1
Madagascar – cumulative additional GDP and net tax impact of the policy package, 2026–2031 (MGA, 2026 prices).



Source: GSMA analysis

The conditions for rapid progress are already in place. Madagascar has a clear national strategy, committed funding partners and a mobile market that is already investing in coverage; the remaining barriers are ones that policy can remove. Acting now on device affordability, network costs, taxation and demand would increase the number of mobile internet subscribers by 1.12 million by 2031, strengthen government revenue from 2028 and bring forward the digital government, financial inclusion and productivity gains that the PSN and the Ministry's Strategic Orientations 2026–2027 are designed to deliver.



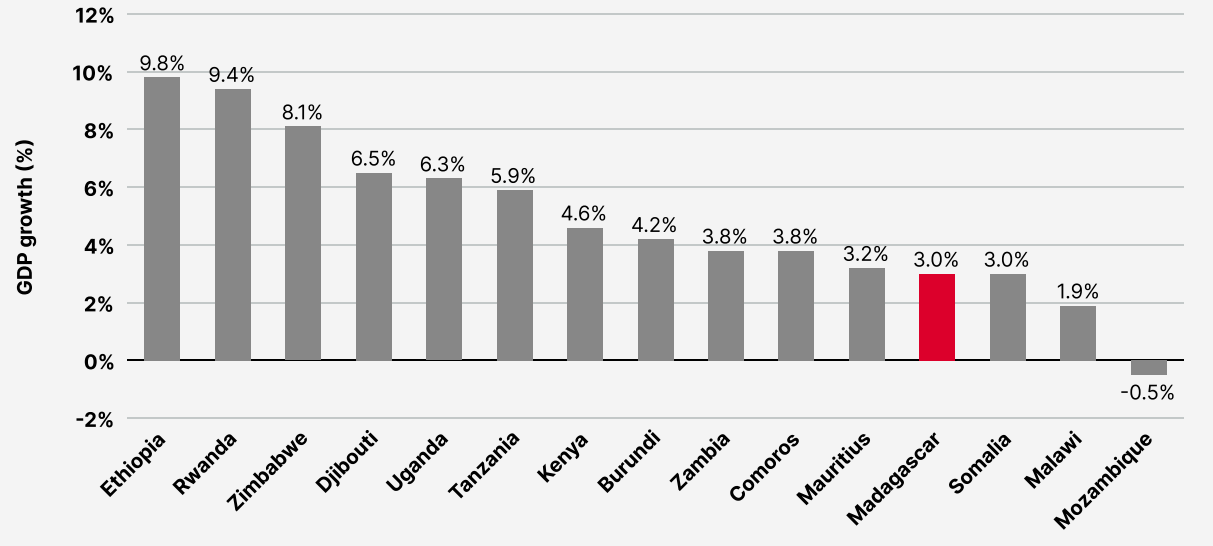
1. Madagascar’s national development strategy

1. Madagascar's national development strategy

1.1. Economic and social context

Madagascar is a large island country with a predominantly rural population. The economy is growing: GDP is projected to grow by 3.8% in 2026 and, with population growth of 2.4%, real growth per capita is around 1.4% (World Bank, 2026a, pp. 1-2). Growth in 2025 remained below the East African average (Figure 2).

Figure 2
Annual GDP growth, 2025.

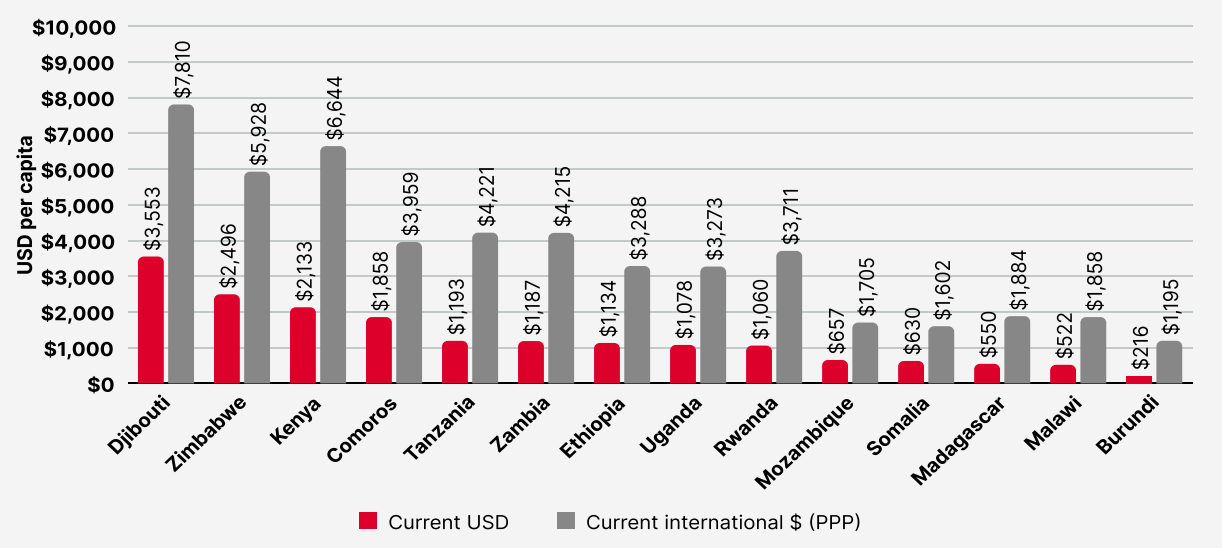


Source: World Bank (2026c), World Development Indicators, GDP growth (annual %), 2025.
East Africa regional benchmark countries here and elsewhere in the report, where data are available: Burundi; Comoros; Djibouti; Ethiopia; Kenya; Malawi; Mauritius; Mozambique; Rwanda; Somalia; Tanzania; Uganda; Zambia; Zimbabwe

Raising household incomes is Madagascar's most fundamental challenge. GDP per capita was USD 550 in 2024[2], among the lowest globally and below most East African benchmark countries (Figure 3). This limits the resources available to households, businesses and government.

2 Unless marked PPP, amounts in US dollars (USD) are in current dollars. Prices paid in Madagascar and budget and tax amounts are given in ariary (MGA) or US dollars, and where both are shown one is converted from the other at approx. MGA 4,200 per US dollar. The projections of GDP and tax revenue to 2031 are in constant 2026 prices. Purchasing power parity (PPP) dollars, which adjust for differences in price levels between countries, are used only for international comparisons of income and poverty. PPP values are from the World Bank, based on the 2021 International Comparison Program. They are used for these comparisons because many goods and services cost less in low-income countries than in richer ones, so incomes converted at market exchange rates understate what they can buy.

Figure 3
GDP per capita, 2024.

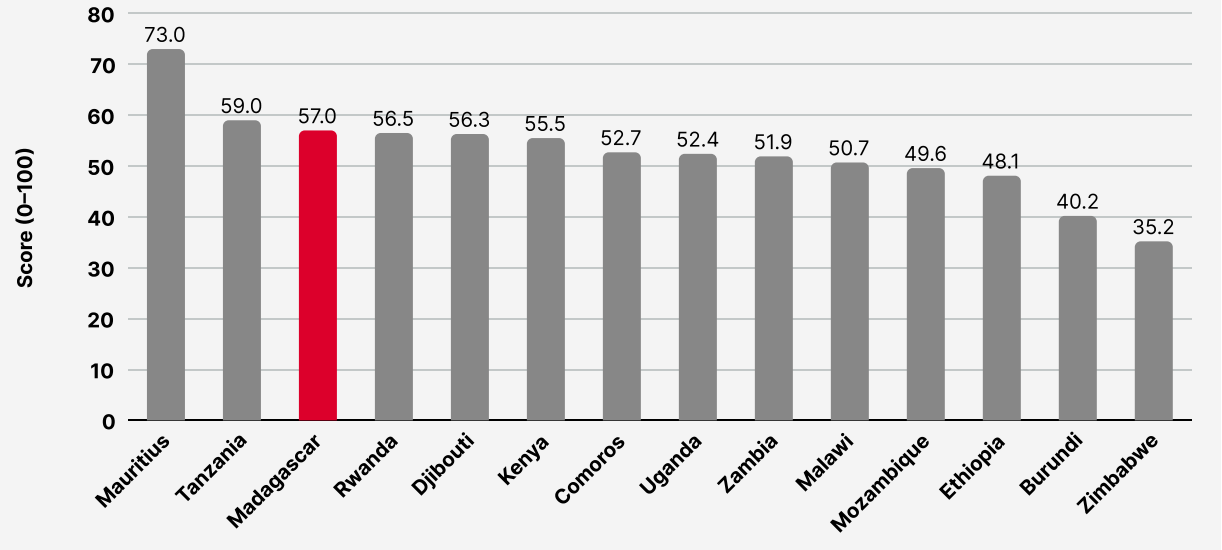


Source: World Bank (2026c), World Development Indicators, GDP per capita (current US$) and GDP per capita, PPP (current international $), 2024.

The economy remains heavily dependent on agriculture and mining. Agriculture, including vanilla, cloves and rice, accounts for 70% of total employment and 22% of GDP in 2024, while mining, including nickel and cobalt, is a major source of exports. Raising productivity in agriculture and other primary sectors is therefore central to Madagascar's wider development (World Bank, 2026c).

Institutional conditions compare well with regional peers. Madagascar ranks 13th out of 47 countries in Sub-Saharan Africa in the 2026 Index of Economic Freedom, ahead of many regional neighbours (Heritage Foundation, 2026, p. 1). Strengthening rule of law and business freedom would further improve the environment for private investment (Figure 4).

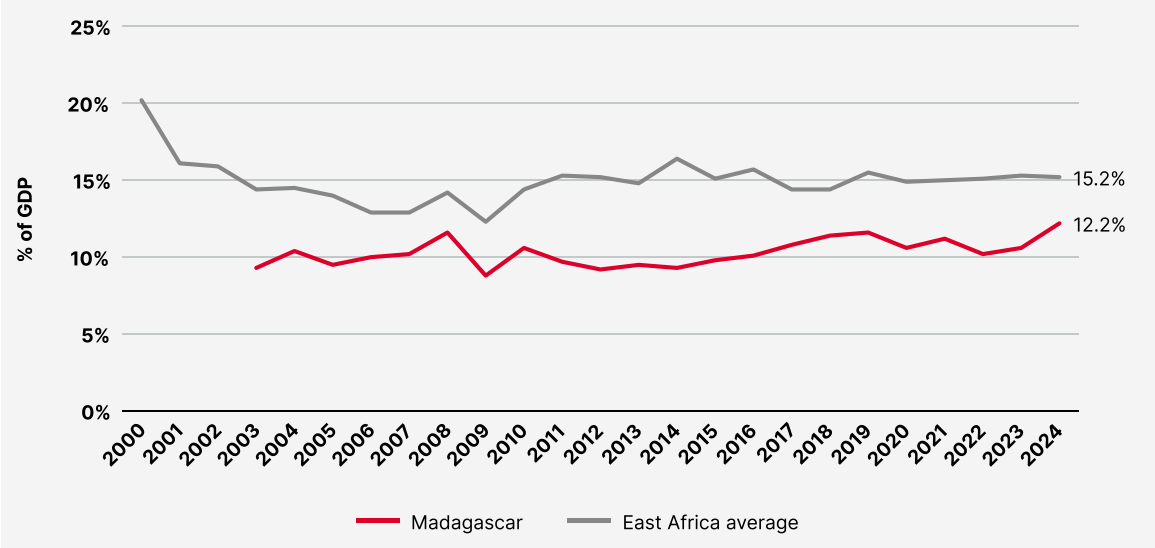
Figure 4
Index of Economic Freedom, 2026.



Source: Heritage Foundation (2026), p. 1 and country score table.

Low government revenue limits the state's ability to expand public services through traditional channels. Revenue excluding grants has remained between roughly 9% and 12% of GDP over the past two decades, averaging around 10%, consistently below East Africa benchmark countries (Figure 5). With limited fiscal space, digital channels offer a way to expand services at a fraction of the cost of traditional delivery.

Figure 5
Madagascar – revenue excluding grants (% GDP), 2000–2024.

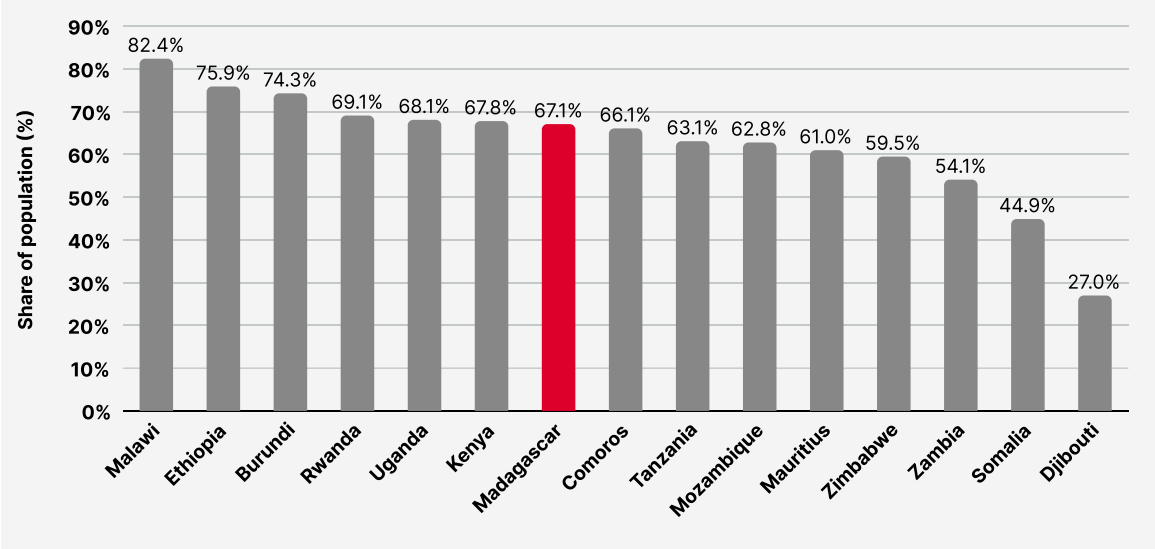


Source: World Bank (2026c), World Development Indicators, revenue excluding grants (% GDP), 2000–2024. Average is based on simple average of available data.

A further dimension of Madagascar's development challenge is its large rural population. 67% of Madagascar's population lives in rural areas, in line with other countries in the region. 69% of the population lives below the USD 3.00 per day poverty line (2021 PPP) (Figure 6 and Figure 7).

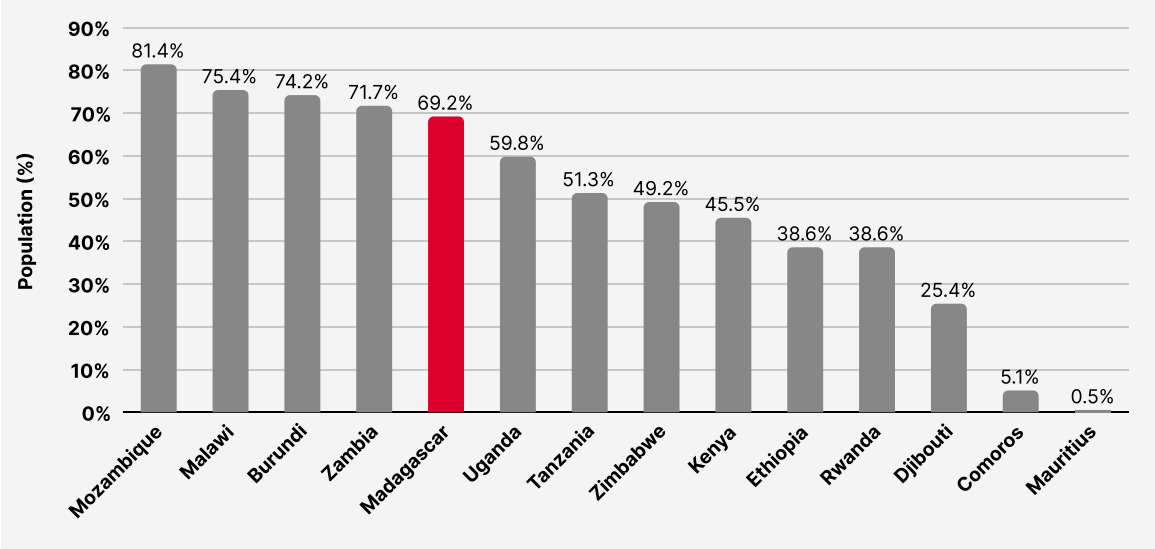


Figure 6
Rural population, 2025.



Source: World Bank (2026c), World Development Indicators, rural population (% of total), 2025

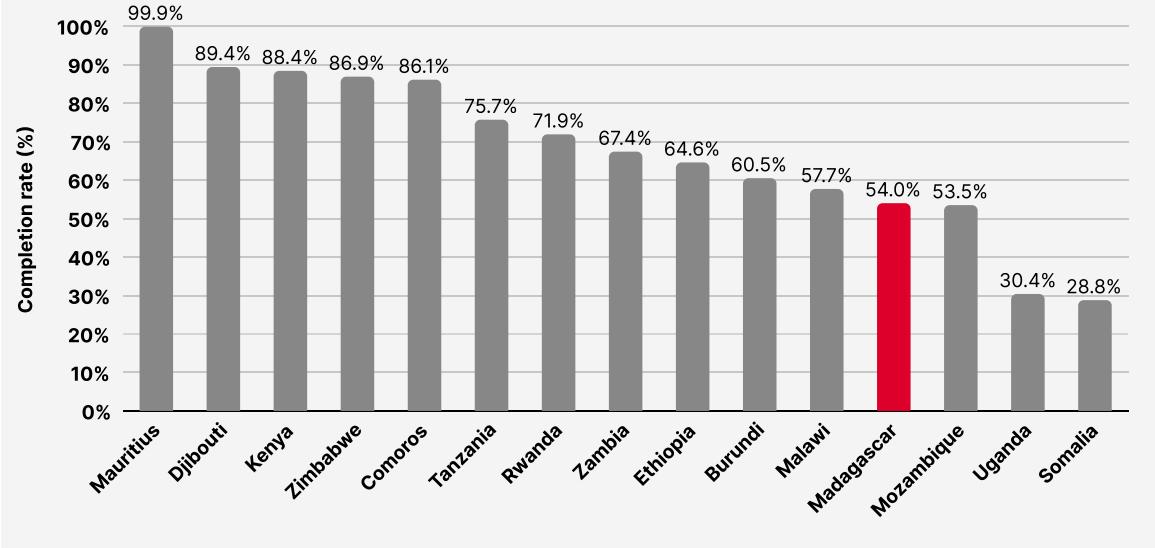
Figure 7
Poverty at $3/day (2021 PPP), latest available survey.



Source: World Bank (2026b), Poverty and Inequality Platform, 2021 latest country observation available.

Education outcomes shape the digital policy agenda directly. The primary school completion rate is 54%, among the lowest in East Africa, which constrains the digital skills base on which adoption of digital services depends (Figure 8). This is why digital literacy should feature strongly in policy considerations.

Figure 8
Primary completion rate, modelled estimate, 2025.

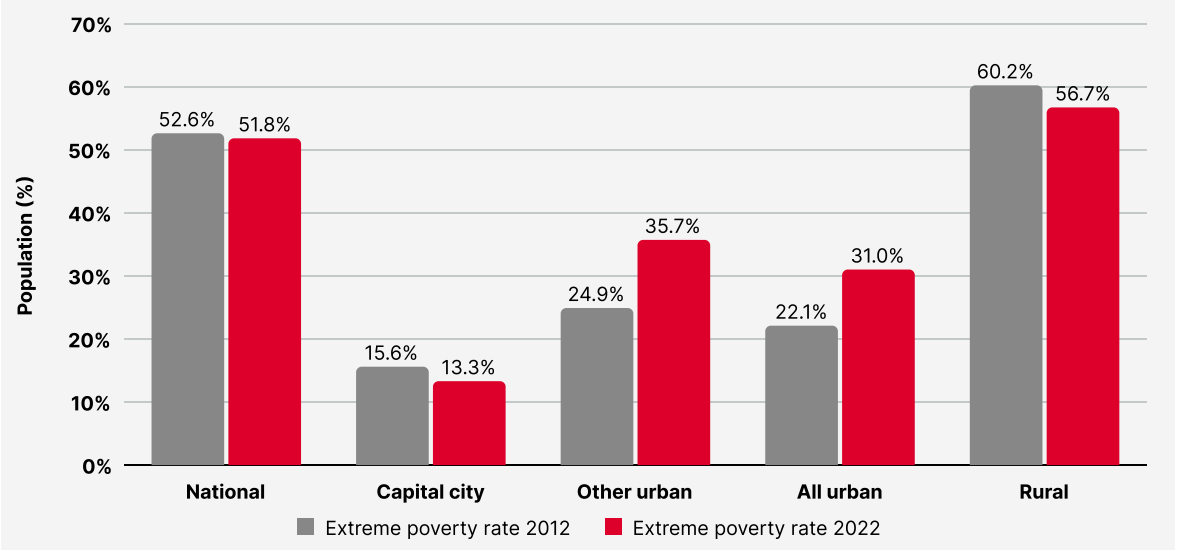


Source: UNESCO Institute for Statistics (2026).

Most households have limited capacity to absorb new recurring costs. Food accounted for 65.8% of total household consumption nationally in 2021–2022 (INSTAT, 2024), and for vulnerable households and rural smallholder farmers it accounts for 89% of expenditure (World Food Programme, 2021). This leaves many households highly exposed to income shocks, with little room for discretionary spending such as broadband services.

Poverty is highest in rural areas and lowest in Antananarivo. In 2022, extreme poverty stood at 13.3% in Antananarivo, 35.7% in other urban areas and 56.7% in rural areas (World Bank, 2024a, p. 18). The households most likely to be digitally excluded therefore also face the highest costs of access (Figure 9).

Figure 9
Madagascar – extreme poverty by area, 2012 and 2022.



Source: World Bank (2024a), Madagascar Poverty and Equity Assessment, February 2024.

Foreign aid remains an important part of public financing. Total government revenue and grants stood at 13.6% of GDP in 2024, of which 2.4 percentage points came from foreign aid. Aid is forecast to fall in 2026, putting further strain on public finances (Table 1).

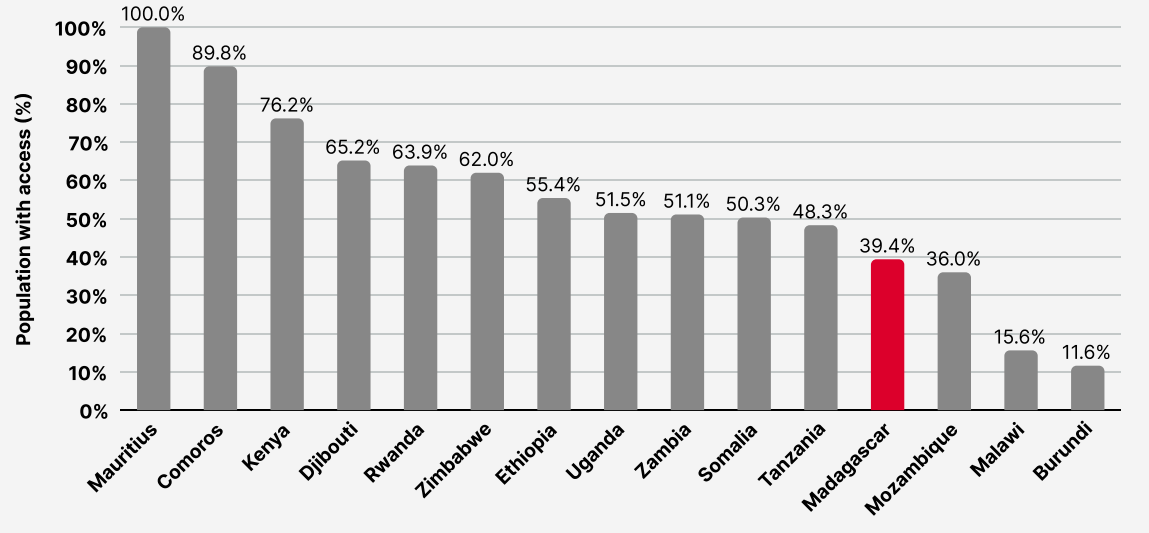
Table 1
Government revenue and grants compared to GDP.

	2022	2023	2024	2025*	2026*
Government revenue, % of GDP, excluding grants	9.5	11.5	11.2	11.3	12.0
Grants, % of GDP	1.3	2.3	2.4	0.7	0.5
Grants, % Government revenue	12	17	18	6	4

Source: IMF (2025), p. 19.
Note: * denotes projections.

Reliable power remains one of the primary bottlenecks to development. National electricity access in Madagascar stands at 39% of the population. This is significantly below most countries in the region (Figure 10). Limited access to reliable power constrains development across the country, including the adoption and use of digital services.

