GSMA

The Mobile Economy Africa 2025

GSMA

The GSMA is a global organisation unifying the mobile ecosystem to discover, develop and deliver innovation foundational to positive business environments and societal change. Our vision is to unlock the full power of connectivity so that people, industry and society thrive. Representing mobile operators and organisations across the mobile ecosystem and adjacent industries, the GSMA delivers for its members across three broad pillars: Connectivity for Good, Industry Services and Solutions, and Outreach. This activity includes advancing policy, tackling today's biggest societal challenges, underpinning the technology and interoperability that make mobile work, and providing the world's largest platform to convene the mobile ecosystem at the MWC and M360 series of events.

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Our team of analysts and experts produce regular thought-leading research reports across a range of industry topics.

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Executive summary

Mobile connectivity is a cornerstone for building modern, inclusive and sustainable digital economies in Africa. It also enables transformative technologies such as AI to be integrated into the daily activities of individuals and businesses. Additionally, the mobile ecosystem has become a critical driver of socioeconomic progress, helping countries navigate structural challenges, such as infrastructure gaps, energy constraints and shifting demographics, while contributing to economic growth.

In 2024, the mobile sector contributed $220 billion to Africa's economy, representing 7.7% of GDP. By 2030, this is expected to increase to $270 billion, or 7.4% of GDP, supported by expanding mobile services, enterprise digitalisation and broader adoption of digital technologies, including 5G. Realising this potential will require coordinated investments in infrastructure and skills, forward-looking policies and strong ecosystem partnerships to ensure that growth is both inclusive and sustainable.

Key priorities for the digital ecosystem in Africa

AI as a catalyst for growth

The African Union's Continental AI Strategy highlights AI's potential to drive economic growth, social inclusion and governance innovation in Africa while mitigating risks. Several African countries have already developed or launched national AI strategies, while others are in advanced stages of consultation, indicating growing momentum for the technology's development across the continent. Meanwhile, the ongoing modernisation of mobile networks in Africa, with the expansion of 4G and 5G networks, will play a crucial role in extending access to AI solutions to users across the continent.

The role of MVNOs in the connectivity landscape

Mobile virtual network operators (MVNOs) have returned to the top of the news cycle in Africa in recent years, with notable developments, especially around licensing, in several countries. Today, there are over 60 MVNOs in 11 countries across Africa. The MVNO business model often targets niche market segments in mature mobile markets, leveraging strong partnerships with mobile network operators. In practice, this means targeting underserved demographics with customised offerings that complement rather than cannibalise the services of operators. Successful deployment requires strategic alignment with operators, clear regulatory frameworks and commercial viability.

Mobile enabling enterprise digitalisation

Mobile operators play a dual role in the digitalisation of enterprises in Africa, not just as connectivity providers but also as digital service enablers, supporting vertical-specific solutions in sectors such as finance, retail, agriculture, logistics, healthcare and manufacturing. Mobile money, open APIs and cloud and AI tools are examples of services that allow enterprises to overcome a variety of operational challenges, including efficient payments facilitation and fraud mitigation. This in turn amplifies the importance of these sectors within society while enhancing the competitiveness of African enterprises in global markets.

Impact of satellites on the digital divide

Satellites complement terrestrial networks for wider coverage, helping extend broadband to Africa's most remote and underserved regions. However, with the coverage gap in most markets on the continent now below 5%, the biggest barrier to digital inclusion is the usage gap. Currently, 58% of unconnected Africans already live within mobile broadband coverage. However, adoption remains hindered by barriers such as affordability, high device and service costs, sector-specific taxes and low levels of digital literacy. This highlights the need for policymakers and other stakeholders to intensify efforts to address these challenges and bring more people online.

Ensuring industry sustainability

The mobile industry is a major contributor to public funding in Africa, remitting $30 billion in taxes and other fees in 2024. Ensuring the financial viability of the industry is crucial to sustaining its growth and contribution to social and economic development. This means implementing forward-looking fiscal policies that improve the affordability of services and access devices for end users and incentivise continued investment in high-performance networks and innovation in life-enhancing digital services.

Effective spectrum policy

Forward-looking spectrum management is central to Africa's digital future. Effective roadmaps, technology-neutral licensing and affordable spectrum pricing can unlock investment, expand coverage and accelerate 5G deployment. By 2030, low-band 5G could contribute nearly $3 billion to Sub-Saharan Africa, while mid-band 5G could deliver $13 billion, or 0.4% of GDP. Roadmaps that ensure predictable access to low- and mid-band spectrum, particularly the 600 MHz and 3.5 GHz bands, will drive rural connectivity, efficiency gains and industry transformation in sectors such as mining, agriculture and retail. Done correctly, spectrum policy can reduce the usage gap, advance carbon reduction goals and ensure Africa captures the socioeconomic dividends of digital connectivity.

The Mobile Economy Africa

Unique mobile subscribers

2024 **710m**

→ **47%** of the population

2030 **915m**

→ **53%** of the population

Mobile internet users

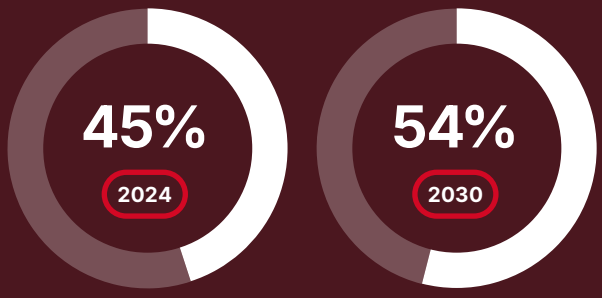
2024 **416m**

→ **28%** of the population

2030 **576m**

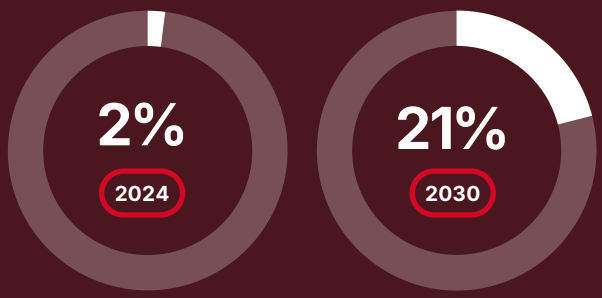
→ **33%** of the population

4G (percentage of connections)



Excluding licensed cellular IoT

5G (percentage of connections)



Excluding licensed cellular IoT

Operator revenues and investment

Revenues

2024 **$52bn**

2030 **$79bn**

Investment

Operator capex for the period 2024–2030

$77bn

Mobile's contribution to GDP

2024 **$220bn**

→ **7.7%** of GDP

2030 **$270bn**

→ **7.4%** of GDP

Public funding

Mobile ecosystem contribution to public funding (before regulatory and spectrum fees)

2024 **$30bn**

Employment