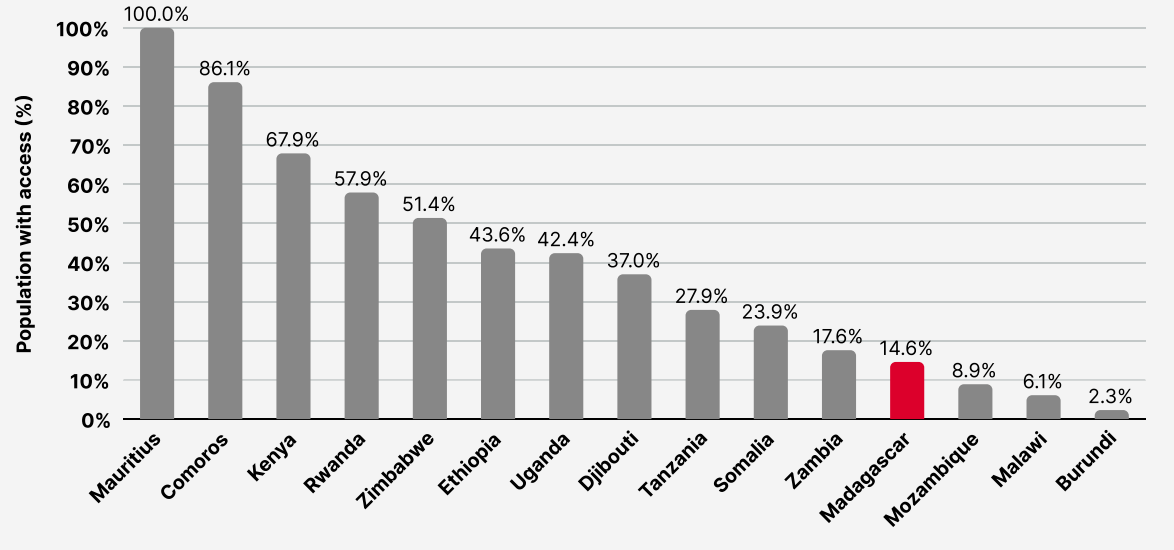
Figure 10
Access to electricity, 2023.



Source: World Bank (2026c), World Development Indicators, access to electricity (% of population), 2023.

The electricity constraint is more severe in rural areas. Rural electricity access stands at 15% (World Bank, 2026c), making it harder for households to charge devices and for operators to run network infrastructure in the areas where poverty is highest (Figure 11).

Figure 11
Rural access to electricity, 2023.



Source: World Bank (2026c), World Development Indicators, rural access to electricity (% of rural population), 2023.

These are the conditions the government is already trying to change. A large rural population, high poverty, low education outcomes, constrained public finances and limited electricity access define the scale of the challenge ahead and the urgency of the government's response.

The national development strategy, set out below, treats digitalisation as central to delivering rapid improvements for the population.

1.2. National development strategy

Madagascar's political context changed in October 2025, when the Transitional Government came to power. The reference framework for the Refoundation is the General State Policy for Refoundation (PGE-R) of November 2025 and its implementation programme, the PMO (Government of Madagascar, 2025a; 2025b). The PGE-R sets the direction for the transition, and the PMO sets out government programmes and reforms, including the digital transformation of the state. The parts most relevant to this report are summarised in Box 1.

Box 1
Madagascar – Relevance of the General State Policy for Refoundation (PGE-R) and its implementation programme (PMO).

Digital transformation of the state: one of the structural reforms of the transition (a national digitalisation policy, inter-institutional digital governance steered by the Prime Minister's office, infrastructure and applications, and nationwide digital skills). Faster digitalisation of public services is also among the urgent governance measures against corruption and administrative delay.

Business environment: modernisation through a broader tax base and reformed taxation, an environment conducive to private investment, entrepreneurship and innovation, simpler procedures and formalisation of the informal sector, and inclusive finance for households, young people and small enterprises.

Source: Government of Madagascar (2025a; 2025b)

The Transitional Government has made digital transformation central to its own programme. The General State Policy for Refoundation and its implementation programme commit the government to delivering rapid, visible improvements for the population, and make accelerating the digital transformation of the state a structural-reform pillar of the transition (Government of Madagascar, 2025a; 2025b, sections 7.1.3 and 7.2.4).

1.3. Telecommunications sector development

Telecommunications sector development is an important foundation for Madagascar's digital economy. Mobile networks provide the main infrastructure through which citizens and businesses access connectivity, mobile money and digital services: fixed-broadband subscriptions number fewer than one per 100 inhabitants (UNDP, 2025, p. 17). The structure and development of the sector are therefore central to the government's wider digitalisation agenda.

Madagascar's mobile market comprises three mobile network operators. Yas (formerly Telma), the national incumbent, is part of the AXIAN Group; Orange Madagascar is a subsidiary of Orange; and Airtel Madagascar is a subsidiary of Airtel Africa.

The operators have different infrastructure and service positions. Yas was the first operator to deploy a commercial 5G network and provides fixed, mobile, internet and mobile money services; its mobile money service, MVola, has obtained a full banking licence and, with over 10 million registered accounts, is Madagascar's largest bank by that measure (GSMA, 2025a). Orange Madagascar operates its own mobile money platform, Orange Money. Airtel Madagascar also provides cellular coverage, mobile broadband and mobile money. Airtel Madagascar tested direct satellite-to-mobile connectivity with SpaceX in July 2026 (Space in Africa, 2026). Starlink has also held its own satellite licence for providing broadband since 2024 (World Bank, 2025b, p. 2).

A replacement for the telecommunications legal framework has been proposed. Bill No. 040/2026 of 21 July 2026 on electronic communications and digital infrastructure (Projet de loi n° 040/2026 sur les communications électroniques et les infrastructures numériques) was deposited with the National Assembly on 28 August 2026 (Government of Madagascar, 2026). Its main provisions are summarised in Table 2.

Table 2
Madagascar – main provisions of Bill No. 040/2026 on electronic communications and digital infrastructure.

Area	Provision
Regulator	The bill gives ARTEC independent-administrative-authority status, legal personality and financial autonomy. Its nine-member board includes three private-sector representatives and one academic (Articles 65–69 and 137).
Telecommunications and ICT Development Fund (FDTIC)	The fund is carried forward (the bill refers to it as the FDC, Fonds de développement des communications électroniques). ARTEC collects the fund and the Minister manages and allocates it. Licensees contribute 2% of the previous year's electronic-communications revenue (Articles 62–64).
Licensing	The bill establishes a licence regime. Public electronic-communications networks require a licence, awarded through a competitive process following a sector review. It creates five licence categories: general, fixed, mobile, data transmission and satellite. Licence fees are set by regulation (Articles 18–35).
Competition and access	ARTEC must review competition regularly and may impose transparency, non-discrimination, access and reference-offer obligations on operators with significant market power. Access and interconnection terms are negotiated commercially, but ARTEC may intervene if negotiations fail or a dispute arises (Articles 12 and 51).
Infrastructure sharing	Operators must first consider sharing or reusing existing passive infrastructure before building new sites. New towers are generally subject to minimum spacing of 200 metres in urban areas and 2 kilometres in rural areas. Sharing charges are freely set and notified to ARTEC. Local roaming is allowed outside an operator's own coverage, subject to specified conditions (Articles 52–53).
Spectrum	Spectrum is managed by ARTEC, which must continue to publish the national frequency plan (Articles 38–40 and 97–98; ARTEC, 2024).
Digital sovereignty	Data generated or collected in Madagascar must be stored in-country; copies may be transferred abroad if the original remains. Smaller firms may be exempt, except when handling critical or sensitive data or operating in critical sectors. Data-centre providers must be certified. Critical infrastructure, including national and international backbones, submarine cables and landing stations, is subject to resilience and protection requirements (Articles 8–11, 124 and 133–135).

Source: Government of Madagascar (2026)

The mobile telecoms networks provide Madagascar with a foundation on which wider digitalisation efforts can be implemented. Three competing operators, a national fibre backbone, emerging 5G and satellite connectivity, and an evolving telecommunications regulatory framework provide the foundation for the national digital economy strategy.

1.4. National digital economy strategy

Madagascar's Digital Strategic Plan (PSN) 2023–2028 provides the long-term framing for digital policy and sets out the government's ambition to transform the country into a digital state. The strategy presents digitalisation as a way to strengthen the country's digital foundations, modernise public administration and support economic development. Its main targets include increasing the digital sector's contribution to GDP, creating new digital-economy jobs, developing biometric identity and improving interoperability between government databases (Box 2).

Box 2
Madagascar – Digital Strategic Plan (PSN) 2023–2028.

Area	PSN 2023–2028 content
Objective	Transform Madagascar into a digital state by building stronger digital foundations.
Economic target	Increase the digital sector's contribution to national GDP from 0.5% in 2016 to 6.0% by 2028.
Jobs target	Generate 137,000 digital-sector jobs by 2028, including 50,000 direct jobs, particularly by leveraging Madagascar's position as a growing business process outsourcing hub.
Digital identity	Implement a universal biometric identity system based on a unique identifier for every citizen, linked to a national civil registry.
Public administration	Use the X-Road interoperability platform piloted on the Estonian model, to enable secure data sharing between government institutions.

Source: Government of Madagascar (2023), Plan Stratégique du Numérique 2023–2028, printed pp. 19, 72 and 108–109

The Ministry of Digital Development, Posts and Telecommunications (MNDPT) has set out near-term priorities alongside a broader digital vision. The PSN 2023–2028 remains the long-term framework for the sector, while MNDPT's Strategic Orientations 2026–2027 set the priorities to 2027 (MNDPT, 2025). The Strategic Orientations cover six themes, summarised in Box 3.

Box 3
Madagascar – MNDPT Strategic Orientations 2026–2027.

Theme	Priorities to 2027
Digital inclusion and universal access to technology	Affordable internet for all, with a focus on vulnerable groups; 4G, 5G and fibre coverage across the whole territory; more towers, public Wi-Fi points and community stations; access to smartphones, tablets and computers through subsidies, industry partnerships or refurbishment; digital literacy programmes for older people, rural communities and small businesses.
Digitalisation of public services (e-government)	A single online portal for public services; digitalisation of priority procedures, official documents and electronic payments; secure delivery of official documents through the postal network, with post offices as pick-up and assistance points for citizens who are not online; interoperability between ministries, agencies and the postal service.
Critical infrastructure (national data centre and system resilience)	A sovereign national data centre with power and network redundancy; business continuity and disaster recovery plans for critical systems; protection against outages, cyberattacks and natural disasters; priority hosting of sensitive public data on health, education, tax and justice.
Digital governance, legal framework and public policy	A personal data protection law; cybersecurity legislation; regulation of digital platforms and electronic transactions; a regulatory framework for postal financial services, including a postal e-wallet interoperable with banks and mobile money; security standards and compliance mechanisms for public and private actors.
Digital skills	Digital education from primary school to university; continuing training for adults and professionals in coding, cybersecurity and data science; partnerships with the private sector for internships and jobs; hackathons, incubators and technology competitions for young people.
Innovation, entrepreneurship and the digital ecosystem	Innovation spaces and technology hubs in every region; easier access to finance through funds, credit and incubation programmes; the postal service as a logistics partner for national e-commerce; international partnerships for innovation.

Source: MNDPT (2025), Orientations Stratégiques (2026–2027).

In May 2026, MNDPT presented Madagascar Digital 2030. This is a national digital vision for an inclusive, innovative and sovereign digital ecosystem, organised under the same six themes as the Strategic Orientations (MNDPT, 2026; Moov.mg, 2026). The World Bank mission that discussed operationalising the vision with the government in May 2026 identified affordable smartphones, USSD reform, digital skills and jobs as priorities, which align closely with the recommendations in this report (Rogy, 2026).

World Bank-supported programmes are financing parts of this digital transition. The Digital Governance and Identification Management System (PRODIGY) project supports the state's digital registry efforts, while the Digital and Energy Connectivity for Inclusion in Madagascar (DECIM) project links digital inclusion to connectivity and power infrastructure (Box 4).

Box 4
Madagascar – World Bank digital development projects

Programme	Role in Madagascar's digital transition
PRODIGY Project (USD 143 million)	The Digital Governance and Identification Management System project is a digital registry project. It funds the creation of the National Civil Registration and Identification Centre and supports the digitalisation of civil status records. It also addresses the 25% of the population currently lacking legal documents by integrating civil status records with the new biometric ID system.
DECIM Project (USD 400 million, reduced to USD 375 million in 2024)	The Digital and Energy Connectivity for Inclusion in Madagascar project links digital inclusion to connectivity and power infrastructure. Approved in March 2023 with USD 400 million of financing, reduced to USD 375 million by a partial cancellation in the 2024 restructuring, it supports the deployment of approximately 100 new telecom towers in rural "white zones" (in procurement as of June 2026) and aims to bring new or improved broadband access to 3.1 million people. It also targets the distribution of 664,000 internet-enabled devices, including at least 400,000 to women and girls: distribution is under way, with 149,359 devices delivered by 25 June 2026. The project's electricity-access target was revised to 5.95 million people.

Source: World Bank (2020); World Bank (2023); World Bank (2024b), pp. 11 and 13; World Bank (2026f), pp. 3 and 5.

The biometric identity element of the strategy has moved into a phase of national implementation. A pilot began in January 2026, nationwide rollout followed in April 2026, and more than 3.25 million adults had been enrolled by 10 June 2026 (World Bank, 2026d).

The central bank is also preparing eAriary, a retail central bank digital currency. A ten-month retail pilot was announced to begin in August 2026, with BMOI, Airtel Money and Première Agence de Microfinance as initial distributors. The official design provides for access through smartphones, basic phones and USSD, including offline functionality (Banky Foiben'i Madagasikara, 2026).

Together, the PSN, PRODIGY, DECIM and the eAriary pilot show a digital economy strategy moving from policy ambition towards implementation. The PSN sets the long-term digital-state objectives and the Strategic Orientations 2026–2027 the short-term priorities, while World Bank-supported programmes fund core elements of implementation, including identity systems, civil registration, connectivity, electricity access, rural towers and subsidised devices. The next question is whether citizens can access and use the digital government services being built on these foundations.

1.5. Digital government

Madagascar has made progress on digital government; the priority now is to enable more citizens to use the services being built. The 2024 UN E-Government Survey places Madagascar in the Medium E-Government Development Index group, with an overall ranking of 168 out of 193 countries. Madagascar performs better on online service provision than on the telecommunications infrastructure needed for citizens to use those services (Table 3).

Table 3
Madagascar – UN DESA E-Government Development Index scores, 2024.

Index	Score	Global ranking
Overall E-Government Development Index	0.32	168 of 193
Telecommunication Infrastructure Index	0.15	184 of 193
Human Capital Index	0.41	165 of 193
Online Service Index	0.40	135 of 193

Source: United Nations DESA (2024), p. 201.

Telecommunications infrastructure is a key constraint on the effectiveness of digital government. Madagascar ranks 184th of 193 countries on the Telecommunication Infrastructure Index, placing it within the bottom ten worldwide and reflecting low levels of mobile broadband adoption and internet use. The implications of this are significant: e-government services may be available, but the majority of citizens are not yet able to access and use them.

Human capital also constrains digital public-service delivery. Madagascar ranks 165th of 193 countries on the Human Capital Index, reflecting weaker literacy, schooling and enrolment indicators. This means that digital public services need to be simple, localised and accessible, because complex or text-heavy interfaces are likely to exclude many users.

Madagascar performs better on online services than on the conditions needed to access them. The country ranks 135th of 193 countries on the Online Service Index, suggesting that the government has begun to develop online public-service channels. However, the gap between online-service provision and the infrastructure and skills needed to use those services creates a risk that digital government does not translate into broad-based citizen access.

The UNDP Madagascar Digital Readiness Assessment reaches a similar conclusion. It reports that Madagascar has moved beyond the experimental phase, with sectoral strategies, the gradual migration of public services online and skills initiatives in place (UNDP, 2025, p. 5). It nevertheless identifies constraints across connectivity, rural electricity access, legal and cybersecurity frameworks, e-waste management and digital skills (Box 5).

Box 5
Madagascar – UNDP Digital Readiness Assessment.

Area	Assessment
Digital maturity	Several key pillars are at the systematic stage, and Madagascar has moved beyond the experimental phase, with sectoral strategies, the gradual migration of public services online and skills initiatives in place.
Strengths	ICT services accounted for 34% of total service exports in 2021, and the entrepreneurial ecosystem shows signs of innovation in mobile money, e-commerce and civic technology.
Connectivity constraints	In 2025, 20.4% of Malagasy people used the internet; fixed-broadband subscriptions numbered fewer than one per 100 inhabitants.
Infrastructure constraints	Limited access to electricity in rural areas constrains network extension.
Policy and trust constraints	Legal frameworks need modernisation; Madagascar does not yet have an official national cybersecurity strategy or dedicated national e-waste regulations.
Skills constraints	87% of experts cited insufficient digital skills as a constraint on enterprise digital transformation.

Source: UNDP (2025), pp. 5–6, 17, 20, 79, 104 and 112.

Private-sector systems are also building biometric enrolment at scale. Yas reports that more than 8.5 million of its customers have been biometrically enrolled since 2022 under its GEMINI programme (Yas Madagascar, 2026d).

The Transitional Government itself is generating new digital-government commitments. The implementation programme commits to digitising and securing the electoral register and the electoral process, including computerised publication of results, and a published National Dashboard through which citizens can track delivery of the Transitional Government's commitments (Government of Madagascar, 2025b). Both depend on digital identification, connectivity and skills foundations.

Digital government can only support inclusion if citizens are able to access and use the services being developed. Madagascar's online-service score shows that the state is building digital channels, while the lower infrastructure and human-capital scores show why adoption remains the central challenge. The same constraints also shape whether sector digitalisation initiatives, including agriculture, can reach rural users.

1.6. Digitalisation of agriculture

Agriculture is the priority sector linking Madagascar's digital strategy to rural livelihoods. Agriculture accounts for 70% of employment and 22% of GDP, and most of the households that digitalisation aims to reach depend on it. Digital agriculture is therefore part of the country's inclusion and productivity agenda, not only a sector initiative.

Madagascar has a sector-specific strategy for the digital transformation of agriculture. The Digital Transformation Strategy for Agriculture 2024–2028 (FAO) links digitalisation to food self-sufficiency, and the Transitional Government's programme commits to sustainable, resilient agriculture that ensures food security (Government of Madagascar, 2025b). It proposes a single, multi-channel digital-services window and priority services covering production, markets, finance and agricultural advice, alongside measures to strengthen data systems and digital skills (Box 6) (FAO Madagascar, 2024, pp. 7 and 34–43).

Box 6
Madagascar – digitalisation of agriculture

Area	Role in agricultural digitalisation
Policy link	Supports food security, which the Transitional Government's programme commits to through sustainable, resilient agriculture (Government of Madagascar, 2025b).
Producer services	Proposes a single digital-services window available through web, mobile and voice channels.
Priority digital services	Strengthens the producer card and proposes services for input access, agricultural advice and alerts, market access, innovative credit and index insurance.
Digital skills	Proposes adding digital-agriculture modules to existing agriculture, livestock and fisheries curricula in agricultural education and vocational-training institutions.

Source: FAO Madagascar (2024), pp. 7, 12 and 34–43.

The strategy depends on rural households being connected. Its proposed digital advisory services, pest and extreme-weather alerts, innovative credit and index insurance could extend support to producers who are difficult to reach through physical extension networks, but will have limited reach while rural households remain offline or cannot afford internet-enabled devices. The financial-services component also connects agricultural support directly to financial inclusion.



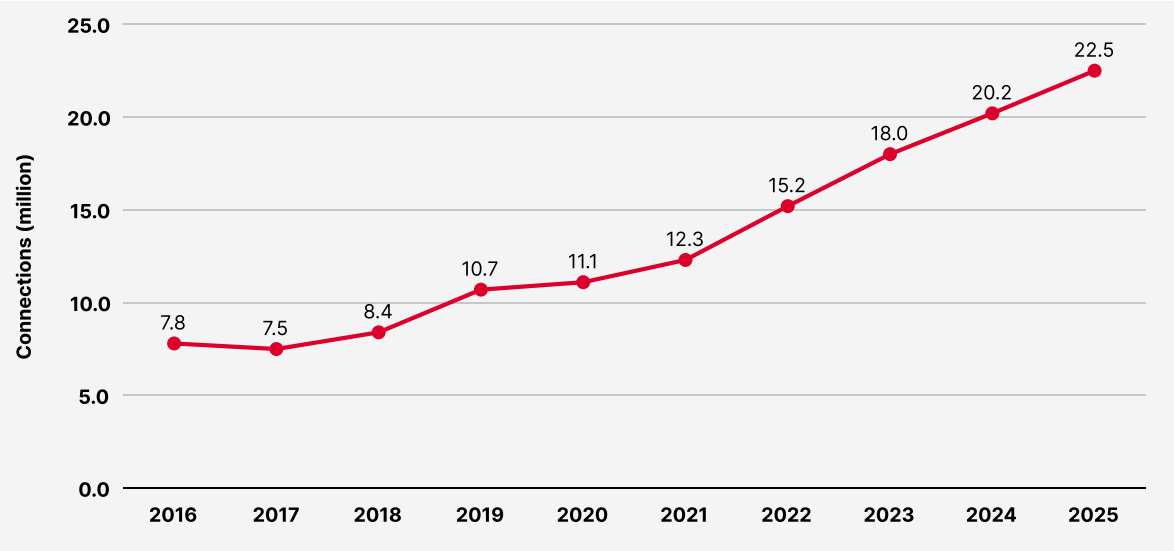
2. Current status of digitalisation in Madagascar

2. Current status of digitalisation in Madagascar

2.1. Broadband adoption and network coverage

Madagascar's mobile market has grown particularly strongly since 2021. GSMA Intelligence estimates total mobile connections rose from 12.3 million in 2021 to 22.5 million at the end of 2025 (Figure 12).

Figure 12
Madagascar – total mobile connections, 2016–2025.



Source: GSMA Intelligence

The majority of these connections are not used for the internet. Yas Madagascar, the largest operator, has reported that 3.1 million of its 12.3 million revenue-generating subscribers, about a quarter, were active data users. This is based on its active definition of more than 5 MB of mobile data in the previous 30 days (Axian Telecom, 2026, p. 6).

This report distinguishes between total mobile connections, unique mobile subscribers and unique mobile internet subscribers. Total mobile connections track market activity, but unique-user measures provide a better understanding of how many people use mobile services and mobile internet. The metrics used in this section are summarised in Box 7 and defined in the Glossary and in Table 11 in Annex 1.

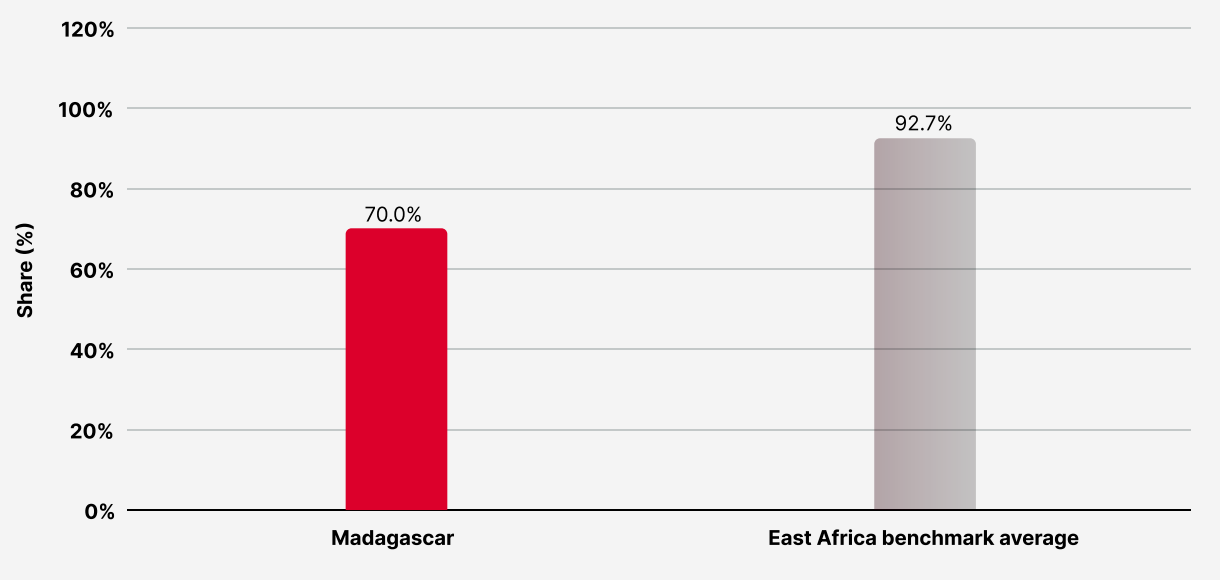
Box 7
Madagascar – mobile adoption metrics used in this report.

Metric	Definition and use
Total mobile connections	Unique SIM cards registered on mobile networks.
Unique mobile subscribers	Individuals who have access to and use their own mobile handset. GSMA Intelligence estimates derived from consumer survey data and market-level connection data.
Unique mobile internet subscribers	Unique mobile subscribers who use their phone to access internet services. GSMA Intelligence estimates validated against market-level mobile internet connections by technology generation.

Source: GSMA Intelligence datasets and definitions and ARTEC.

Connection-based mobile penetration does not measure how many individuals are connected. Madagascar's 2G+ connection penetration stood at 70.0% of the population in 2025 on GSMA Intelligence estimates, below the regional benchmark average of 92.7%. Connection-based indicators count SIMs rather than people, and can exceed 100% in some markets because many users hold more than one SIM (Figure 13).

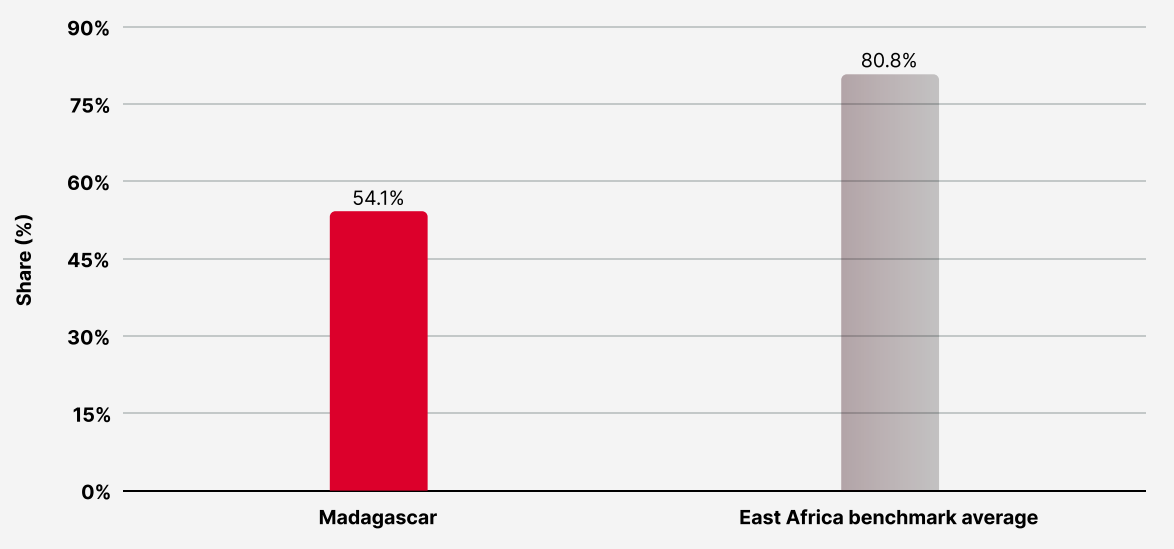
Figure 13
2G+ connection penetration, 2025.



Source: GSMA Intelligence, 2025. Note: Connections as a percentage of total population; totals can exceed 100% where users hold multiple connections.

Broadband-capable connection penetration is further below the regional benchmark. Madagascar's 3G+ connection penetration stood at 54.1% of the population in 2025, against an East African benchmark average of 80.8%. The gap between Madagascar and the regional benchmarks is greater for mobile internet connection penetration than it is for 2G+ mobile (Figure 14).

Figure 14
3G+ connection penetration, 2025.



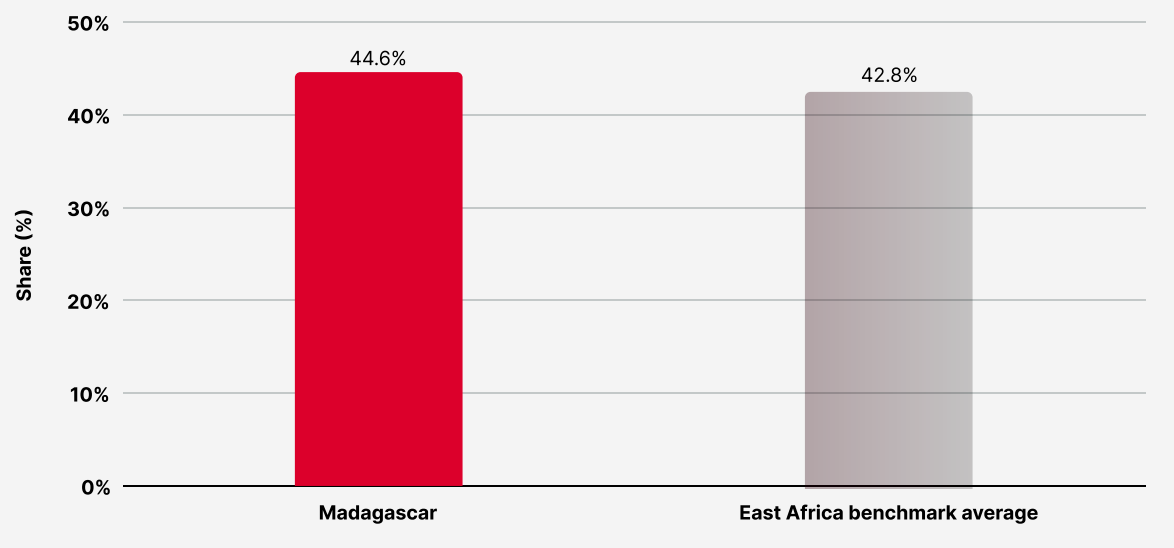
Source: GSMA Intelligence. The average here and elsewhere is a simple average of the benchmark countries.

This difference in connectivity between Madagascar and regional benchmarks is also reflected in the unique-subscriber data. Unique mobile subscriber penetration stood at 44.6% of the population in 2025, around the regional average (Figure 15).

Around 40% of the population is aged 14 or below (World Bank, 2026c), so this implies that around three-quarters of adults are mobile subscribers.



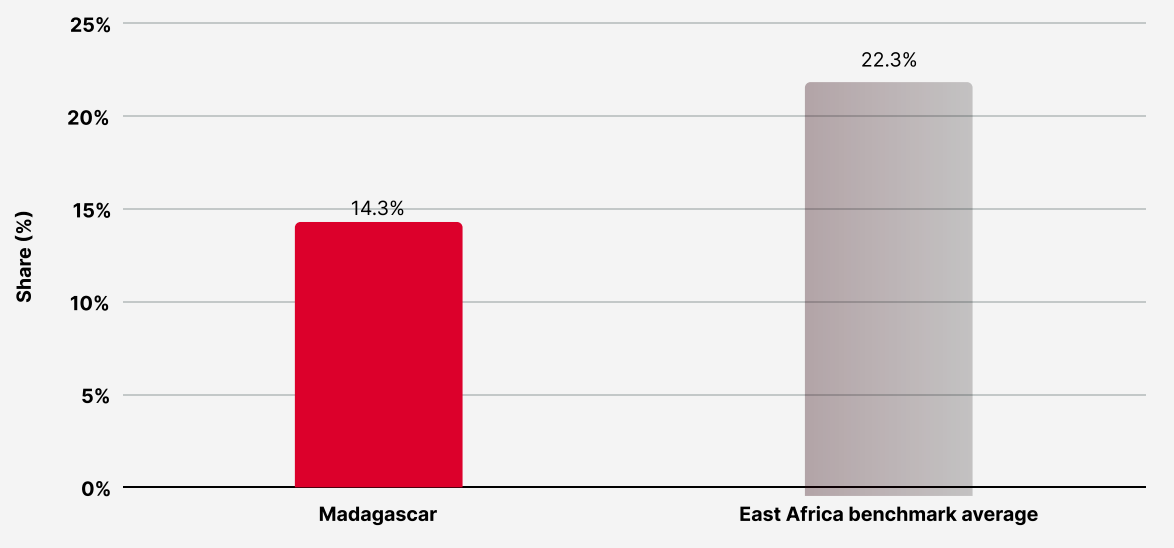
Figure 15
Unique mobile subscriber penetration, 2025.



Source: GSMA Intelligence (2025b).

Mobile internet adoption remains low by regional standards. Unique mobile internet penetration was 14.3% in 2025, significantly below the regional average (Figure 16).

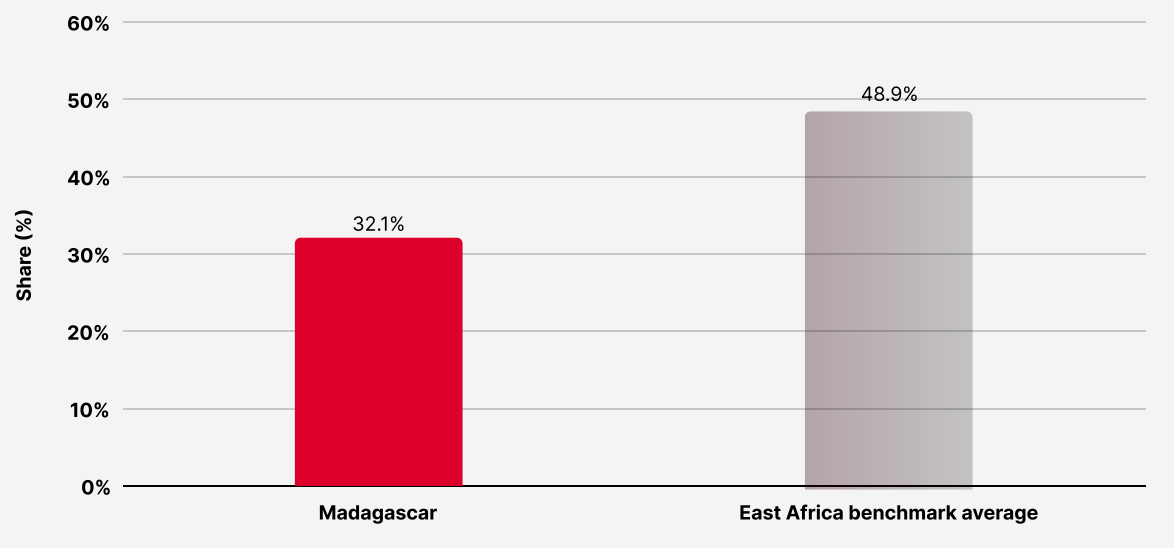
Figure 16
Unique mobile internet subscriber penetration, 2025.



Source: GSMA Intelligence (2025b).

Only around one-third of unique mobile subscribers use mobile internet. This is a low share by regional standards, leaving most mobile users on voice, SMS or non-broadband services (Figure 17).

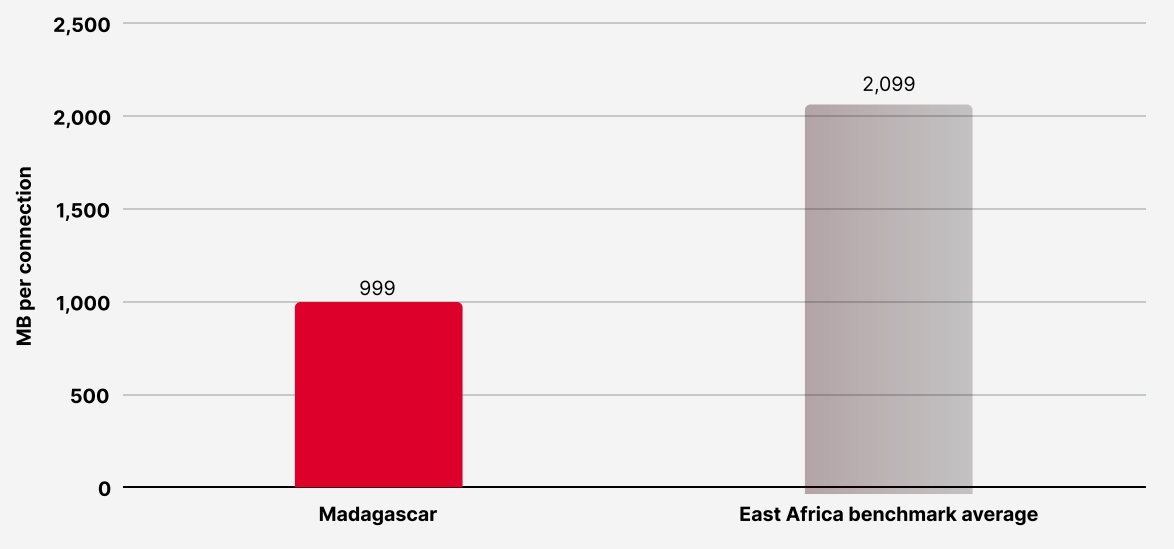
Figure 17
Mobile internet users as a share of unique mobile subscribers, 2025.



Source: GSMA Intelligence (2025b).

Those who use mobile internet also use relatively little data. Data traffic per connection is low by regional standards. Madagascar's adoption challenge is therefore not only getting more people online, but enabling more regular and productive use of mobile broadband (Figure 18). These 2025 figures pre-date the tariff cuts of December 2025 and February 2026 and the rise in usage that followed (see section 2.2).

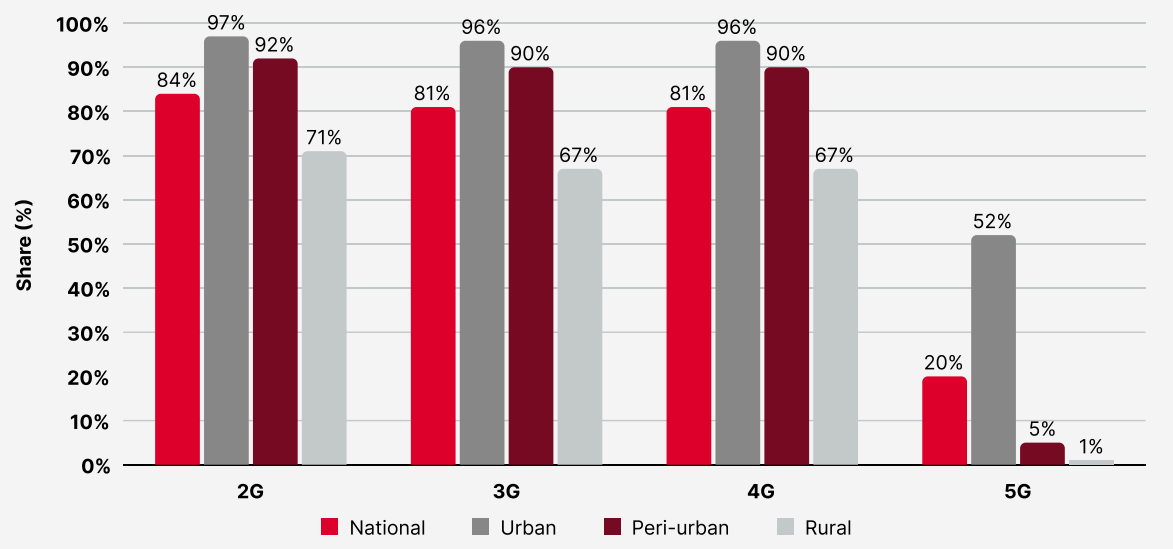
Figure 18
Mobile data traffic per connection, 2025.



Source: GSMA Intelligence (2025b).

Network coverage is strong in urban areas, but rural coverage gaps remain significant. Madagascar has near-universal urban coverage for 2G, 3G and 4G. 3G and 4G networks cover 81% of the population nationally. However, 33% of the rural population remains outside 4G coverage and 29% of the rural population has no mobile coverage at all. 5G has been deployed but remains concentrated in urban centres, with urban population coverage above 50% in 2026 (Figure 19).

Figure 19
Madagascar – mobile coverage by technology and degree of urbanisation.

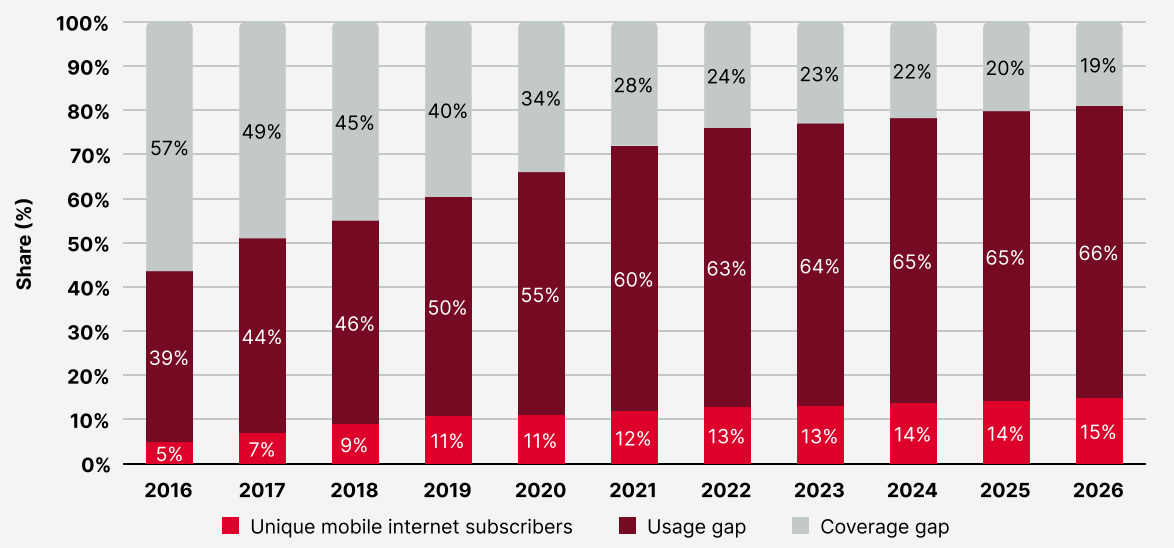


Source: GSMA Intelligence (2026)

Figure 19 uses GSMA Intelligence's analysis of operator data as of April 2026. Annex 2 sets out the method and its main parameters. **Operators report that networks have continued to expand during 2026, so current coverage is likely to be somewhat higher.** Yas, which operates Madagascar's largest network, reports population coverage of 89.4% for 2G, 88.8% for 3G and 88.5% for 4G at the end of August 2026 (Yas Madagascar, 2026d). **Coverage estimates depend on the signal-strength threshold and other assumptions used in each coverage model, so figures from different sources can differ. Regulator data for 2025 (86.7% 3G and 85.4% 4G population coverage; ARTEC, 2026) are slightly higher than the GSMA Intelligence estimates, which is consistent with this.**

Coverage has expanded faster than mobile internet adoption. Since 2020, unique mobile internet subscriber penetration has increased by around 4 percentage points, while 3G+ network coverage has increased by around 15 percentage points. The result is a large and growing usage gap: the share of the population covered by mobile broadband but not using it rose from 55% in 2020 to 66% in 2026 (Figure 20).

Figure 20
Madagascar – subscriber, usage and coverage gaps, 2016–2026.



Source: GSMA Intelligence (2026) Note: The usage gap is the share of the population covered by mobile broadband networks but not using mobile internet.

Madagascar therefore faces both a remaining rural coverage gap and a large usage gap. The sector faces a twin challenge: extending coverage in rural areas and boosting mobile internet adoption in those areas that are already covered.

2.2. Broadband affordability

In the ITU's 2025 comparison, mobile data prices in Madagascar were in the mid-range of benchmark countries. A monthly 5 GB data-only mobile-broadband basket cost USD 5.34 (ITU, 2026). This benchmark pre-dates significant tariff reductions that were implemented by the operators between December 2025 and February 2026. Before the changes, a low-consumption data and voice basket cost USD 3.33 per month and a high-consumption basket USD 8.03 per month.

Before the recent tariff reductions were implemented, **mobile broadband affordability was a challenge for low-income households.** At that time, the low- and high-consumption baskets represented 7.8% and 18.8% of GNI per capita respectively, against the UN Broadband Commission's 2% affordability target (Broadband Commission, 2018).

The latest GSMA Mobile Connectivity Index, based on 2025 data, scores Madagascar 25.9 out of 100 for the affordability of an entry-level (1 GB) basket for the poorest 40%, significantly below regional leaders such as Kenya (81) and Rwanda (52), and below Somalia (53), a neighbour with similar GDP per capita (GSMA, 2026h). However, it is important to note that, for low-income households, a more relevant measure of affordability is the total cost of mobile ownership, including handset, data and charging, rather than data prices alone.

Prices of mobile data have fallen sharply since December 2025. That month the Transitional Government and all three operators agreed reductions in internet tariffs, with each operator setting the scale of its cuts (Agence Ecofin, 2025), and by February 2026 the Minister was reporting effective reductions of around 43% (AllAfrica, 2026).

The cuts were delivered mainly by enlarging the data allowance sold at existing price points rather than by lowering headline bundle prices, so they are best measured as the change in the price per gigabyte (Table 4). Because the ITU's 2025 baskets pre-date the changes, they will not appear in measured affordability until the 2026 analysis.

Table 4
Madagascar – mobile internet bundles before and after the December 2025 tariff reductions.

Operator and bundle	November 2025	February 2026	Price per GB (MGA), Nov 2025 → Feb 2026	Change
Yas, MGA 1,000 (24 hours)	220 MB	1 GB*	4,545 → 1,000	−78%
Yas, MGA 5,000 (7 days)	1 GB	1.2 GB + 300 MB MVola†	5,000 → 4,167 (3,333)	−17% (−33%)
Yas, MGA 10,000 (7 days)	2.2 GB	3 GB + 750 MB MVola†	4,545 → 3,333 (2,667)	−27% (−41%)
Orange, MGA 1,000 (24 hours)	220 MB	1 GB*	4,545 → 1,000	−78%
Orange, MGA 13,500 (7 days)	3 GB	5 GB + 1.2 GB Orange Money†	4,500 → 2,700 (2,177)	−40% (−52%)
Airtel, MGA 1,000 (7 days)	250 MB	1 GB*	4,000 → 1,000	−75%
Airtel, MGA 2,000 (7 days)	500 MB	2 GB*	4,000 → 1,000	−75%
Airtel, MGA 5,000 (7 days)	1.2 GB	2.4 GB	4,167 → 2,083	−50%

Source: Airtel Madagascar (2026a); Yas Madagascar (2026a). Note: * half of the allowance can be used only at night.
† Additional data for bundles bought through the operator's mobile-money service. Figures in brackets count the mobile-money data.

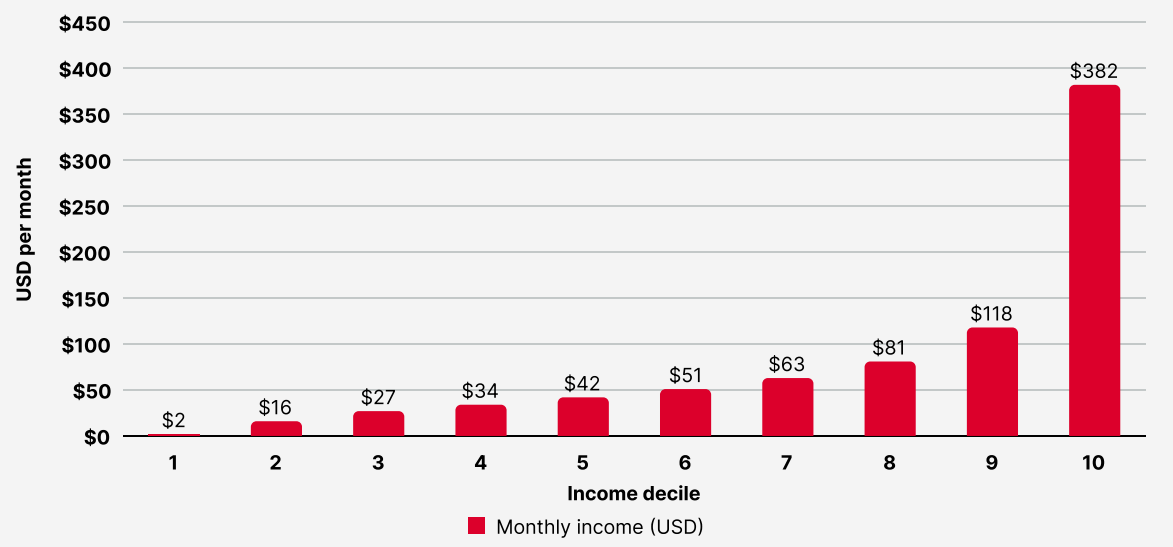
The tariff cuts reduced the price per gigabyte by around three-quarters on many entry-level bundles and by a third to a half on most weekly bundles. At the MGA 1,000 entry point all three operators now sell 1 GB where they sold 220–250 MB in November 2025, a fall in the price per gigabyte of 75–78% to around USD 0.24, although half of the new allowance can be used only at night. On weekly bundles the cuts are smaller but still large: Airtel doubled or quadrupled its allowances between MGA 2,000 and MGA 5,000, at least halving the price per gigabyte, while Yas and Orange raised weekly allowances by 20–70% and added bonus data for bundles bought through their mobile-money services, cutting the price per gigabyte by 17–40%, or by 33–52% counting the mobile-money data (Airtel Madagascar, 2026a). Delivered within three months of the agreement, these are large and rapid reductions that will have improved the affordability of mobile services significantly.

Yas estimates the average price across its data offers after the February 2026 changes at around MGA 1,750 (USD 0.41) per gigabyte (Yas Madagascar, 2026d). This average is not directly comparable with the ITU's 5 GB monthly basket, which counts only data usable at any time of day and requires 30 days' validity. Yas's MGA 1,000 daily offer, for example, gives 1 GB of which half can be used only at night. The ITU rules allow a qualifying basket to be assembled from daily bundles, and on Yas's current offers this would cost around MGA 11,500 (about USD 2.7) a month, towards the cheaper end of the ITU's 2025 comparison, although it requires a purchase every day and Madagascar's like-for-like position will only be known when the ITU's 2026 comparison is published. Yas's single 30-day package costs MGA 25,000 (around USD 6) for 4.5 GB, or 6.75 GB when bought through MVola, similar to the 2025 benchmark price.

Operators also report an immediate rise in traffic volumes following the reductions. Yas reports that data usage on its network roughly doubled (Yas Madagascar, 2026d). This is an indication of how price-sensitive consumers in Madagascar are and indicates that the policy measures proposed in this report would produce a rapid demand response.

The cost of a smartphone is a large upfront barrier, particularly for low-income households. The retail price for a new entry-level smartphone is typically USD 50 to USD 100 (about MGA 210,000 to 420,000), including tax.[3] For the poorest 10% of the population, average monthly income is around USD 2, so a device represents more than a year's income, far out of reach even with subsidies. For the second to eighth income deciles, average monthly income is USD 16 to USD 81 (Figure 21).

Figure 21
Madagascar – income by decile, 2024.



Source: World Inequality Database (2026), 2024 income data

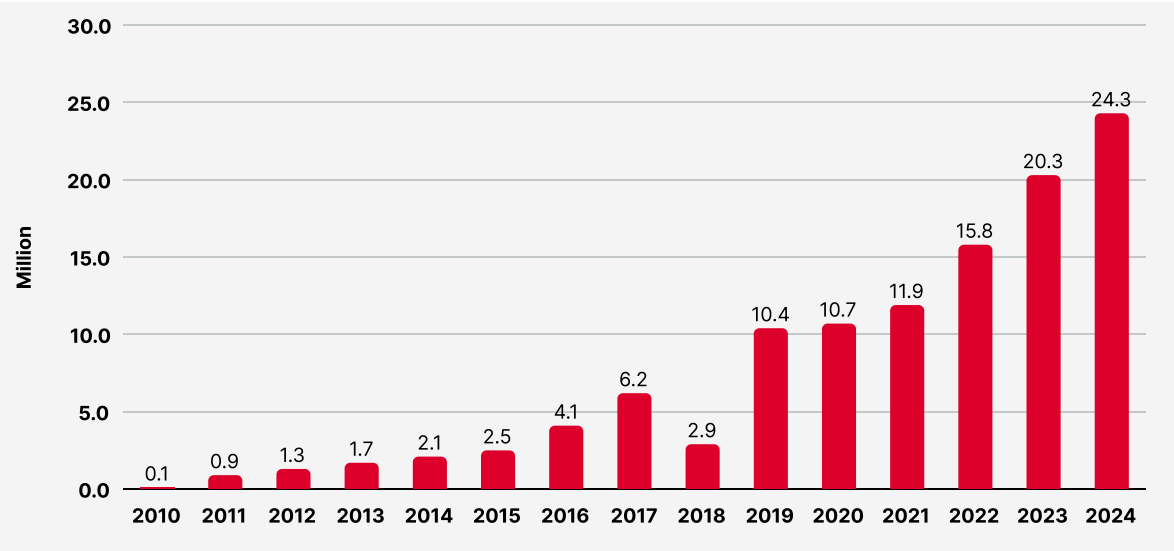
The cost of the device is therefore the main barrier to converting coverage into use. Cheap data alone does not make mobile broadband affordable where incomes are very low and the device is an upfront multiple of monthly income. Operator device-financing schemes and the DECIM programme, which spread this cost over instalments, are described in section 3.1.2.

3 For example, the Xiaomi Redmi A5, a popular entry-level Android smartphone, retails in Antananarivo at MGA 365,000 (64GB) to MGA 464,000 (128GB) inclusive of tax, approximately USD 87–110 at the prevailing exchange rate of c. MGA 4,200 per USD (July 2026). Source: Smarteo Madagascar (2026). Yas's cheapest smartphone offered online is the ZTE A36 for approximately USD 47 (MGA 199,000) with financing available at USD 0.29 per day (MGA 1,200) over 12 months (Yas Madagascar, 2026b).

2.3. Use of mobile financial services

Mobile money has grown rapidly in Madagascar over the past decade. Registered mobile-money accounts increased from 6.2 million in 2017 to 24.3 million in 2024 (Figure 22).

Figure 22
Madagascar – registered mobile money accounts, 2010–2024.

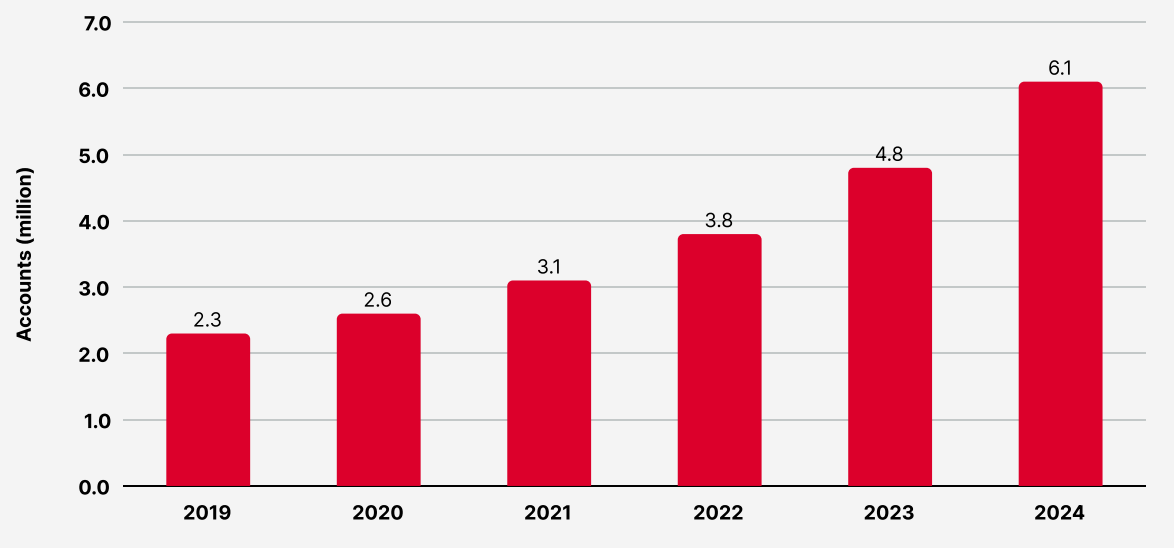


Source: IMF (2026a), Financial Access Survey, 2010–2024. The low figure for 2018 is an unexplained anomaly present in the original data source.

Mobile money has expanded in a market where physical banking infrastructure is limited. Mobile channels enable payments and financial services to reach low-income and rural customers who are costly to serve through branch-based banking (IFC, 2023).

In 2024, Madagascar had 24.3 million registered mobile money accounts, of which 6.1 million were active under the source's activity definition (IMF, 2026a; Figure 23). The difference between those account counts reflects registered accounts that were inactive during the measurement window. Neither measure is a count of unique people and individuals may hold accounts with more than one provider.

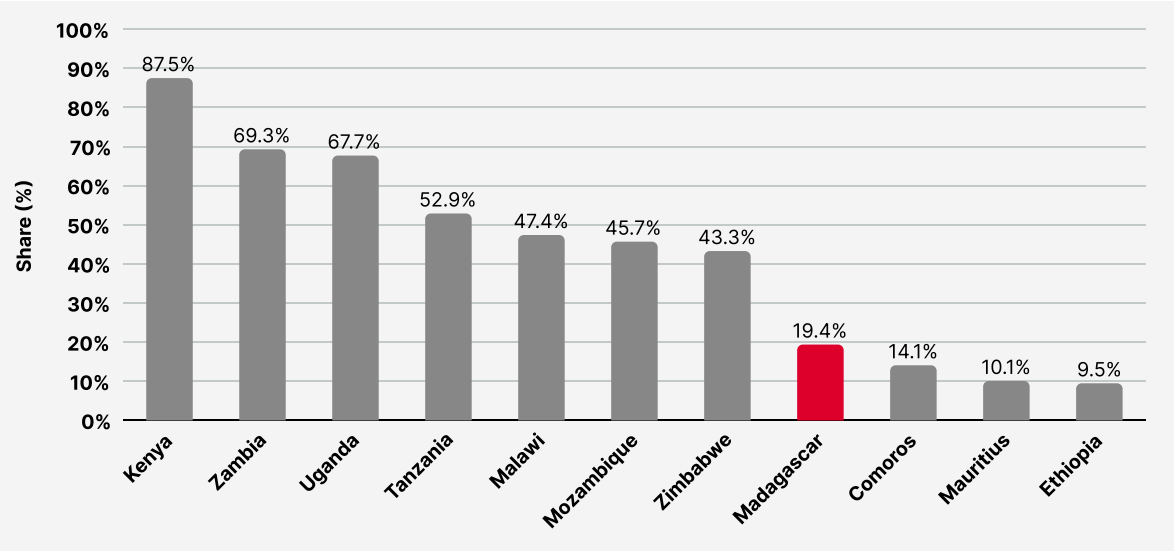
Figure 23
Madagascar – active mobile money accounts, 2019–2024.



Source: IMF (2026a), Financial Access Survey (FAS). Series shown from 2019 due to 2018 unexplained anomaly.

Despite the growth in mobile money in recent years, penetration is low by regional standards. 19.4% of Malagasy adults in 2024 owned mobile money accounts, near the bottom of regional benchmark countries. Growth in registered accounts has not yet translated into broad-based adult ownership. There are several potential explanations for this, including a late start in the take-up of mobile money, the dependence on cash-based informal agriculture for many households and the lack of government programmes that might provide a financial incentive for people to get a mobile money account (Figure 24).

Figure 24
Mobile-money account ownership, 2024.



Source: World Bank (2025a), Global Findex Database 2025 (2024 observations).

Mobile money use is broadening beyond person-to-person transfers. Customers increasingly use mobile money to pay bills, receive salaries, save and borrow, while partnerships between mobile money providers and financial institutions have supported digital savings accounts and nano-loans (IFC, 2023). This has resulted in rapid growth in the value of mobile money transactions, although transaction values also remain low by regional standards (IMF, 2026a).

Mobile money also supports services in energy and credit. Baobab+ (now rebranded as Izili Madagascar) has used pay-as-you-go mobile payments to enable more than 100,000 households to acquire solar kits since 2016. KRED, an initiative launched by BNI Madagascar, has approved more than 25,000 credit lines for micro, small and medium-sized enterprises, while Première Agence de Microfinance allows users to apply for credit or open savings accounts through Facebook Messenger (IFC, 2023). Yas's Mbalik programme reports more than 250,000 households equipped with pay-as-you-go solar kits since 2020 (Yas Madagascar, 2026d).

Access constraints still limit who can benefit. Internet access, electricity and their associated costs, high rural poverty and lack of formal identification restrict digital financial-service adoption (World Bank, 2022a). Mobile money therefore provides an established platform for useful digital services, but not one as widespread as in other countries in the region.

2.4. Conclusions on digital adoption in Madagascar

Madagascar has expanded mobile access substantially, but this has not yet translated into broad digital adoption. Total mobile connections rose from 12.3 million in 2021 to 22.5 million in 2025, but only around one-third of subscribers use mobile internet, and unique mobile internet subscriber and mobile-money penetration both remain low compared to benchmark countries.

The main adoption challenge is the gap between mobile access and mobile internet use. In 2025, 44.6% of the population had a mobile subscription but only 14.3% used mobile internet; around one subscriber in three. Data traffic per connection is also low by regional standards, suggesting that many of those who are online are light users.

Madagascar faces both a rural coverage gap and a larger usage gap. A third of the rural population lies outside 4G coverage and 29% has no mobile coverage at all, so coverage expansion remains necessary. But with 66% of the population covered yet not using mobile internet, the larger challenge is adoption.

Affordability is a major constraint on adoption. Mobile data prices were in the regional mid-range in the ITU's 2025 comparison and have since fallen sharply: the December 2025 tariff cuts reduced the price per gigabyte by around three-quarters on entry-level bundles. Yet an entry-level smartphone still costs more than a month's income for all but the highest income deciles. The primary barrier is therefore the total cost of mobile ownership relative to very low incomes, not headline data prices.

Mobile money is Madagascar's strongest digital application, but not yet a universal financial-inclusion platform. Transaction values reached 95.1% of GDP in 2024 (IMF, 2026a), and new services are emerging in savings, credit and pay-as-you-go solar, but adult account ownership (19.4%) remains low by regional standards.

Weak demand is an additional barrier. Most people who are not yet using mobile broadband live within coverage and are aware of it, but do not consider that the benefits outweigh the costs (GSMA, 2025b, pp. 6 and 30). Many are rural, low-income and have limited literacy, so demand-side measures need to offer benefits that are relevant and accessible to them, such as digital government services or financial incentives delivered through familiar local channels, alongside improvements in affordability.

These constraints reinforce one another, and fall hardest on the households with the most to gain. Low rural coverage, weak electricity access, limited formal identification, low digital skills and very low incomes interact, and each is most acute for the rural, low-income households that digital public services, digital finance and digital agriculture are designed to reach. Across Africa, countries with lower connectivity also tend to be less digitalised, so investment in e-government, digital skills and sector digitalisation will not deliver its full impact unless connectivity and adoption improve alongside it.

Policies to promote digitalisation therefore need to focus on adoption among low-income and rural households. The priorities are to make internet-enabled devices more affordable, reduce the cost of expanding coverage in commercially difficult areas, update sector taxation and strengthen demand for digital services. These four priorities frame the recommendations in the next section.



3. Policy Recommendations

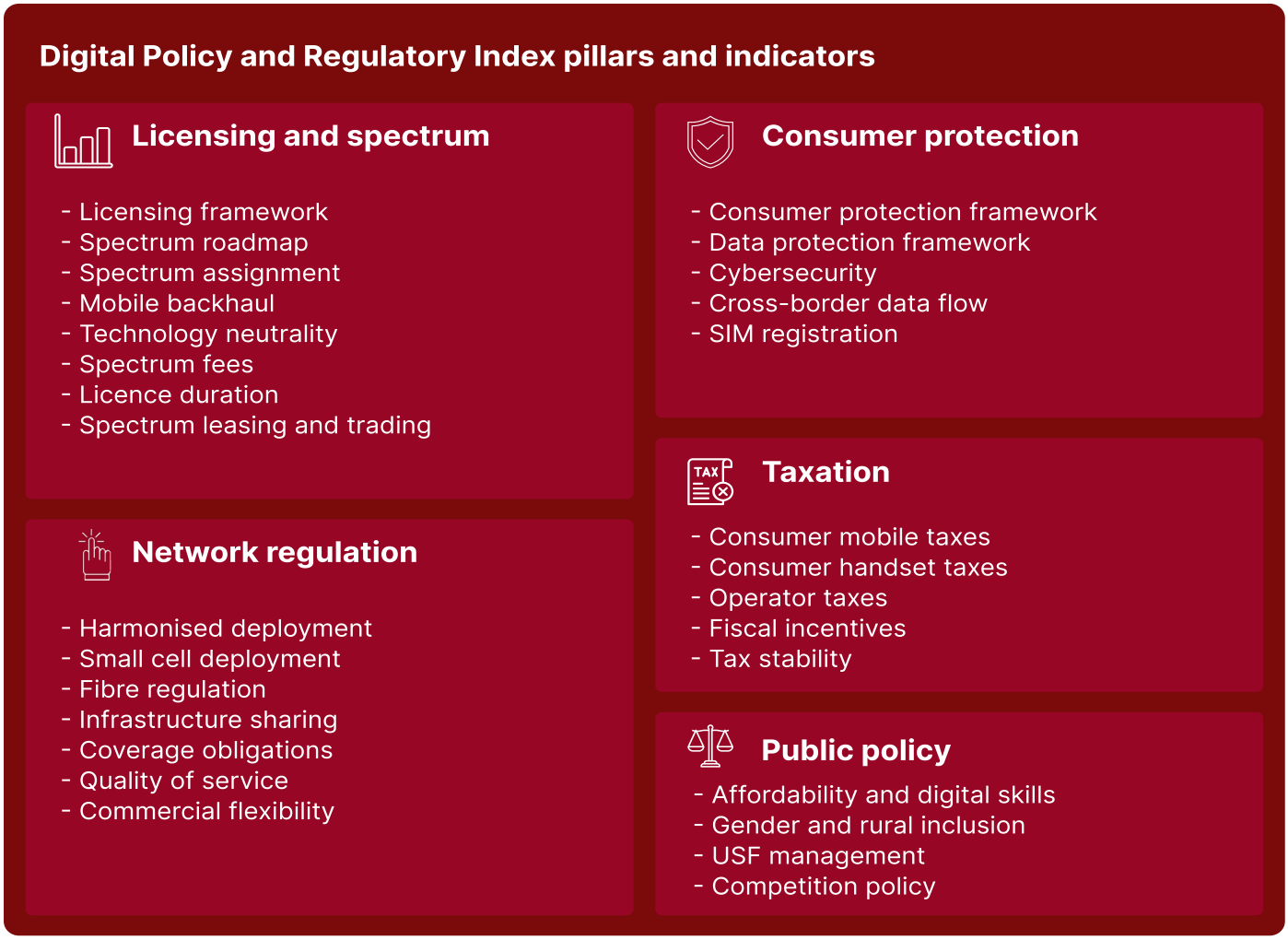
3. Policy Recommendations

The DAI provides a framework for targeted policy recommendations for Madagascar. 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.

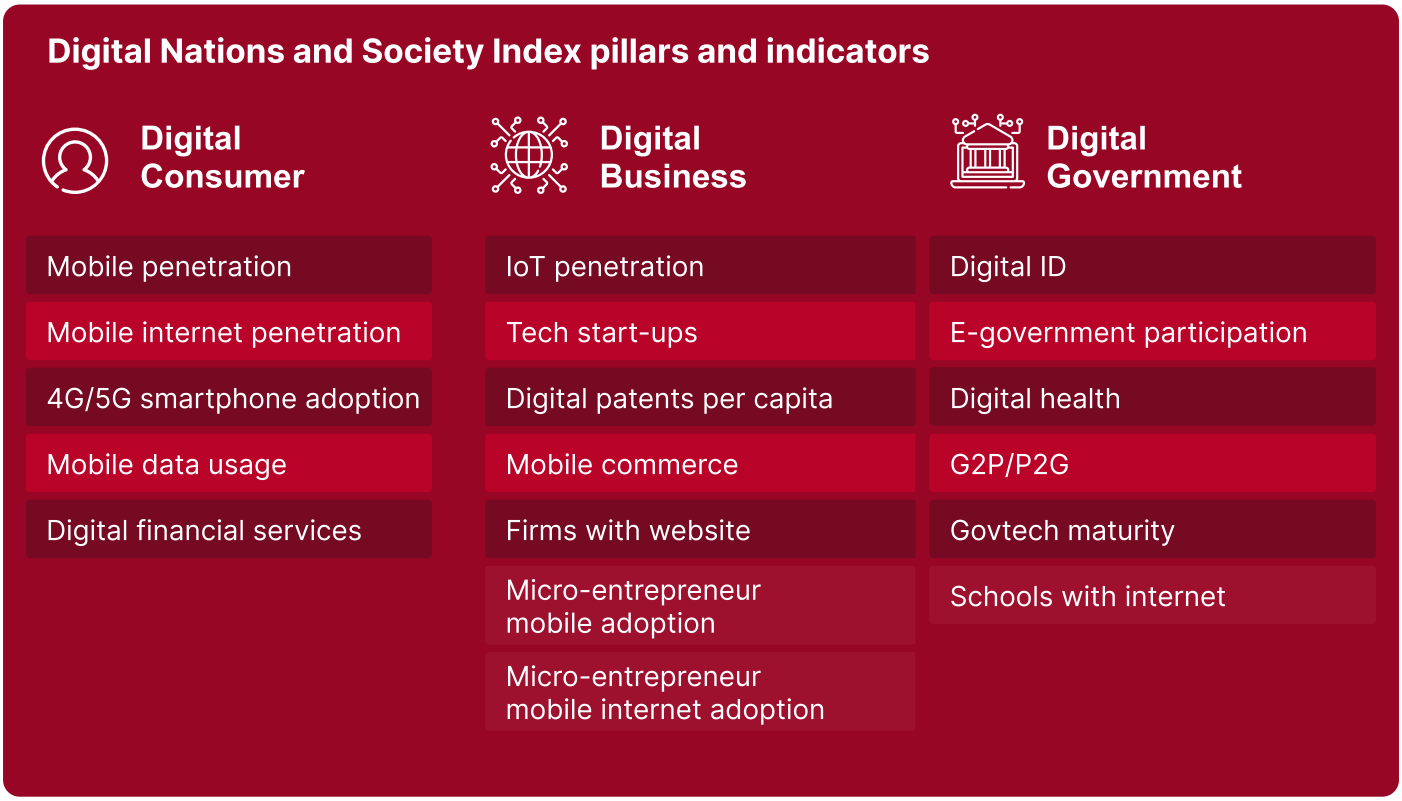
The DAI itself is made up of sub-indices that reflect particular areas of digital policy and performance.[4]

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 25).

Figure 25
DAI pillars and indicators.



4 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

The recommendations draw primarily on three areas of the Digital Policy and Regulatory Index, network regulation, taxation and public policy, together with digital-government measures that stimulate demand. They are presented in four groups, starting with smartphone affordability, the largest single barrier identified, followed by network expansion, sector taxation and demand.

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 focuses on concrete policy steps that will drive digitalisation in the historical, economic and societal context of Madagascar. Annex 3 sets out institutional responsibilities and where leadership lies for each of the recommendations.

3.1. Smartphone affordability

Policies to increase smartphone adoption among low-income and rural households must focus on affordability and be part of a national smartphone affordability strategy. An entry-level smartphone costs up to USD 100 including tax, more than one month's income for all but the two highest income deciles, and far out of reach for the poorest. Two policy strategies can close this affordability gap.

The first is to reduce the taxes and duties that account for about a third of the retail price; the second is to spread the remaining cost over time through device financing.

Overcoming the upfront affordability barrier has lasting effects on adoption. Examples in India and Kenya show this (Box 8).

Box 8
Case studies in Kenya and India – overcoming the upfront affordability barrier

Country	Approach and outcome
India	Reliance Jio introduced very low cost services and internet-enabled devices; the market-wide fall in data prices that followed enabled sustainable mass usage.
Kenya	VAT exemption reduced upfront device costs; operators introduced low-cost devices (Neon 3G, Neon 4G); financing programmes such as Lipa Mdogo Mdogo supported migration to 4G. Affordability measures ran alongside mass digital literacy programmes.

Source: Reuters (2017); GSMA Intelligence (2025a), p. 49.

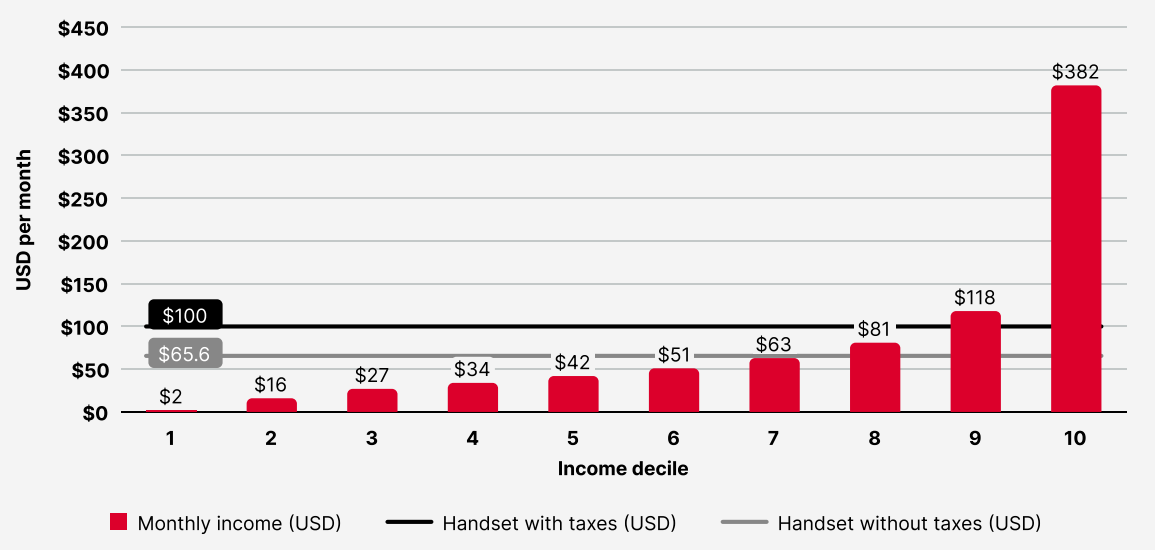
The development value of mobile connectivity depends not simply on whether someone owns a handset, but on what that device enables them to do. Feature phones enable voice, SMS, USSD and straightforward mobile-money transactions, while smart feature phones can provide access to a limited selection of applications. They are not, however, a substitute for a smartphone where users can navigate full websites, install a broad range of applications, complete forms, upload documents or photographs, participate in video-based learning, or use interactive government, financial and agricultural services. These higher-value activities are the channels through which mobile broadband can improve access to public services, education, markets and income-generating opportunities.

Evidence across Africa indicates that device capability affects both whether people adopt mobile internet and how productively they use it. Smartphone owners are more likely to adopt mobile internet, use it regularly and undertake a wider range of activities (GSMA Intelligence, 2025a, p. 14). In Madagascar, Yas sells a basic phone for MGA 24,000 and an entry-level 4G smartphone, the ZTE A36, for MGA 199,000 (Yas Madagascar, 2026c), while Airtel's MGA 150,000 Smarta occupies an intermediate position (Airtel Madagascar, 2026b). The Smarta can provide a useful bridge from basic connectivity to selected online services. Policy should target tax relief and financing support at entry-level 4G smartphones capable of providing fuller access to the digital economy.

3.1.1. Smartphone taxation

Taxes make entry-level smartphones unaffordable for many people in Madagascar. For an entry-level smartphone retailing at around USD 100 (about MGA 420,000), the 20% customs duty, 6% copyright fee, 1% regulation levy on terminal sales and 20% VAT together account for about USD 35 of the price; the same device would cost around USD 65 before these taxes. To illustrate this affordability problem, the figure below shows a USD 100 device with and without taxes. For the 8th income decile, a taxed entry-level smartphone represents more than one month's income, but without taxes the price is lower than one month's income (Figure 26).

Figure 26
Madagascar – average monthly income per decile vs cost of entry-level smartphone, with and without taxes, 2024.



Source: World Inequality Database (2026) and GSMA Intelligence

Global cost pressure will compound the barrier. Manufacturers of sub-USD 200 smartphones face bill-of-materials cost increases of 20–30% driven by memory prices, and global average selling prices are forecast to rise 6.9% in 2026 (Counterpoint Research, 2025).

South Africa provides a recent example of targeted device-tax relief, followed by stronger entry-level sales. It removed the 9% ad valorem excise duty on smartphones priced below R2,500 (around USD 150) on 1 April 2025 (Box 9).

Box 9
South Africa – removal of excise duty on entry-level smartphones

Reform	9% ad valorem excise removed on devices below R2,500 (≈ USD 150) from 1 April 2025.
Outcome	Average monthly entry-level sales growth moved from −7.9% before the exemption to +6.2% after it (GSMA, 2026a, p. 3); entry-level volumes rose 80% between March 2025 and February 2026 while feature-phone sales fell 87% (GSMA, 2026a, p. 4).

Source: GSMA (2026a).

High device taxes have created a large informal market. Operators estimate that around 80% of handsets sold in Madagascar enter through informal channels, avoiding customs duty, the copyright fee, the regulation levy and VAT (information supplied to the authors, 2026).

The informal market denies the government most of the revenue the taxes are meant to raise. Because no tax is paid on four in five devices entering the country, the effective tax base is a fifth of the market. Enforcement is strengthening: electronic invoicing was mandated through Budget Laws, including Law 2024-003 of 4 July 2024, with the fuller VAT e-invoicing framework envisaged through the 2026 Budget Law (World Bank, 2025b, p. 35), and Madagascar's DGI has adopted the Rwanda Revenue Authority's Electronic Billing Machine (EBM) framework, integrated into the national tax portal SAFI (Rwanda Revenue Authority, 2026). Enforcement alone, however, works against a price difference of 54%, which is a strong incentive to evade.

Device-level controls can support enforcement. For example, Nigeria is introducing a device management system built around a central register of IMEI numbers, which blocks unregistered, illegally imported or stolen devices from its networks (NCC, 2026b), and the GSMA Device Registry, which records the status of devices worldwide and is available to regulators, can support such systems (GSMA, 2026g).

Removing the taxes on entry-level devices would reduce the incentive to import informally. With the four charges withdrawn below the threshold, informal and formal prices would move closer together, formal channels could compete on warranty, service and financing, and importers would earn a normal, taxable margin on the whole market rather than on only a fifth of it. The revenue forgone is the tax on the one-fifth of devices now sold formally; the revenue recovered is corporate tax on those margins and the service and mobile-money taxes paid by new users. The immediate rise in traffic after the tariff reductions of December 2025 and early 2026 (section 2.2) suggests that Malagasy consumers respond quickly to lower prices, and the same can be expected for device prices. To protect tax receipts during the transition, a higher rate on high-end devices above a second, upper price threshold would be a possible option.

Recommendation 1.1 – Remove the 6% copyright fee, 20% import duty and 1% regulation levy on entry-level smartphones

It is recommended that the government remove the 6% copyright fee, 20% import duty and 1% regulation levy on entry-level smartphones below a published price threshold, in combination with continued e-invoicing and EBM compliance strengthening.

Recommendation 1.2 – Exempt entry-level smartphones from VAT below a published price threshold

It is recommended that the government implement a VAT exemption targeted at entry-level smartphones under the same published price threshold, so that the fiscal cost is concentrated on the devices through which low-income households first come online, rather than on premium devices.

3.1.2. Device financing

Lower prices alone will not bridge the upfront barrier for many households. Madagascar already has results-based grants and pay-as-you-go (PAYG) device offers, but providers face liquidity and repayment risks, while low-income users may struggle with rigid commitments. PAYG with small, flexible payments with ownership transferring on completion is one of the principal device-financing models across Africa (GSMA Intelligence, 2025a, pp. 26–27).

Malagasy operators already offer device financing to customers. Yas sells the ZTE A36 in daily instalments of MGA 1,200 (less than USD 0.30) over 12 months (Yas Madagascar, 2026b). Yas describes its scheme as covering a range of models and price points, with daily repayments made through MVola and data sometimes included, and reports that it subsidises device prices and import costs from its own budget to lower the entry barrier (Yas Madagascar, 2026d).

DECIM's device mechanism has moved from design into delivery. The project combines results-based financing grants, catalytic grants and credit-line financing for inventory and PAYG receivables (Box 10; World Bank, 2024b, pp. 12–13), designed around a feasibility study and pilots that set targeting, eligibility and subsidy levels (World Bank, 2023, pp. 33–34). Distribution has now started at scale: 149,359 affordable devices had been distributed by 25 June 2026, up from 65,000 in mid-March 2026 (World Bank, 2026f, p. 5).

Box 10
Madagascar – DECIM device financing scheme (operational — distribution under way since 2025–2026)

Area	Role in the scheme
Device target	Finance the distribution of 664,000 internet-connected digital devices, with 400,000 allocated to women and girls.
Results-based financing grant	Support the commercial distribution of feature phones, smart feature phones, smartphones and laptops, with incentive bonuses to boost distribution among priority target groups, including women, remote geographic areas and users of mobile money.
Additional device distribution	Support the distribution of tablets and laptops to specific groups, including university students and women-led technology start-ups.
Catalytic grant	Strengthen the wider ecosystem through digital education, local digital content that supports digital, financial and social inclusion, business expansion into new geographic areas, and marketing and communication campaigns.
Credit-line financing	Provide financing for inventory and PAYG receivables for distributors, as well as refinancing of receivables to financial institutions active in the sector.

Source: World Bank (2024b), pp. 12–13; World Bank (2026f), p. 5.

Recommendation 1.3 – Scale device financing through the DECIM mechanism and adoption incentives

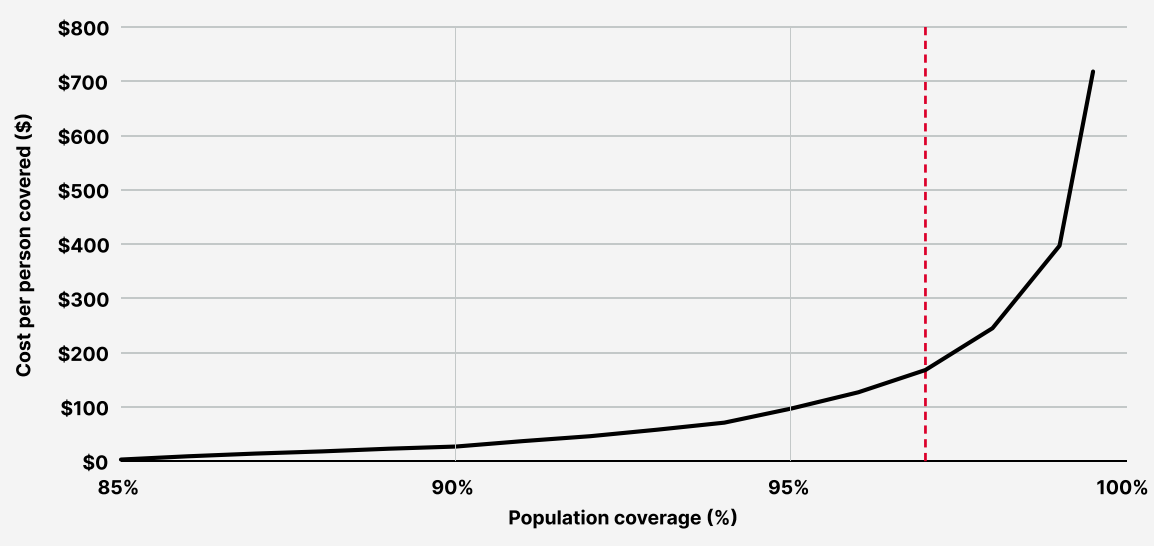
It is recommended that the government, with the World Bank and other development partners, operators and consumer-finance providers, use DECIM's financing work as a platform for developing further device financing initiatives and adoption incentives. Support should be available on transparent terms across eligible providers, with clear total repayment costs.

3.2. Financial sustainability of mobile networks

3.2.1. Network expansion costs

Expanding network coverage increases the number of people able to access the internet, but the cost per person covered rises steeply. In most countries, the number of sites needed to cover each additional increment of the population increases exponentially at around 99% population coverage. In Madagascar this point is reached much earlier, at 95–97%, because of the country's size and the sparsity of its remote populations (Figure 27).

Figure 27
Madagascar – cost of universal 4G coverage.

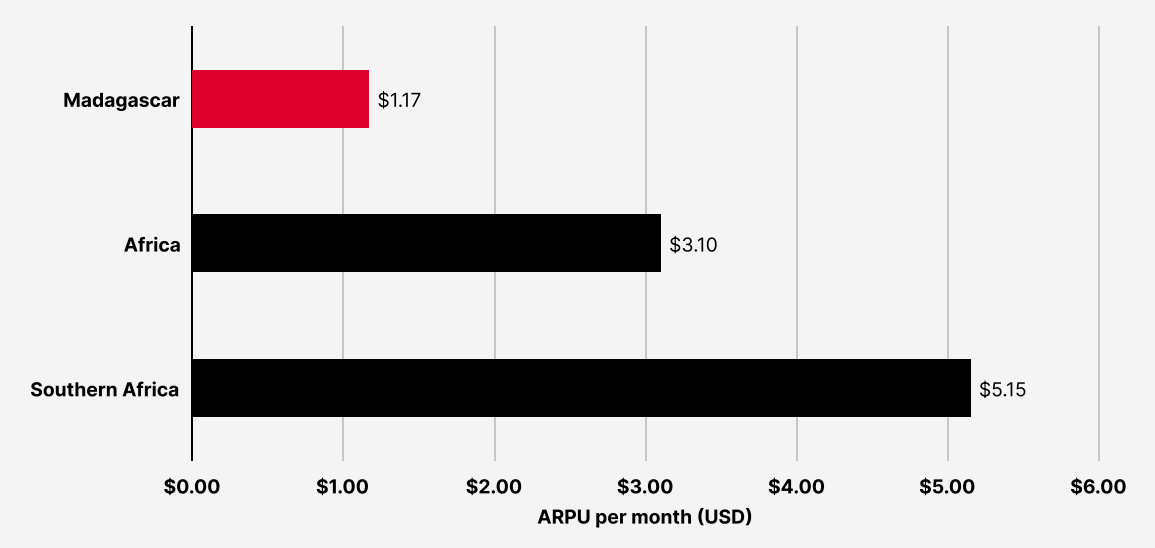


Source: GSMA Intelligence (2026), Madagascar Coverage - Findings, slides 23-24.

Very low revenues per user mean these costs cannot be recovered commercially. Mobile ARPUs in Madagascar, at USD 1.17 (about MGA 4,900) per month, are less than half the African average (Figure 28).

High site costs and very low revenues mean many rural sites cannot cover their operating costs, and commercial investment alone will not reach the 29% of the rural population with no mobile coverage at all.

Figure 28
Madagascar – mobile ARPUs in Africa, 2025.



Source: GSMA Intelligence

An assessment of where gaps are and what closing them would take is required. The GSMA–ATU review of universal-service funds in Africa identifies data-led project selection, clear and measurable targets, regular performance reporting and costing that covers operating as well as construction expenditure as the foundations of effective rural-coverage programmes (GSMA and ATU, 2023, pp. 40–42).

Satellite services can complement mobile networks when provided in partnership with mobile operators, helping to reach unconnected parts of the country. Low-earth-orbit constellations could also cut the cost of satellite backhaul for remote sites (World Bank, 2022b, p. 51), and regulators in the region see most benefit where licensed operators integrate satellite capacity as backhaul (UCC, 2026). For satellite services sold direct to users without a partnership with a mobile operator, international best-practice demonstrates the importance of a local legal presence together with payment of licence fees, levies, universal-service contributions and taxes in a way that is comparable with those applying to terrestrial providers. Regulatory rules should be applied in a technology-neutral and proportionate way that addresses legitimate data-sovereignty concerns without unduly restricting satellite deployment (GSMA, 2026c, pp. 19–33). These are included in GSMA's satellite playbook, which sets out eight regulatory pillars for these services (Table 5).

Table 5
GSMA Satellite Regulatory Playbook – eight regulatory pillars.

Pillar	Detail
Local establishment rules	Operators offering direct-to-user services maintain a local legal presence and comply with foreign ownership rules, so that oversight and accountability are effective.
National security	Operators comply with data governance rules (data protection, retention, privacy and localisation) and meet cybersecurity and lawful interception requirements.

Pillar	Detail
Consumer protection and operational measures	Satellite users receive the same protections as terrestrial users, including pricing transparency, quality-of-service safeguards, complaints handling and, where applicable, KYC requirements.
Infrastructure and facility requirements	Satellite infrastructure is authorised under clear, proportionate frameworks covering international connectivity, traffic routing and cross-border gateways.
End user terminal deployment	Terminals comply with national equipment certification, authorisation and installation requirements, to ensure safety and prevent interference.
Fiscal considerations	Retail satellite services face regulatory fees and taxes equivalent to those of terrestrial providers, for fair competition and affordability.
Emergency services and public safety	Services give access to emergency numbers, localisation information and public warning systems, so public-safety outcomes are consistent across platforms.
Enforcement	Operators providing services equivalent to terrestrial ones are subject to credible enforcement mechanisms and comparable penalties.

Source: GSMA (2026c), p. 21.

Effective enforcement of regulation and licence conditions matters. Direct-to-user satellite services should be sold through authorised local channels using terminal equipment that has been approved for use, with clear accountability for local distributors and resellers. Uneven application of these requirements creates enforcement gaps and opportunities for regulatory arbitrage (GSMA, 2026c, pp. 22–28 and 36). Operators report that Starlink terminals are already being used to resell internet access through hotspots outside authorised channels in several regions of the country. Consistent oversight of satellite services, coordinated between ARTEC, the ministry and licensed providers as new services enter the market, would protect consumers, support service quality and preserve fair competition with licensed terrestrial networks.

Licensing and regulatory treatment should be even-handed across all providers. As new technologies such as low-earth-orbit satellite services enter the market, every provider serving users in Madagascar should operate within the national licensing framework on equivalent terms: licensed by ARTEC, contributing to taxation and universal-service funding on the same basis, and meeting the same consumer-protection, quality-of-service and security obligations. Among existing operators, too, impartial and predictable regulation applied equally to all market participants underpins the confidence on which long-term network investment depends.

Transparent governance arrangements at ARTEC, alongside the strengthened mandate envisaged in Bill No. 040/2026, would further reinforce that confidence. The bill would also reserve direct-to-user satellite spectrum to licence holders and bring direct-to-device satellite services within the national licensing framework.

Five principles of international best practice could guide the modernisation of Madagascar's satellite regulatory framework. These are transparency and predictability, regulatory parity between satellite and mobile providers, harmonisation with regional and international policies, collaboration and consultation between government, regulators and industry, and a balance between innovation and regulation (GSMA, 2026j, pp. 3–5).

Recommendation 2.1 – Review network expansion barriers and publish a costed Rural Connectivity Plan

The cost of expanding and operating rural networks in Madagascar is exceptionally high while mobile ARPUs are among the lowest in Africa. Under these conditions, commercial investment alone will not close the remaining rural coverage gap, and a further general review would add little unless it produces a published, costed plan that government, operators, energy institutions and funders can act on.

It is recommended that the government, through MNDPT and ARTEC and working with the Ministry of Energy and Hydrocarbons, JIRAMA, ADER and all licensed operators, conduct a review and publish its results as a costed Rural Connectivity Plan. The plan should identify unserved and underserved localities and their populations, existing network and power infrastructure, viable backhaul and energy options, estimated capital and operating costs, expected commercial revenues and the minimum public support required, and should establish a priority-site list.

Published indicators should include: the population and localities without 3G and 4G coverage; sites already tendered for with public support; and estimated cost per person for sites to be covered.

3.2.2. Financial incentives for rural coverage

The objective of expanding networks in rural areas will not be achieved without improving the financial conditions faced by operators. The sites needed to close the remaining coverage gap combine exceptionally high build and operating costs with revenues from some of the lowest ARPUs in Africa, so the business case for rural sites does not close on commercial terms.

Some support for rural rollout already exists through donor-funded programmes. The World Bank's DECIM project is financing around one hundred cell towers in rural areas alongside expanded electricity access, with the first batch still in procurement as of June 2026 (World Bank, 2024b, p. 8; World Bank, 2026f, p. 3). This addresses the two largest cost drivers, sites and power, but covers only part of the remaining coverage gap.

Madagascar already has a universal-service mechanism, the Telecommunications and ICT Development Fund (FDTIC). The Minister selects and authorises the activities financed, ARTEC acts as fiduciary agent, and licensed operators contribute 2% of prior-year pre-tax telecommunications revenue (Government of Madagascar, 2005; Government of Madagascar, 2024).

The fund collects and spends at scale but, so far, much of this has not been on coverage. The Court of Accounts records MGA 311.8 billion of FDTIC expenditure over 2022–2025, rising each year from MGA 38.2 billion in 2022 to MGA 95.3 billion in 2025. The Court's audit identifies ministry digital projects such as Smart Villages, rather than rural-coverage programmes, among the main uses of the fund (Court of Accounts of Madagascar, 2026a, pp. 2–9).

The Court's reform recommendation provides an opportunity to redesign the fund's mechanism. The Court found the fund to have weak transparency, traceability and supporting documentation, and recommended that disbursements be suspended pending reform and that fund management be made independent (Court of Accounts of Madagascar, 2026a, pp. 8–9 and 15).

Domestic experience also shows that equipment procurement alone has not created working coverage. Madagascar's Court of Accounts, in an audit of MNDPT, found that a rollout of 33 satellite-connected Smart Villages sites was suspended for insufficient staffing, with equipment bought in 2022 held unused in storage for three years (Court of Accounts of Madagascar, 2026a, pp. 5–7). Public support therefore needs to be tied to operating outcomes, not equipment delivery.

Regional experience shows what a well-functioning universal service fund can deliver. Tanzania's Universal Communications Service Access Fund has constructed or subsidised 1,783 mobile towers in 4,482 villages over the last four years, enabling more than 24 million citizens to access telecommunications services (UCSAF, 2025), including a 2025 project that constructed 758 towers and connected around 1,400 villages in partnership with operators (UCSAF, 2026).

Across funds, the GSMA–ATU review identifies accountability, transparency, clarity, sustainability, service neutrality and visibility as core principles. GSMA–ATU recommends competitive bidding and reverse auctions in which bidders compete for the minimum subsidy, and calls for evidence-based contribution levels and monitoring of whether funded sites continue operating after construction (GSMA and ATU, 2023).

The GSMA–ATU review also treats universal-service funding as a complement to enabling reforms rather than a substitute for them. Regulatory support for infrastructure sharing can reduce deployment costs and improve the commercial case for expansion, allowing public subsidy to be targeted at the residual areas of market failure (GSMA and ATU, 2023, pp. 15 and 43).

Recommendation 2.2 – Reform the FDTIC into a transparent, results-based fund for rural coverage

It is recommended that the government create incentives to expand network coverage by reforming the FDTIC into a transparent, independently verified and results-based rural-connectivity mechanism, coordinated with donor-funded rollout support such as the DECIM project.

Rural coverage support should be allocated through open and competitive tenders, with eligible localities and demand data published before bidding. Support should also test voluntary active infrastructure-sharing scenarios.

Published indicators should include: contributions collected and the share awarded within the year; average time from collection to tender, award and payment.

3.2.3. Energy costs

Decreasing energy costs would make mobile internet more affordable for consumers and improve the business case for network expansion. Energy is a major component of site operating costs, which feed through into consumer prices and the level of investment operators can sustain. Energy access also matters on the demand side: for households without electricity at home, the cost of charging a device is part of the total cost of mobile ownership.

Power is a significant cost driver. GSMA mapping suggested 24% of existing sites lie within 1 km of a mapped electricity line, while operators' own data indicate that this understates connections and around 65% of existing sites are actually grid-connected (GSMA Intelligence, 2026, slides 13–14). What matters for expansion is that 99.6% of the new sites required for close-to-universal coverage are beyond 1 km of the mapped grid (Table 6).

Table 6
Madagascar – mobile sites and grid proximity.

Distance	Existing sites %	Optimal sites %
0-1 km	24.36	0.41
1-2 km	4.57	0.35
2-3 km	1.86	0.23
3-4 km	0.76	0.35
4-5 km	0.73	0.41
5-10 km	3.08	3.48
10-15 km	2.63	3.36
15-20 km	1.75	3.42
20-30 km	3.05	4.92
30-40 km	1.64	4.11
40-50 km	1.24	3.88
50-100 km	8.55	15.35
>100 km	45.77	59.73
Total	**100**	**100**

Source: GSMA Intelligence analysis of operator and World Bank data

Note: grid proximity does not directly measure grid connection; operator inventories indicate around 65% of existing sites are grid-connected.

Sites without grid access typically run on diesel, which costs more than grid power. Annual operating costs are estimated at around USD 64,000 for a rural greenfield 4G site against USD 53,000 on-grid, a difference of about 20% (GSMA Intelligence, 2026, slide 16).

Grid connection does not by itself secure reliable power. Even in grid-connected urban centres, electricity service quality is poor: frequent outages and voltage fluctuations mean an average company outside the capital loses almost a seventh of sales per year (World Bank, 2023, p. 9). Operators respond to recurrent grid outages by running diesel generators, solar or hybrid systems at tower sites, so unreliable supply raises operating costs even where sites are connected (GSMA, 2024b).

Backhaul and access costs compound the power constraint. Around 35% of the new sites required for close-to-universal coverage would currently need satellite backhaul, which is significantly more expensive and constrains the capacity needed for 4G data rates, and many sites are reachable only on unpaved roads (GSMA Intelligence, 2026, slide 24).

Generating electricity with diesel typically costs three to four times more than grid-based electricity in the region. Buying and transporting diesel can account for 30–60% of an operator's total operating expenditure (GSMA, 2024b).

Institutional responsibility is currently shared. The Ministry of Energy and Hydrocarbons (MEH) owns national energy policy, strategic direction and sector coordination; JIRAMA extends and reinforces the on-grid transmission and distribution network; and ADER prepares rural-electrification plans and delivers rural, mini-grid and off-grid programmes under MEH oversight (World Bank, 2026e, pp. 4–5).

Recommendation 2.3 – Align electricity-grid expansion with telecommunications infrastructure needs

It is recommended that the government prioritise and sequence electricity grid expansion to align with the needs of telecommunications infrastructure. ADER and MEH should publish planned electrification locations, capacities and timetables, so that operators can factor them into site selection.

3.2.4. Mini-grids

Where grid extension is uneconomic, mini-grids offer a proven alternative. Mini-grids are small, self-contained electricity systems, typically solar or solar-hybrid generation with battery storage and a local distribution network, that serve a village or a cluster of premises independently of the national grid. They are typically deployed in villages that are too remote or costly to connect to the national grid but too large to be served well by individual solar home systems alone. Decentralised systems, which include mini-grids and stand-alone solar, are now built into national electrification strategies as complements to grid expansion, and off-grid solar as a whole accounted for 55% of new electricity connections in Sub-Saharan Africa between 2020 and 2022 (GSMA, 2026b, pp. 17–19).

Mini-grids come in a wide range of sizes, and a grid's size determines what services it can support. The smallest serve basic household needs in a single village; mid-sized systems can power shops, workshops and agricultural processing; and the largest, at several hundred kilowatts, can anchor commercial clusters and infrastructure such as telecom towers (GSMA, 2026b, pp. 22–23).

Mini-grids can deliver greater economic benefits when they power income-generating activities such as milling, cold storage and other agricultural processing. In Nigeria, the Energizing Agriculture Programme deployed 269 pieces of equipment at rural mini-grids, with businesses switching from fossil fuels to electricity saving up to 82% on energy costs. RMI's analysis also estimated that a mini-grid supplying several productive uses could generate electricity at around half the cost of one serving mainly households (RMI, 2024).

Madagascar is already home to one of Africa's largest mini-grid operators. WeLight, a joint venture of AXIAN Group, Sagemcom and Norfund, was founded in Madagascar and reported operating 190 mini-grid sites in Africa by June 2026, showing the model working at scale (Bloomberg, 2026).

For the mobile sector, the direct link to mini-grids is as a customer. Mobile sites need a continuous supply of reliable power. In off-grid areas, this steady demand can help underpin a mini-grid serving the surrounding community. This arrangement is known as the anchor-business-community (ABC) model, and it has a growing track record in Madagascar and beyond (Box 11).

Box 11
The anchor-business-community (ABC) model and examples

In the ABC model, the mobile tower provides predictable baseline demand that can improve utilisation, revenue stability and project economics where its load is material to the system, while surrounding households, businesses and public facilities share the supply. In its strict form the anchor commitment is agreed before the system is built; in practice, towers often become customers of mini-grids after they are built. Where a tower joins later without a long-term power purchase agreement, the main benefits of the strict form, a guaranteed cash flow and access to commercial capital, are reduced.

The model is already operating in Africa and in Madagascar itself:

- Orange's hybrid mini-grid with Bboxx in Bukavu, DRC, powers a network site while connecting more than 600 households;
- Nuru powers ten operator towers in the DRC in collaboration with Vodacom and Helios Towers; and
- In Madagascar WeLight powers off-grid mobile tower sites in collaboration with Helios Towers and Towers of Africa.
- Telecom-anchored mini-grid projects have also been implemented in India, Nepal, Burkina Faso, Mali and Egypt.

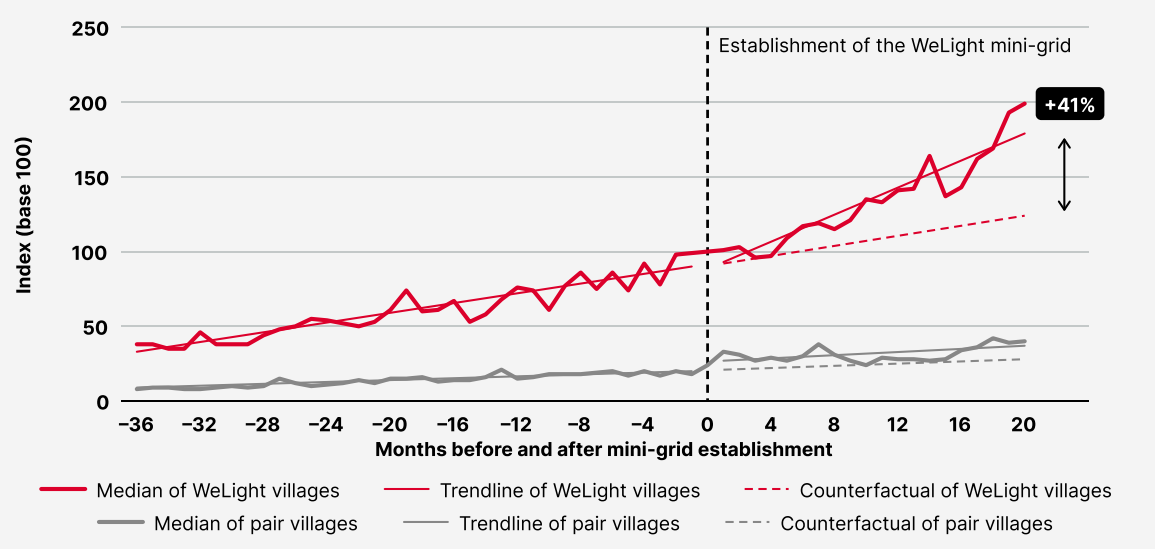
Source: GSMA (2026b), pp. 30–31; GSMA (2024b).

Mini-grids can strengthen rural economies and digital financial inclusion, but electricity access alone does not automatically increase mobile use. A GSMA study of WeLight's operations combined company data from 34 pairs of electrified and comparable unelectrified villages with 600 phone surveys, 64 interviews in six communities and stakeholder interviews (GSMA, forthcoming).

It found no measurable effect from mini-grid deployment on voice, SMS or mobile-data consumption, partly because access to phones and basic charging options was already widespread. Their developmental value comes largely from better quality and reliability of supply, which enables higher-tier uses of energy, rather than from first-time access.

The strongest digital effect was on mobile money in GSMA's forthcoming study. Eighteen months after installation, WeLight villages had 16% more mobile-money users, 11% more transactions excluding WeLight electricity-bill payments and a 41% increase in the value of those transactions relative to the counterfactual (Figure 29). Including those bill payments would have raised the usage figures substantially. Regular electricity payments helped users build familiarity with and trust in mobile money, encouraging its wider use.

Figure 29
Mobile money transaction value increases 41% after mini-grid connection.



Source: GSMA-WeLight research (forthcoming publication)

Note: The figure shows the monthly median amount transferred through Mvola mobile money (removing WeLight-related payments) in WeLight and paired villages, pre- and post-mini-grid establishment (base 100 for the median activity of WeLight village at time of mini-grid establishment).

The clearest economic gains were among connected businesses. In the study, nearly 60% increased their electricity use, around two-fifths extended their working hours and almost half introduced new products or services, such as refrigeration, printing or welding. However, unreliable supply at some older sites constrained these gains, while higher electricity expenditure created affordability challenges for some households.

Telecom towers can provide valuable demand, but they are not suitable anchors for every mini-grid. The strict anchor-business-community model has been used in only one WeLight deployment in Madagascar. Existing tower solarisation, different investment cycles, demanding reliability requirements and the distance between hilltop towers and villages may limit wider adoption. Nevertheless, where towers are connected and actively drawing power, they could account for 30–50% of mini-grid demand. WeLight therefore treats towers as potential additional customers rather than a prerequisite for investment, prioritising viable business and community demand first.

Public support for mini-grids works best when it is coordinated with connectivity planning. Nigeria delivered 125 mini-grids and over one million solar home systems through a private sector-led, results-based programme, and is now scaling this up with USD 750 million of World Bank support, using performance-based grants and minimum-subsidy tenders (GSMA, 2026b, pp. 64–65). Madagascar can apply the same principles through ADER, directing support where mini-grids are viable and reinforce digital adoption.

ADER and MEH should publish their plans to assist mobile operators. Operators can supply geospatial data on their existing and planned sites; ADER and MEH should publish where mini-grids will be built, at what capacity and when. For example, the Nigerian Communications Commission and the Rural Electrification Agency agreed in July 2026 to exchange such data (NCC, 2026a).

Recommendation 2.4 – Support mini-grid deployment with mobile towers as anchor customers

It is recommended that the government support the deployment of mini-grids in areas beyond economic grid extension.

Mobile towers should be treated as potential anchor customers that improve the commercial case for mini-grid operators, building on the tower-linked deployments already demonstrated in Madagascar by WeLight. Mini-grid support should be coordinated with device-affordability and demand-side measures, since electricity access addresses only one component of cost and adoption barriers.

Support should prioritise localities where towers currently run on diesel and would be a significant customer for the system, identified through geospatial planning that overlays tower locations, grid infrastructure and local demand.

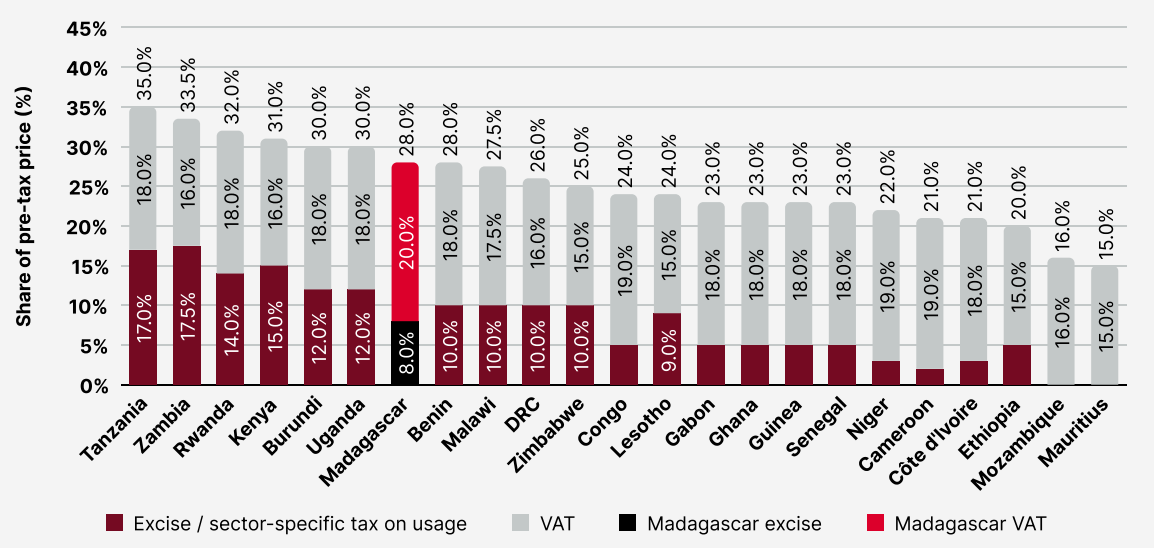


3.3. Taxes, fees and levies

3.3.1. Consumer taxes on mobile services

Customers in Madagascar face a high burden of consumption taxes. The level of the major taxes affecting telecoms customers, combining VAT and excise duty, is high, and above what is typical in comparable markets in Africa (Figure 30). With its 20% VAT plus 8% excise duty, Madagascar ranks well above the lowest benchmark rates such as in Mauritius (15%) and Mozambique (16%), neither of which has an excise duty on mobile services.

Figure 30
Combined VAT and excise duty on mobile services, GSMA sample and East Africa benchmark countries, 2026.



Source: GSMA (2024a), Figure 13, extended with the East Africa benchmark countries used elsewhere in this report (Malawi, Ethiopia, Mozambique, Mauritius; Comoros, Djibouti and Somalia not shown, no comparable data). Rates in force in 2026 from PwC (2026) for Kenya, Rwanda, Tanzania, Ethiopia, Mozambique and Mauritius, GSMA (2026f) and Malawi Revenue Authority (2026) for Malawi, and Government of Ethiopia (2023).

Consumers pay sector-specific mobile service taxes on top of VAT. Mobile services carry 20% VAT and an 8% excise duty on all services, data, voice and SMS (Madagascar Tax Authority, 2025, p. 101). These charges raise retail prices directly and high service costs hinder adoption.

High taxes can reduce affordability and slow adoption. Taxes applied to mobile services are often passed on to consumers through higher prices. Estimates drawn from GSMA and EY taxation studies of Sub-Saharan African markets, including Madagascar, put pass-through at around 90% for consumer taxes and 85% for operator taxes.

Higher service and handset prices reduce mobile broadband adoption, especially among lower-income users (World Bank, 2022b, pp. 59–60).

This structure conflicts with GSMA's best-practice principles for taxing the sector. Taxes should be broad-based with low, single rates, equitable rather than regressive, and predictable, with sector-specific taxes limited. GSMA's regional study accordingly recommends eliminating or reducing sector-specific excises, device and equipment duties, and operator fees levied on revenue irrespective of profitability (GSMA, 2023a, p. 8).

Madagascar's current tax regime is misaligned with these principles and with the PSN's digital objectives (GSMA, 2025c, p. 23).

Madagascar's digital economy objectives depend on affordable telecoms and mobile money services. The PSN's goals for digital government, financial inclusion and a broader digital economy, and the Ministry's short-term objective of affordable internet access for all (MNDPT, 2025), all assume that low-income households can afford to get and stay online. Because most sector-specific taxes are passed through into consumer prices, they raise the cost of the services the strategy is trying to spread, with the burden falling most heavily on the low-income households.

Recommendation 3.1 – Review mobile-service taxation, with a view to eliminating the 8% excise duty

It is recommended that the government review the level and impact of taxation on telecoms services, and consider eliminating the 8% excise duty. The duty could be removed in two steps over two years, from 8% to 5% and then to zero, with the effect on usage and receipts assessed before the second step.

3.3.2. Operator fees and levies

Operators pay several revenue-based fees on top of general taxation. These include the 2% regulation tax, the distinct 2% FDTIC contribution and a 1% levy on terminal sales, alongside spectrum and licence fees and taxes on masts and pylons (Table 7 and Table 8).

Table 7
Madagascar – key regulatory fees paid by mobile operators.

Tax	Rate
Annual spectrum fees	Various
Regulatory fees	2% – telecommunications and ICT sector; 2% – contribution to the Telecommunications Development Fund; 1% – terminal sales
Handset copyright fee	6%
Tax on pylons, relays and antennas	600,000 MGA per antenna, mast or relay; 1,000,000 MGA per pylon
One-off licence fees	Various
One-off spectrum fees	Various

Source: GSMA (2025c), p. 16

Table 8
Madagascar – taxes paid by mobile operators.

Tax	Rate
Corporate income tax	20%
Personal income tax on employment	20%
Social security contributions	19% (13% social security, 5% health, 1% training fund)
Advertising tax	1%
Stamp duty	Various
Customs duties (mobile equipment)	5, 10 or 20%
Mobile money transaction tax (TTM)	5% of mobile money providers' fee income

Source: Madagascar Tax Authority (2025), p. 101; Madagascar Customs (2026), p. 249; GSMA (2025c), p. 16.

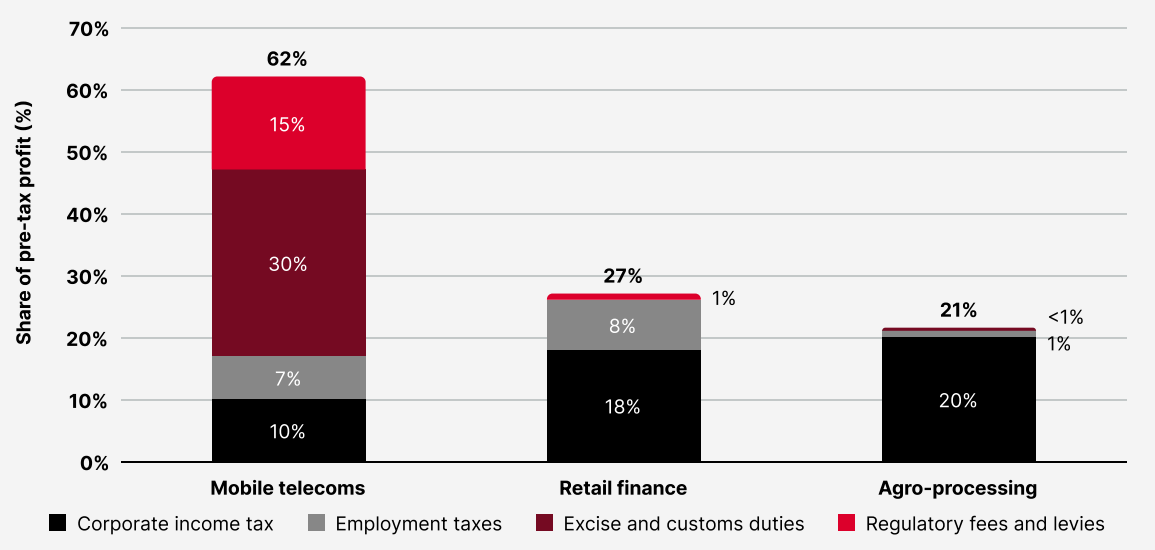
The regulation tax has a defined legal basis but no published link to regulatory costs. A 2% levy on licensed operators' pre-tax turnover is collected for the regulator (Government of Madagascar, 2006). Because it is levied on revenue rather than profit, it raises costs regardless of profitability.

When levies and fees are taken into account, the sector tax burden is high relative to the sector's economic weight. In 2023, mobile market revenue accounted for 2% of GDP while the sector's tax and fee payments accounted for around 5% of total government tax revenue, 2.5 times its size in the economy (GSMA, 2025c, p. 18).

A representative mobile operator pays two to three times the effective tax rate of firms in other sectors. A GSMA comparison of the average effective tax rate (AETR) of a hypothetical representative firm, calculated over a 15-year period, finds that taxes and fees take 62% of a mobile operator's pre-tax profit, compared to 27% for a retail finance firm and 21% for an agro-processor (Figure 31).



Figure 31
Madagascar – average effective tax rate of a representative firm by sector, share of pre-tax profit over 15 years.



Source: GSMA analysis. AETR is the net present value of taxes and fees paid divided by the net present value of pre-tax profit over a 15-year period for a hypothetical representative firm in each sector.

The gap is not explained by profitability. Measured against revenue rather than profit, taxes and fees take 17% of the mobile operator's revenue, against 14% for the retail finance firm and 8% for the agro-processor, even though the mobile operator has the lowest EBITDA margin of the three, 35% against 56% in retail finance and 38% in agro-processing. The mobile operator therefore pays the most tax per unit of revenue while earning the least on it.

The difference comes almost entirely from consumption taxes and revenue-based levies. Corporate income tax and employment taxes account for 17 of the 62 points of AETR. The excise duty and customs duties add 30 points. Revenue-based regulatory fees add another 14 (the regulation tax, the FDTIC contribution and the levy on terminal sales) and fixed annual fees about one. Consumption taxes and revenue-based levies therefore make up 44 of the 62 points.

The comparator firms pay the same corporate income tax and employment charges and no material levy on revenue. The retail finance firm also pays customs duties on its equipment, and the agro-processor pays customs duties of up to 5% on machinery and a small certificate-of-origin fee. Because the mobile sector's charges fall on consumption and revenue rather than profit, they do not ease when profits fall.

Rural coverage depends on making network expansion commercially sustainable. GSMA research has found that infrastructure in remote areas can cost twice as much to deploy, while revenue opportunities can be up to ten times lower. This general finding is consistent with the situation in Madagascar. Against this already difficult commercial backdrop, sector-specific taxes and fees, duties on network equipment and unpredictable tax changes can make marginal rural investments financially unviable. GSMA's analysis of Sub-Saharan African countries finds a negative relationship between sector-specific taxation and mobile connectivity and concludes that reducing these taxes has the potential to increase coverage, penetration and usage (GSMA, 2018, pp. 5 and 16–17).

Recommendation 3.2 – Reduce the regulation tax from 2% to 1% and link it to published regulatory costs

It is recommended that the government reduce the regulation tax from 2% to 1% as an interim measure, and require ARTEC to publish a cost-recovery methodology for regulatory charges thereafter, its regulatory costs, the fee calculation, annual collections and any surplus, with the rate reviewed in consultation with operators. The regulation tax should remain separate from the FDTIC contribution, which should be assessed against the coverage programme it finances. The review should also look for opportunities to simplify the regime by consolidating overlapping levies and fees, which would reduce compliance costs and make the fiscal environment more predictable for investment.

3.3.3. Equipment import duties

Import duties on network equipment raise the cost of expanding coverage. Under Madagascar's July 2026 customs tariff, relevant mobile telecommunications equipment is subject to customs duties ranging from 5% to 20%: base stations and certain switching or routing equipment attract 5%; antennas and other parts attract 10%; and other mobile equipment and consumer devices attract 20% (Madagascar Customs, 2026, p. 249). These duties add to the capital cost of every new rural site, compounding grid and backhaul costs.

Recommendation 3.3 – Zero-rate imports of broadband network and rural-site energy equipment

It is recommended that the Ministry of Economy and Finance and Customs zero-rate items essential to broadband expansion, including radio-access, transmission, backhaul and core-network equipment, plus rural-site batteries, energy-management and solar-generation equipment for an initial three-year period. Article 111 of Bill No. 040/2026, which is before the National Assembly, would allow operators making strategic investments VAT and customs-duty exemptions on equipment included in approved investment plans, under conditions to be set by regulation. If the bill is adopted, the implementing regulations should make this relief automatic for the equipment listed here and extend it to independent tower and energy-infrastructure providers.

The measure should run through a simple pre-clearance process and approved-importer register, with safeguards against diversion, and a review after two years of whether the relief is reducing site costs and accelerating rollout.

3.3.4. Mobile money transaction tax

Mobile money is taxed through a 5% levy on providers' fee income. The mobile money transaction tax (TTM) is charged on the fees that providers earn on transfers and payments. It was introduced by the 2025 Finance Law. The 2026 Finance Law puts budgeted receipts at MGA 19.5 billion for 2025 and MGA 29.7 billion for 2026 (Government of Madagascar, 2025c, p. 6).

Removing the levy would support financial inclusion. Only 19.4% of adults held a mobile money account in 2024, near the bottom of the benchmark countries (section 2.3), and the goals of the PSN and of the Ministry's Strategic Orientations 2026–2027 for financial inclusion and digital government depend on many more people using mobile money.

The levy is added to the fee on every transfer and withdrawal, and providers can be expected to pass at least part of it on to users, most of whom are on low incomes. Experience elsewhere shows how sensitive mobile money use is to transaction taxes: when Tanzania introduced a levy on mobile money transactions in July 2021, person-to-person transactions fell by 38% and cash-outs by 25% within three months, and the government cut the levy twice in the following year (GSMA, 2023b, pp. 5–11).

Recommendation 3.4 – Remove the 5% mobile money transaction tax (TTM)

It is recommended that the government remove the 5% mobile money transaction tax (TTM) charged on providers' fee income, so that the cost of transfers and payments falls for the low-income and rural users on whom financial inclusion depends.

3.4. Increasing demand for digital

3.4.1. Digital literacy and skills

Lack of digital skills suppresses demand even where coverage and devices exist. Across Africa, 81% of people with post-secondary education use digital media regularly against 11% of those with no formal education, 59% of urban dwellers against 24% of rural residents, and use falls sharply with poverty (Afrobarometer, 2024, pp. 6–7). In Madagascar, 87% of experts cite insufficient digital skills as a constraint on enterprise digital transformation (UNDP, 2025, p. 104), and the 54% primary completion rate limits the foundational skills base.

People use their mobile phones for a widening range of practical services. Across Sub-Saharan Africa, mobile financial services have overtaken social media as the most prevalent mobile activity, alongside communication, entertainment and information (Table 9).

Table 9
Sub-Saharan Africa – mobile usage by activity.

Use cases	2015 (millions)	2023 (millions)	2015 (% of subscribers)	2023 (% of subscribers)
Use mobile financial services	55	280	18%	54%
Use social media	110	230	33%	44%
Watch videos	95	230	29%	43%
Make video calls	60	200	18%	37%
Read news	110	180	34%	34%
Search for information	45	140	14%	27%

Use cases	2015 (millions)	2023 (millions)	2015 (% of subscribers)	2023 (% of subscribers)
Access information to support training, learning or education	35	140	10%	27%
Manage or pay bills	25	140	8%	26%
Access information to help with work or job	30	140	10%	25%
Access government services/ information	25	110	8%	21%
Access health services/ information	15	110	5%	20%
Buy goods or services	20	80	6%	15%
Use agricultural services	10	50	3%	10%

Source: GSMA (2024c).

Task-based training delivered through local channels has a strong track record across Africa. GSMA's Mobile Internet Skills Training Toolkit (MISTT) gives local retail agents, teachers and community leaders free, short lessons which they use to show beginners how to do the things they most want to do on a phone: get online, send messages, use mobile money and stay safe from scams. The toolkit has been used to train more than 80 million people in over 40 countries (GSMA, 2025b, p. 23).

The delivery model also pays its own way for the operator. In the Tigo Rwanda pilot, sales agents trained 83,711 customers at the point of sale during the evaluation period. Trained customers changed behaviour quickly: 77% increased their data use, 31% of them by 100–500%, and new data subscribers rose 15% while a control group saw no growth. Data revenue grew 15% against 9% for the control, and the training covered its incremental cost within the first month, returning 240% over a quarter (GSMA, 2017, pp. 3, 7 and 28–30).

Further examples of country programmes at scale are summarised in Box 12. Rwanda's Digital Ambassadors Program extends the same logic as MISTT, deploying ICT-skilled youth into rural communities for hands-on training in device use, e-government and digital financial services (Rwanda Information Society Authority, 2026).

Box 12
Country programmes for digital literacy

Programme	Focus
Kenya – Digital Literacy Programme	Foundational digital skills in primary education; over 1 million devices and teacher training (Kenya ICT Authority, 2022).
India – PMGDISHA	Large-scale rural digital literacy programme launched in 2017, training rural citizens to operate digital devices and access information, services and digital payments (Press Information Bureau, Government of India, 2022).
Rwanda – Digital Ambassadors Program	Young "ambassadors" deployed into rural communities for hands-on training in digital skills, e-governance services and digital financial services (Rwanda Information Society Authority, 2026).
South Africa – National Digital and Future Skills Strategy	Digital literacy integrated into formal education and vocational training; youth and educator skills for the digital economy (DCDT, 2020, pp. 15–18).
Togo – Digital Transformation Programme	Connectivity, digital-skills, employability and entrepreneurship programme for youth and women (World Bank, 2024c).

Source: as cited in each row.

Alongside training, Malagasy-language voice interfaces could widen access to digital services for users with limited literacy. Conversational voice services would require automatic speech recognition (ASR) that works well in Malagasy. A baseline Malagasy ASR has been built and reported a word error rate of 33% (Ramanantsoa, 2023), and openly licensed Malagasy speech data has since been released as part of a wider African speech corpus by Google (Google, 2026).

The constraint is therefore accuracy for a given use case rather than the absence of a starting point, and industry work on African-language models is continuing (Box 13). The government should support this by releasing suitable public language datasets and encouraging collaboration between mobile operators, researchers and local startups, with voice-based agricultural advice in Malagasy as a candidate pilot alongside the digital-agriculture strategy.

Box 13
AI language models for African languages

Initiative	Six African mobile operator groups, known as the G6 (Airtel, AXIAN Telecom, Ethio Telecom, MTN, Orange and Vodacom), are working with the GSMA, AI research labs, start-ups and civil society organisations to build AI language models for African languages. The initiative was announced at MWC Kigali in October 2025 (GSMA, 2026d).
Rationale	Africa is home to more than 2,000 living languages, but large language models are trained predominantly on English and other high-resource languages, which limits their usefulness for much of the continent's population (GSMA, 2026d).
Relevance to Madagascar	AXIAN Telecom, which owns Yas in Madagascar, is one of the six participating operator groups. Malagasy is one of the languages in development in the initiative.
Open models	Models developed under these initiatives are released as open source. A model built for one application, such as operator customer service, can therefore be reused by third parties for others, including agricultural advisory services (GSMA, 2026e).
Government participation	In July 2026, the GSMA and the governments of Benin, Kenya, Namibia, Nigeria and Togo launched ATLAS Umoja AI, which brings governments, industry and researchers together to share datasets, expertise and best practice. It builds on Nigeria's N-ATLAS open-source language model. Madagascar is not among the launch governments (GSMA, 2026e). Yas is the initiative's partner in Madagascar.

Source: GSMA (2026d); GSMA (2026e).

Open language models could reduce the skills required to use digital services in Malagasy. Reading and writing, and working in French, are themselves barriers to adoption that fall hardest on low-income and rural households. A service used by speaking removes part of that requirement rather than training people to work around it. Because the models are open, developers other than the sponsoring operator can build on them, which lowers the cost of offering Malagasy-language services, though applications still have to be built on top.

Developing and running AI services in Malagasy will need AI skills. A GSMA study of AI talent across the continent, summarised in Box 14, maps where the demand and the skills are in Africa.

Box 14
Skills for the future – GSMA study of AI talent in Africa.

The GSMA convened the African AI Language Models Initiative to assess and strengthen the continent's capacity to build language models that reflect African languages, cultures and user needs. Its talent workstream mapped AI job postings, research output and open-source activity across the continent (GSMA, 2026i). The findings reveal a rapidly growing but uneven AI ecosystem across Africa, characterised by strong innovation potential alongside significant structural imbalances.

AI job demand is geographically concentrated. North Africa accounts for approximately 37% of AI job postings, followed by West Africa (21%), Southern Africa (20%), and East Africa (16%). At the country level, South Africa, Morocco, Egypt, Nigeria, and Kenya together account for nearly two-thirds of total AI job demand across the continent.

Open-source AI capability production is growing rapidly. Analysis of more than 27,000 GitHub repositories shows strong developer engagement across the continent, particularly in West Africa, which contributes over 53% of all repositories. However, the distribution of technical capabilities is highly concentrated in linguistic AI technologies, which represent nearly 64% of all repositories.

A key structural insight from the research is the misalignment between AI talent production and labour market demand. Regions producing significant technical capability do not always correspond to those with the highest employment demand, indicating structural gaps in ecosystem development.

Top priority skills for Africa's AI ecosystem

1. **Evaluation and quality assurance**: skills related to model validation, benchmarking, and performance assessment are currently underdeveloped but increasingly critical for responsible AI deployment.
2. **Data engineering for AI systems**: strong demand exists for professionals capable of building and managing large-scale data pipelines required for AI applications.
3. **Applied AI development and deployment**: practical expertise in integrating AI solutions into real-world products and services remains essential for scaling AI adoption.
4. **Governance, ethics, and responsible AI**: growing regulatory and societal concerns require stronger expertise in ethical AI design, policy frameworks, and risk management.
5. **MLOps and LLMOps infrastructure**: operational skills for managing AI model deployment and lifecycle management remain limited across much of the continent.

The overall skill demand profile across Africa reveals a clear hierarchy of competencies that employers prioritise in AI-related job postings.

On the demand side, five skill clusters dominate the AI job market in Africa. **Foundational AI skills** accounted for 23.62% of jobs, making it the most demanded cluster by a substantial margin. This indicates that employers place the highest value on core technical capabilities such as machine learning, algorithm development, mathematical modelling and fundamental AI system design. The prominence of this cluster suggests that Africa's AI labour market is still strongly anchored in building and strengthening core technical capacity.

The second and third most demanded clusters are **Data Engineering and Applied AI**, with 16.77% and 14.22% of jobs, respectively. Together, these categories account for a significant portion of total demand, reflecting the importance of data infrastructure, pipeline development, model implementation, and real-world deployment. The high demand for Data Engineering particularly highlights the central role of data collection, processing, storage, and management in enabling AI systems to function effectively. Employers are not only seeking model developers but also professionals capable of preparing and structuring the data required to power those models.

Evaluation skills represent 14.16% of roles, closely aligned with Applied AI in magnitude. This suggests that organisations are increasingly emphasising model testing, validation, performance monitoring, and quality assurance.

Governance accounts for 13.53% of jobs, signalling significant demand for regulatory compliance, ethical oversight, risk management, and policy-aligned AI deployment. This substantial share reflects the increasing institutionalisation of AI governance frameworks across organisations and countries, as employers recognise the importance of responsible AI practices.

Linguistic AI roles represent 11.45% of jobs. While smaller than the top clusters, this still constitutes a meaningful share of the market, suggesting continued demand for natural language processing, multilingual systems, and language-driven applications, particularly relevant in a linguistically diverse continent.

Finally, **MLOps** is the smallest cluster with 6.26% of roles. Although comparatively limited, this category remains strategically important, as it relates to deploying, monitoring, and scaling AI models in production environments. Its lower share may indicate that while foundational development is expanding, large-scale operationalisation of AI systems is still emerging in many parts of the continent.

Overall, the skill demand structure demonstrates that employers across Africa are primarily seeking core technical and infrastructure capabilities, followed by application, evaluation, and governance competencies. The dominance of Foundational and Data Engineering skills suggests that the continent's AI ecosystem is still in a capacity-building phase, emphasising model development and data readiness, while deployment-oriented roles such as MLOps remain comparatively less widespread.

AI talent by country

AI talent regional champions are Ghana, Nigeria and Egypt. Madagascar accounts for less than 0.1% of the AI job postings and of the code repositories analysed.

Pathways for developing AI and LLM talent

The research finds that **no single training pathway is sufficient to produce job-ready AI professionals**. Instead, the most effective approaches combine multiple learning environments.

Universities continue to provide foundational technical education, but industry experts emphasise that **practical experience is essential for workforce readiness**. Project-based learning, industry apprenticeships, internships, and participation in open-source communities are widely viewed as the most effective mechanisms for developing applied AI capabilities.

Online learning platforms, technical bootcamps, and professional certifications also play a growing role in enabling rapid upskilling in emerging AI technologies.

Overall, the evidence suggests that **hybrid learning models that combine formal education with hands-on industry experience are the most effective pathways for developing AI talent across Africa.**

Recommendations and next steps

To strengthen Africa's AI talent ecosystem, the research identifies several strategic priorities. Governments need to:

1. Invest in AI infrastructure and sovereign compute capacity
2. Strengthen industry–academia collaboration for AI skills development
3. Expand practice-based AI training ecosystems
4. Prioritise development of underrepresented AI skill clusters
5. Support open-source AI ecosystems and developer communities
6. Implement AI talent retention and global talent mobility strategies
7. Promote AI solutions for African societal challenges

Source: GSMA (2026i).

For Madagascar the practical starting points are modest and mostly within reach. Of the seven priorities in Box 14, the ones that matter first here are practice-based training ecosystems through internships and innovation hubs (3) and participation in open-source communities (5), which cost little and connect Malagasy developers to the language-model work described in Box 13. The Malagasy models being built under that initiative are themselves a useful training ground for AI skills.

Recommendation 4.1 – Deliver task-based digital literacy training in Malagasy through local channels and release public Malagasy-language data for voice AI

It is recommended that the government promote digital literacy through short, task-based training in Malagasy, delivered through the local channels people already use, such as mobile-money agents, operator retail networks, teachers, agricultural extension workers and community organisations.

Delivery should adapt free resources such as the GSMA Mobile Internet Skills Training Toolkit and draw on Rwanda's ambassador model.

The government should also support the development and testing of Malagasy-language voice AI, including by releasing suitable public language datasets. MNDPT should lead this, working with public broadcasters and other holders of Malagasy-language data, starting by identifying suitable datasets and making them available. The most valuable of these are public broadcasting archives and other public-sector Malagasy speech and text. They are sovereign, publicly owned and within the government's own control. Contributing them to the GSMA's ATLAS Umoja AI initiative, in which Yas is the partner for Madagascar, with the rights and permissions needed for training use, would allow Malagasy speech-recognition and text-to-speech models to be built. As data prices fall, many of the users coming online will engage with digital services more readily if they can do so by voice in their own language, and voice interfaces offer a way past the digital literacy barrier. Entry-level smartphones, including those supplied through device-financing programmes, could then be made compatible with the resulting voice-enabled services.

3.4.2. Digital public services and digital ID

Digitalisation can expand access to public services faster and at lower cost than traditional channels. Access to services such as education, health and agricultural extension is very limited, particularly in rural areas, and expanding them through physical channels is expensive and slow. Digital delivery eases both constraints. It also serves two further priorities of the transition programme, improving administrative efficiency and reducing corruption, which is why the programme lists digitalisation of public services among its urgent governance measures (Government of Madagascar, 2025b).

Service design should reflect the phones people already have but also consider the user upgrade path. With 2G devices still widespread in Madagascar, services should launch with SMS and USSD access, paired with incentives for users to upgrade to broadband devices and the richer online versions of the same services as coverage and affordability improve. Services should be simple, low-data, relevant to people's immediate needs and available in Malagasy, with voice-based options available. Success should be measured by completed tasks and repeat use.

Digitalising government payments gives people a durable reason to keep using digital services. GSMA's study of underserved mobile-money users finds that digitalising government-to-person and person-to-government payment flows anchors people in the digital ecosystem, and recommends needs assessments for specific groups, human-centred design and stronger financial education (GSMA, 2025d, pp. 9, 37 and 57). Programmes in Zambia and Indonesia show what this could look like in practice (Box 15).

Box 15
Zambia and Indonesia – government programmes as drivers of digital adoption

Case	Approach and outcomes
Zambia – ZIAMIS	The government's integrated platform for e-vouchers, e-registers, e-extension and advisory services. Full functionality runs on Android/ Windows applications, with basic access via SMS and USSD to overcome connectivity constraints. Outcomes include an electronic register of 4.3 million verified farmers, a unique digital ID for each farmer, cooperative and vendor, over 1 million farmers and 1,200 agrodealers participating annually, and higher productivity among farmers receiving digital advisories (maize yields of 3.4 tonnes/ha against a 2.14 tonnes/ha national average, 2022–2025).
Indonesia – G2P payments	The government digitalised many of its complex social security payments and farmer subsidies, contributing to digital and financial inclusion among marginalised groups.

Source: FAO (2025); GSMA (2025d), pp. 17–22 and 31.

Digital ID can remove a hard barrier to inclusion. Around a quarter of Madagascar's population lacks legal documents, excluding many from formal services including mobile-money registration (Government of Madagascar, 2023, p. 110; World Bank, 2020, p. 15). As part of the World Bank's PRODIGY project, a biometric-enrolment pilot began in January 2026, nationwide enrolment followed in April, and more than 3.25 million adults had been enrolled by 10 June 2026 (UNDP Madagascar, 2026; World Bank, 2026d).

Digital ID enrolment has so far reached only a small share of those who lack identity documents altogether. Of the adults enrolled by June 2026, only around 50,000 had never held any identity document, leaving most of the estimated six million adults without birth certificates still to reach (World Bank, 2026d). A law adopted in 2026 removed the main legal obstacle, providing for mass biometric enrolment and allowing undeclared births to be regularised during enrolment rather than through the judicial procedures that previously excluded remote populations (Assemblée Nationale de Madagascar, 2026; World Bank, 2026d).

Digitised birth registration is established but not yet widespread. The Court of Accounts, which audited PRODIGY's results indicators, found the digitised birth-registration system operating in 3 of 16 communes and 2 of 18 health facilities visited, leaving scope to extend it further. It attributed low use to internal connectivity, data, administrative issues and end-user capacity. With the project in its final year, durable results will depend on recurrent budgets for the civil-registry, digital-government and data-protection institutions it has created (Court of Accounts of Madagascar, 2026b, pp. 138 and 146–147).

Recommendation 4.2 – Deliver high-value e-government services under a published plan

It is recommended that the government prioritise e-government by selecting three to five high-frequency services of most value to rural and low-income households and publishing a delivery plan. Candidates include civil-registration and ID status, social transfers and other government payments, agricultural registration and advisories, and basic health or education transactions.

Services should follow the inclusive design standard above (Malagasy-language, low-data, SMS/USSD), and government payments and collections should be digitised alongside the services they support.

Recommendation 4.3 – Complete digital ID enrolment and sustain the civil-registration system

It is recommended that the government continue nationwide biometric enrolment, building on the more than 3.25 million adults enrolled by June 2026, and prioritise the estimated six million adults without birth certificates, whom the law adopted in 2026 now allows to be regularised during enrolment.

Enrolment should be matched by investment in routine civil registration. The Court of Accounts, which verifies PRODIGY's results indicators, found the digitised birth-registration system operating in only a minority of the sites it visited, mainly due to equipment, application, data, process and user-capacity issues rather than external conditions. These operational gaps should be addressed alongside enrolment, with recurrent budgets secured for the civil-registry, digital-government and data-protection institutions the project has created as it enters its final year.





4. Impact analysis

4. Impact analysis

4.1. Scenario impact

The challenge of increasing digital adoption in Madagascar has both supply-side and demand-side dimensions. Many people live within mobile broadband coverage but do not use mobile internet. Some are in areas where coverage remains costly to extend or sustain, especially rural and remote areas. Others are already covered but do not yet have an affordable smartphone, the skills to use mobile broadband, or a strong enough reason to go online regularly.

GSMA's current forecast provides the base case in the model. This includes unique mobile internet subscribers increasing from 4.92 million in 2026 to 6.86 million in 2031, increasing the adoption rate from 15% to 19% of the population.

The recommendations are modelled as three policy scenarios. Each scenario groups recommendations that act through a common mechanism: Scenario 1 models network coverage, investment and grid connection; Scenario 2 models targeted reductions in taxes on mobile services and smartphones; and Scenario 3 models public-policy demand measures. The scenarios are estimated separately and then combined, with the combined impact reported in section 4.2.

The results are central estimates and, like any projection, are subject to uncertainty. The subscriber gain from the tax measures depends on the price elasticities of adoption and on the pass-through of tax cuts to prices. Lower pass-through or a weaker response to lower prices would mean a smaller gain. A weaker link between adoption and GDP than the one assumed in section 4.2 would mean smaller GDP and tax gains. Annex 4 sets out how the model works and its main assumptions.

Scenario 1:
Network coverage, investment and grid connection

The remaining coverage challenge is concentrated in harder-to-serve rural areas. High site, backhaul, equipment and energy costs, combined with low revenues per user, weaken the case for expansion. Recommendations 2.1 and 2.2 address these constraints through a joint review of expansion barriers and targeted financial incentives. Recommendation 3.3 supports the same objective through the removal of equipment import duties but is not separately quantified.

The scenario assumes that 3G+ population coverage rises three percentage points above the base case by 2031 and that increased 4G and 5G investment lowers data-delivery costs by up to 4.5%. The estimate excludes wider reliability benefits, household electricity access benefits and the mini-grids under Recommendation 2.4.

The investment and coverage measures are projected to add approximately 254,000 unique mobile internet subscribers by 2031, while the grid-connection component adds approximately 5,000. Together, the supply-side scenario raises subscribers by approximately 259,000, to 7.12 million, 3.8% above the 6.86 million base case.

Scenario 2:
Targeted reductions in taxes on mobile services and smartphones

Taxes on mobile services and smartphones increase consumer prices and weaken adoption. The scenario eliminates the 8% excise duty on mobile services in two steps (8% to 5% in 2027, then to zero from 2028), reduces the regulation tax from 2% to 1%, and removes the 20% import duty, 6% copyright fee, 1% regulation levy and 20% VAT from entry-level smartphones, corresponding to Recommendations 3.1, 3.2, 1.1 and 1.2.

The analysis assumes that 90% of consumer-tax reductions and 85% of operator-tax reductions are passed through. This lowers mobile-service prices by 3.3% in 2027 and 7.5% from 2028 and the estimated market-average handset price by approximately 7%, increasing adoption over time.

Targeted tax reductions are projected to add approximately 291,000 unique mobile internet subscribers by 2031. Subscribers reach 7.15 million, 4.2% above the 6.86 million base case.

Scenario 3:
Public-policy demand measures

Relevant services, digital skills and access to devices can stimulate mobile internet adoption. The scenario assesses the impact of Recommendations 4.1–4.3 on digital literacy, digital public services and digital ID. The uplift in unique subscribers is based on these recommendations, scaled to bring mobile internet penetration in Madagascar closer to the regional average, with the effect phased in from 2028.

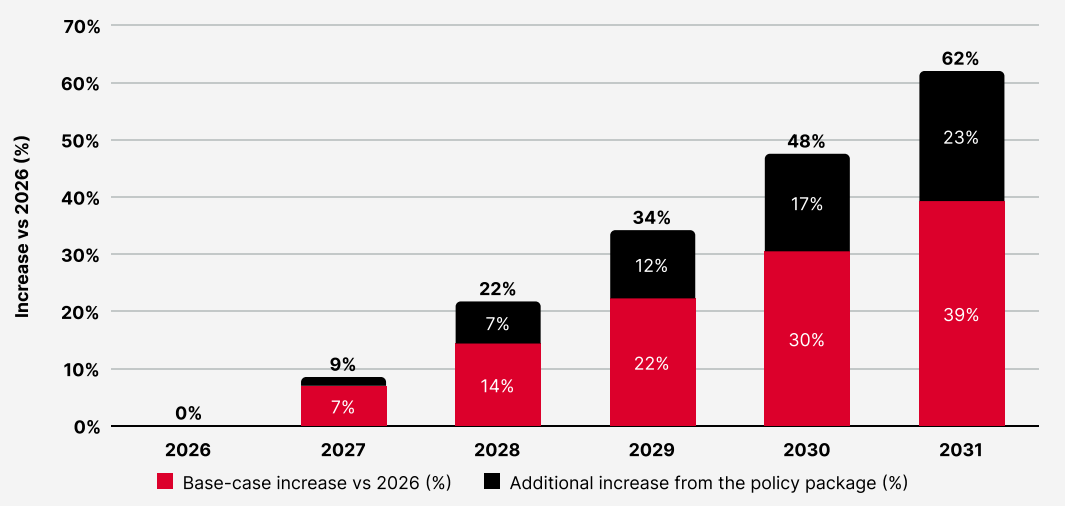
Public-policy demand measures are projected to add approximately 569,000 unique mobile internet subscribers by 2031. Subscribers reach 7.43 million, 8.3% above the 6.86 million base case. This is the largest scenario, showing the importance of addressing relevance and skills alongside coverage and price.

4.2. Combined impact

The measures are expected to have their largest effect when implemented together. They address coverage, network power, service and smartphone prices, and demand; the combined scenario should therefore be read as a policy package rather than a set of isolated reforms.

The combined policy package is projected to reach 7.98 million unique mobile internet subscribers by 2031. This is 62% above the 4.92 million subscribers in 2026 and 1.12 million, or 16.3%, above the 2031 base case of 6.86 million (Figure 32).

Figure 32
Madagascar – combined impact of policy recommendations on unique mobile internet subscribers, 2026–2031.

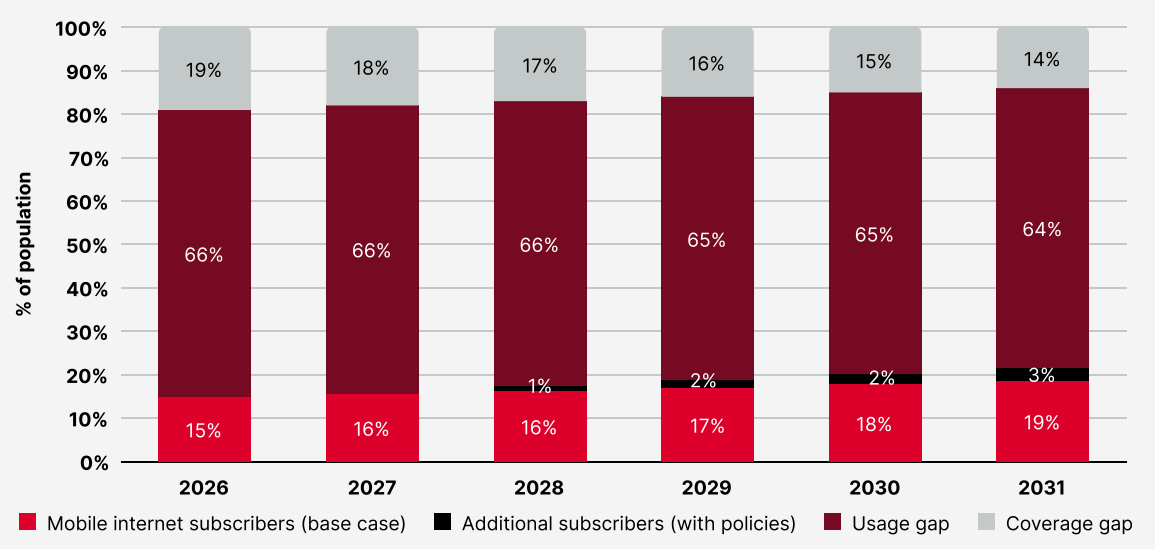


Source: GSMA analysis

The package would reduce Madagascar's mobile internet usage gap by approximately three percentage points by 2031 when coverage is held at the base-case trajectory.

In 2026, adoption was 15%, the usage gap 66% and the coverage gap 19%. By 2031, the base case is 19%, 67% and 14%, respectively. Holding coverage constant, the package raises adoption to 22% and reduces the usage gap to 64% (Figure 33).

Figure 33
Madagascar – combined policy impact on the mobile internet usage gap, 2026–2031.



Source: GSMA analysis

Note: Figure 33 holds coverage at the base-case trajectory and therefore does not show the additional three-percentage-point coverage uplift estimated in Scenario 1.

GDP would grow as a result of increases in the digital economy and mobile adoption. Digitalisation improves productivity through faster access to information, markets and payments. This in turn translates to higher economic output.

The combined policy package is projected to increase GDP by 3.3%, or MGA 4.1 trillion in 2026 prices, by 2031. The national estimate applies the model assumption that a 10% increase in unique mobile internet subscribers is associated with a 2% increase in GDP, a conservative reading of ITU econometric estimates for Africa (ITU, 2019). Higher adoption supports productivity, formalisation, market access and service delivery.

The sector analysis indicates additional digital value add and around 330,000 jobs, with the largest employment effect in agriculture (Table 10). The national estimate includes spillover and multiplier effects beyond the table and would make mobile broadband a stronger enabler of Madagascar's wider development strategy.

Table 10
Madagascar – sectoral impact of increased digitalisation following telecommunications policy reforms, 2031.

	Units	Agriculture	Industry	Services	Government
Digital value add	MGA billion, 2026 prices	800	900	800	300
% of sector GDP	%	2.8%	3.3%	1.3%	2.0%
% of Total GDP	%	0.6%	0.7%	0.6%	0.2%
Employment	('000)	250	40	40	—
Tax revenue	MGA billion, 2026 prices	100	100	100	—

Source: GSMA analysis

4.3. Impact on government revenues

The combined policy package affects government revenue through three channels. These are the direct change in mobile-sector tax receipts, additional receipts from a larger economy, and improved tax-collection efficiency. Separating the three distinguishes the immediate cost of reform, which is visible and concentrated in the sector, from the fiscal benefits of adoption, which are larger but accrue gradually across the whole economy.

The direct cost is a reduction of approximately MGA 188 billion in annual mobile-sector tax receipts by 2031. Eliminating the 8% excise duty on mobile services, halving the regulation tax and removing the import duty, copyright fee, regulation levy and VAT on entry-level smartphones (Scenario 2) lowers the rates applied to mobile consumption. Most of this cost is the excise duty and regulation tax on services. The handset element is small, around MGA 28 billion a year by 2031, because only about a fifth of devices currently pay the taxes (section 3.1.1). The informal market is therefore built into this figure. The model assumes that removing the taxes closes the informal market, so that all entry-level handsets are sold through formal channels at a margin of around 10%, and it nets the corporate income tax on those margins, about MGA 5 billion a year by 2031, against the loss (section 3.1.1).

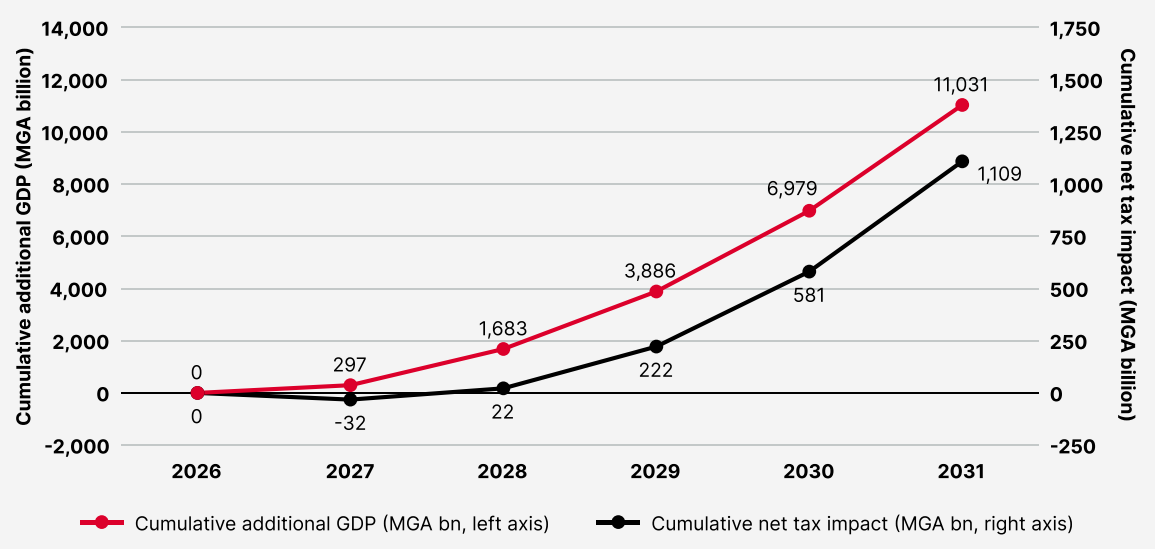
The largest fiscal gain comes from the wider economy, which adds approximately MGA 448 billion in annual tax receipts by 2031, more than twice the direct cost. Mobile broadband adoption feeds through into an expansion of the digital economy and, through faster access to information, markets and payments, into higher productivity in other sectors. As output grows, so does the base on which existing taxes are collected, without any change in tax rates.

Digital adoption also strengthens the systems through which revenue is collected, adding approximately MGA 269 billion in annual receipts by 2031. Madagascar is already building these systems: electronic invoicing was mandated through successive Budget Laws, with the fuller VAT e-invoicing framework envisaged through the 2026 Budget Law (World Bank, 2025b, p. 35), and the DGI has adopted the Rwanda Revenue Authority's Electronic Billing Machine framework within the national tax portal SAFI. Higher mobile internet adoption places more transactions onto these platforms and onto digital payment channels generally.

The net effect on tax revenue turns positive in 2028 and reaches approximately MGA 529 billion per year by 2031. The package is briefly revenue-negative, approximately MGA 32 billion in 2027, because tax reductions take effect ahead of the adoption they induce. From 2028 the wider-economy and collection-efficiency gains outweigh the direct cost, and the annual net benefit grows in every subsequent year of the modelling period. Cumulatively over 2027 to 2031, additional receipts of around MGA 2.0 trillion outweigh sector tax losses of around MGA 0.8 trillion, a net gain of about MGA 1.1 trillion.

Figure 34 shows this net gain alongside the additional GDP, both on a cumulative basis. The cumulative net fiscal position dips in 2027, recovers in 2028 and then rises steadily, while cumulative additional GDP reaches around MGA 11.0 trillion by 2031, so the direct fiscal gain is only a small part of the economic return on the package.

Figure 34
Madagascar – cumulative additional GDP and net tax impact of the policy package, 2026–2031 (MGA, 2026 prices).



Source: GSMA analysis

Mobile broadband affordability and domestic revenue mobilisation are therefore complements, not competing objectives. Madagascar has collected roughly 10% of GDP in revenue excluding grants on average over the past two decades, persistently below its East African peers (Figure 5), and concentrating taxation on mobile services and devices suppresses the very adoption that drives formalisation, digital payments and e-invoicing coverage. By shifting collection from a narrow set of sector-specific taxes to a broader, more productive and more visible economy, the package supports the government's revenue-mobilisation objectives rather than competing with them.

4.4. Additional impact from mobile money

Recommendations 4.1 to 4.3, including digital ID, supporting mobile financial services through government integration and rural support, and removing the mobile money transaction tax (Recommendation 3.4) would increase the number of unique mobile money users in Madagascar. The modelled uplift in unique mobile money users is based on Madagascar moving towards the regional average for usage of mobile financial services over a 10-year period.

These changes, alongside the digitalisation recommendations, will increase the number of people with a mobile money account by 4 million compared to the base case by 2031.

Removing the mobile money transaction tax (Recommendation 3.4) has a direct fiscal cost, which is set against the tax gain from higher mobile money use. Over 2027 to 2031, the additional tax receipts from the GDP growth associated with higher mobile money use amount to about MGA 431 billion, the receipts forgone by removing the levy to about MGA 157 billion, and the net effect is a gain of about MGA 274 billion. These figures are separate from Figure 34 and the package results in section 4.3.

This increase in mobile money usage will further stimulate GDP as faster access to payments boosts economic productivity. These recommendations will have the additional effect of growing GDP by 1.0% through mobile money usage and therefore increasing gross tax revenue by a further MGA 135 billion by 2031, or around MGA 97 billion net of the receipts forgone from the levy. This estimate applies the model's assumption that a 10 percentage point increase in the share of adults with a mobile money account is associated with a 0.7% increase in GDP, drawn from GSMA Intelligence analysis.



5. Conclusion

Madagascar's development challenge is urgent, and it is concentrated among low-income, rural households. Most of the population lives on very low incomes, often in rural areas beyond the reach of reliable infrastructure and public services, and the government has committed itself to delivering rapid, visible improvements in their lives.

Rapid digitalisation, of both government and the private sector, offers a potential solution. By using digital technologies to leapfrog traditional channels of public service delivery and economic development, the country can deliver for its people and meet the development challenges that it faces.

The central challenge is now adoption. As of 2026, 81% of the population was covered by 3G or better, but only about 15% used mobile internet. The remaining coverage gap is concentrated in harder-to-serve rural areas, while the much larger usage gap includes people who are already covered but remain offline.

Affordability is the clearest barrier for low-income and rural households. Data prices have fallen sharply since December 2025 and, on the largest operator's figures, are now towards the cheaper end of the regional range, and usage rose quickly in response. But the combined cost of a smartphone, data and charging remains high relative to very low incomes, and the device, rather than data prices, is the largest single obstacle: an entry-level smartphone still costs more than a month's income for most households.

Digital public services, digital identity, mobile money and digital agriculture can create stronger reasons to adopt mobile internet, but they will not deliver their potential benefits if they expand faster than citizens' ability to access them. Services should therefore be simple, available in Malagasy and accessible through inclusive channels while coverage, device affordability and skills improve.

The recommendations in this report are designed as a package. Measures to reform device and sector taxation, expand device financing, reduce the cost of network expansion, improve rural power access and strengthen demand are projected to add approximately 1.12 million unique mobile internet subscribers by 2031. This would raise the total to 7.98 million, reduce the usage gap by approximately three percentage points, increase GDP by MGA 4.1 trillion in 2031 and generate a net annual tax-revenue gain of MGA 529 billion by 2031. The cumulative gains over 2027–2031 are MGA 11.0 trillion in GDP and MGA 1.11 trillion in net tax revenue.

Most of what is required can be delivered by the private sector. The private sector will build the network and service foundation on which the government can deliver public services. Government should create the regulatory, fiscal and infrastructure conditions for investment.

Annex 1 – Methodology for estimating broadband adoption

Subscriber and Internet User Definitions

Table 11
Subscriber and internet user definitions.

Total mobile connections	Total mobile connections represent the number of unique SIM cards registered on mobile networks at the end of the period. Connections exceed unique subscribers because one subscriber can hold multiple SIMs.
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.

Source: GSMA Intelligence

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.

Annex 2 – Methodology for estimating network coverage

GSMA Intelligence's methodology is based on detailed geospatial analysis of mobile network coverage and population distribution that aims to reflect the true state of coverage in the country. Coverage is calculated using signal propagation models that consider the local environment as well as the technical parameters of the existing network of mobile operators. The technical parameters come from mobile network infrastructure data from MNOs as of April 2026 (Table 12).

Table 12
Coverage modelling parameters.

Technical parameters	Site geographic coordinates, tower height, transmitting power, antenna gain, antenna azimuth and tilt, frequency
Environmental parameters	Terrain, type of climate, clutter
Propagation models	Cost-231 for sites in urban areas and Okumura-Hata for those in rural areas
Signal strength thresholds	−95 dBm for 2G, −101 dBm for 3G, and −110 dBm for 4G and 5G
Maximum cell radius	20 km for 2G and 15 km for 3G, 4G and 5G
Population and urbanisation	Global Human Settlement Layer (GHSL) population estimates for 2025. Urban and rural classifications are based on GHSL 'Degree of Urbanisation Classifications'.

Source: GSMA Intelligence (2026)

The coverage masks (layers) for each MNO and technology are then consolidated and overlaid on the population data to calculate the state of coverage for each population settlement in the country.

Preparing the population data requires creating population "settlements" using geo-referenced datasets (rasters) with population density data. These datasets are created based on the analysis of high-definition satellite imagery and population census data.

A settlement counts as covered where the predicted signal reaches the threshold for that technology.

Annex 3 – Institutional responsibilities for the recommendations

Table 13 provides an initial assessment of institutional responsibilities and where leadership lies for each of the recommendations in section 3.

Table 13
Institutional responsibilities and where leadership lies for each recommendation.

Recommendation	Where leadership lies	Other institutions with responsibilities
1.1 Remove the copyright fee, import duty and regulation levy on entry-level smartphones	Ministry of Economy and Finance	Customs, ARTEC, MNDPT, Ministry of Communication and Culture, Malagasy Copyright Office (OMDA)
1.2 Exempt entry-level smartphones from VAT below a price threshold	Ministry of Economy and Finance	MNDPT
1.3 Scale device financing through DECIM	MNDPT	Ministry of Energy and Hydrocarbons, World Bank and other development partners, operators, consumer-finance providers
2.1 Publish a costed Rural Connectivity Plan	MNDPT and ARTEC	Ministry of Energy and Hydrocarbons, JIRAMA, ADER, operators
2.2 Reform the FDTIC into a results-based fund for rural coverage	MNDPT	ARTEC, operators, development partners
2.3 Align electricity-grid expansion with telecommunications needs	Ministry of Energy and Hydrocarbons	ADER, JIRAMA, MNDPT, operators
2.4 Support mini-grids with mobile towers as anchor customers	Ministry of Energy and Hydrocarbons, ADER	Mini-grid developers, operators and tower companies, development partners
3.1 Review mobile-service taxation, including the 8% excise duty	Ministry of Economy and Finance	MNDPT, operators

Recommendation	Where leadership lies	Other institutions with responsibilities
3.2 Reduce the regulation tax from 2% to 1% and link it to published regulatory costs	MNDPT and Ministry of Economy and Finance	ARTEC, operators
3.3 Zero-rate imports of network and rural-site energy equipment	Ministry of Economy and Finance and Customs	MNDPT, operators, tower and energy-infrastructure providers
3.4 Remove the 5% mobile money transaction tax	Ministry of Economy and Finance	Mobile money providers
4.1 Digital literacy training in Malagasy and public Malagasy-language data for voice AI	MNDPT	Education and agriculture ministries, public broadcasters, operators
4.2 Deliver high-value e-government services under a published plan	MNDPT	Ministries responsible for each service, Digital Governance Unit (UGD), operators
4.3 Complete digital ID enrolment and sustain civil registration	Ministry of Interior and Decentralisation	National Civil Registration and Identification Centre (CNECI), communes' civil registry offices, UGD, World Bank (PRODIGY), MNDPT

Source: GSMA analysis

Annex 4 – Methodology for the impact analysis

The model estimates how each scenario changes unique mobile internet subscribers, GDP and tax revenue versus the base case in each year from 2027 to 2031. It broadly follows the approach in the GSMA report Driving Digital Transformation of African Economies: Evidence and Methodology Document (GSMA, 2024d). For the combined result, the subscriber gains in each scenario are added together and GDP and tax are calculated from the total.

The main assumptions not already set out in section 4 are price elasticities of adoption of −1.3 for handsets and −0.9 for services (World Bank, 2022b; GSMA, 2024d); base-case GDP from the IMF's April 2026 World Economic Outlook projections (IMF, 2026b), in 2026 prices; a tax-to-GDP ratio of 11.1% in 2024 (World Bank, 2026c); 0.12% more tax revenue per 1% more subscribers, through better collection (based on mobile money evidence in GSMA, 2024d); estimated taxes and fees of 34% of mobile revenue (information supplied to the authors, 2026); and an employment elasticity to GDP growth of 0.7 (GSMA, 2024d, p. 33).

Each scenario works through a different mechanism. Scenarios 1 and 2 both lower prices. The percentage fall in handset or service prices multiplied by the relevant elasticity gives the percentage by which that year's growth in subscribers exceeds the base case, with the extra subscribers carried forward. In Scenario 1, any increase in 3G coverage means that more of the population has access to mobile internet (GSMA, 2024d, p. 26). This newly covered population is assumed to take up mobile internet at the national rate for that year. Lower data costs from 4G and 5G investment and from connecting sites to the grid feed through to prices. For 4G and 5G, population coverage rises 3 and 6 percentage points above the base case by 2031, with a 50% reduction in the marginal cost of providing data when customers move to the next generation (GSMA, 2024d, p. 27).

Since data prices are a weighted average across customers on all technologies, the overall reduction depends on the number of customers with access to the higher technology, reaching 4.5% by 2031. In Scenario 2, the reduction in taxes on handsets and services feeds through to price reductions for consumers (GSMA, 2024d, p. 24). Scenario 3 uses a proxy for the aggregate effect of demand-side policies. It lifts base-case subscribers by a percentage set by the gap in mobile internet penetration between Madagascar and the average of Botswana, Kenya, Malawi, Mozambique, Tanzania, Uganda, Zambia and Zimbabwe. By 2031 the gap is 8.3 percentage points, so subscribers are 8.3% higher.

Additional GDP in each year is the percentage increase in subscribers over the base case, multiplied by 0.2 and by base-case GDP, so it grows as extra subscribers accumulate. The model assumes that 10% more subscribers are associated with 2% more GDP (ITU, 2019), as discussed in section 4.2. In 2031, for example, the package raises subscribers by 16.3% and GDP by 3.3%.

Table 10 applies the increase in adoption from the policy scenarios to shares of each sector within the economy, taken from the latest national accounts data (World Bank, 2026c). A productivity effect is then applied for each sector, based on the coefficients from the evidence review in GSMA (2024d) for agricultural yields, manufacturing productivity and digital retail sales. Where impacts on GDP are not available from the literature, productivity growth is assumed to translate to GDP one-to-one (GSMA, 2024d, p. 33). These sector estimates are separate from the national estimate. Jobs follow from the employment elasticity, and the table's government column is the gain in tax collection.

Tax revenue changes through three channels. Receipts from the wider economy apply the tax-to-GDP ratio to the additional GDP. The gain in tax collection applies the 0.12% effect per 1% more subscribers to base-case tax revenue, which is base-case GDP multiplied by the tax-to-GDP ratio. The direct change in mobile-sector receipts applies the tax changes to GSMA Intelligence's forecast of mobile revenues, net of tax on operators' extra revenue and on the share of tax cuts they retain. It also includes the handset taxes no longer paid, less the corporate income tax on handset sellers' margins. The net effect on tax revenue in each year is the sum of these three channels.

The mobile money results in section 4.4 are calculated separately. The base case applies Madagascar's 2024 share of adult mobile subscribers with a mobile money account (World Bank, 2025a) to GSMA Intelligence's forecast of adult subscribers. Recommendations 3.4 and 4.1 to 4.3 are assumed to move this share towards the average of the same eight countries, closing half of the gap by 2031.

The model assumes that each 10 percentage point rise in the share of adults with an account raises GDP, including the package's gain, by 0.7% (see section 4.4). The tax gain applies the tax-to-GDP ratio to this additional GDP. The net figures in section 4.4 deduct the transaction tax receipts forgone, which start from the MGA 19.5 billion budgeted for 2025 (section 3.3.4) and grow with mobile money use and GDP.

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Glossary

This glossary covers abbreviations and technical terms used in this report. The subscriber and internet user metrics are set out in full in Annex 1.

Abbreviations

Abbreviation	Description
ABC	Anchor-business-community, a mini-grid model in which a large anchor customer such as a mobile tower underpins demand alongside local businesses and households
ADER	Agence de Développement de l'Électrification Rurale, Madagascar's rural electrification agency
AETR	Average effective tax rate
AI	Artificial intelligence
ARPU	Average revenue per user
ARTEC	Autorité de Régulation des Technologies de Communication, Madagascar's telecommunications regulator
ASR	Automatic speech recognition, technology that converts spoken language into text
ATU	African Telecommunications Union
BMOI	Banque Malgache de l'Océan Indien
BNI	BNI Madagascar, a commercial bank
CNECI	National Civil Registration and Identification Centre, Madagascar
DAI	Digital Africa Index, the GSMA framework used in this report, made up of the DNSI, DPRI, MCI and MMRI sub-indices
dBm	Decibel-milliwatts, the unit of signal strength. The closer to zero, the stronger the signal
DCDT	Department of Communications and Digital Technologies, South Africa
DECIM	Digital and Energy Connectivity for Inclusion in Madagascar, a World Bank project
DGI	Direction Générale des Impôts, Madagascar's tax administration
DNSI	Digital Nations and Society Index
DPRI	Digital Policy and Regulatory Index
DRC	Democratic Republic of the Congo
EBITDA	Earnings before interest, taxes, depreciation and amortisation

Abbreviation	Description
EBM	Electronic Billing Machine, a Rwandan electronic invoicing framework adopted in Madagascar
FAO	Food and Agriculture Organization of the United Nations
FAS	Financial Access Survey, published by the IMF
FDC	Fonds de développement des communications électroniques, the fund under Bill No. 040/2026 that carries forward the FDTIC
FDTIC	Fonds de Développement des Télécommunications et des TIC, Madagascar's telecommunications and ICT development fund
G2P	Government-to-person, describing payments made by government to individuals
GB	Gigabyte
GDP	Gross domestic product
GEMINI	Yas Madagascar's biometric customer enrolment programme
GHSL	Global Human Settlement Layer, the population dataset used in the coverage modelling
GNI	Gross national income
GSMA	GSM Association, the industry body representing mobile operators worldwide
ICT	Information and communications technology
ID	Identity, as in digital ID or an identity document
IFC	International Finance Corporation
IMEI	International Mobile Equipment Identity, the unique number that identifies a mobile device
IMF	International Monetary Fund
INSTAT	Institut National de la Statistique, Madagascar's national statistics institute
ITU	International Telecommunication Union
JIRAMA	Jiro sy Rano Malagasy, Madagascar's national electricity and water utility
KRED	A credit initiative launched by BNI Madagascar
KYC	Know your customer, the identity checks that providers carry out on customers
LLM	Large language model, an AI model trained on large volumes of text that can be adapted to many applications
LLMOps	Large language model operations, the practices for deploying and maintaining large language models
MB	Megabyte

Abbreviation	Description
MCI	Mobile Connectivity Index
MEH	Ministry of Energy and Hydrocarbons, Madagascar
MGA	Malagasy ariary, the currency of Madagascar
MISTT	Mobile Internet Skills Training Toolkit, a free GSMA training resource
MLOps	Machine learning operations, the practices for deploying and maintaining machine learning models
MMRI	Mobile Money Regulatory Index
MNDPT	Ministry of Digital Development, Posts and Telecommunications, Madagascar
MNO	Mobile network operator
MWC	Mobile World Congress
N-ATLAS	Nigerian Atlas for Languages and AI at Scale, Nigeria's open-source language model
NCC	Nigerian Communications Commission
OMDA	Malagasy Copyright Office
PAYG	Pay-as-you-go, describing products paid for in instalments as they are used
PGE-R	Politique Générale de l'État pour la Refondation, the transitional government's general state policy of November 2025
PMGDISHA	Pradhan Mantri Gramin Digital Saksharta Abhiyan, India's rural digital literacy programme
PMO	The implementation programme of the PGE-R
PPP	Purchasing power parity
PRODIGY	Digital Governance and Identification Management System Project, financed by the World Bank
PSN	Plan Stratégique du Numérique, Madagascar's digital strategic plan for 2023 to 2028, the long-term framework for digital policy
RMI	An energy research organisation, formerly the Rocky Mountain Institute
SAFI	Madagascar's national tax portal
SIM	Subscriber identity module, the card or profile that identifies a subscriber on a mobile network
SMS	Short message service
TTM	Madagascar's 5% mobile money transaction tax, charged on the fees providers earn on transfers and payments
UCC	Uganda Communications Commission

Abbreviation	Description
UCSAF	Universal Communications Service Access Fund, Tanzania's universal service fund
UGD	Digital Governance Unit, Madagascar
UN	United Nations
UN DESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USD	United States dollar
USSD	Unstructured supplementary service data, a text-based menu service that works on any mobile handset without an internet connection
VAT	Value added tax
ZIAMIS	Zambia Integrated Agricultural Management Information System

Terms

Term	Description
Anchor customer	A large, steady electricity customer, such as a mobile tower, whose demand improves the commercial case for a mini-grid. Also referred to as an anchor tenant
Backhaul	The transmission link connecting a mobile base station to the core network, by fibre, microwave or satellite
Base case	The forecast of mobile adoption without the recommended policies, taken from GSMA Intelligence, against which each scenario is measured
Base station	The radio equipment at a mobile site that connects handsets to the network. Also referred to as a site or tower
Coverage gap	The share of the population living outside the footprint of a mobile broadband network
Direct-to-user satellite service	A satellite service sold directly to consumers rather than through a mobile operator. Direct-to-device services connect ordinary mobile phones without a separate terminal
Employment elasticity	The percentage change in employment associated with a 1% change in GDP
Entry-level smartphone	The cheapest category of smartphone, typically priced between USD 50 and USD 100 in Madagascar
Feature phone	A handset with limited internet capability, sitting between a basic phone and a smartphone

Term	Description
Infrastructure sharing	Arrangements under which operators share network assets. Passive sharing covers towers, sites and power; active sharing covers radio equipment and spectrum
Mini-grid	A small, self-contained electricity system, typically solar or solar-hybrid with battery storage and a local distribution network, serving a village or cluster of premises independently of the national grid
Mobile money account, registered and active	A registered account is one that has been opened. An active account has been used within a defined recent period. Registered accounts exceed active accounts because many are never used or fall dormant; both measures can exceed the number of users because people hold more than one account
Open source and open weights	Open weights: the trained model parameters are published so that others can run and adapt the model. Open source: the model and its code are released under a licence that permits use, adaptation and redistribution, which open weights alone does not guarantee
Pass-through	The share of a tax or cost reduction that is passed on to consumers as lower prices
Price elasticity of adoption	The percentage change in mobile internet adoption for a 1% change in price. The model applies it to each year's growth in subscribers, so with an elasticity of −0.9, a 10% price cut raises that growth by 9%
Signal-strength threshold	The weakest predicted signal, in dBm, at which a location counts as covered in coverage modelling
Total mobile connections	Unique SIM cards registered on mobile networks at the end of a period, as measured by GSMA Intelligence on a basis consistent across more than 190 markets.
Unique mobile internet subscriber	A unique subscriber who uses their phone to access internet services
Unique subscriber	An individual who has access to and uses their own mobile handset. One subscriber may hold several SIMs, so unique subscribers are always fewer than connections
Universal service fund	A fund financed by levies on operators and used to extend communications services to areas that are not commercially viable. Madagascar's fund is the FDTIC
Usage gap	The share of the population living within mobile broadband coverage but not using mobile internet
White zone	An area with no mobile network coverage

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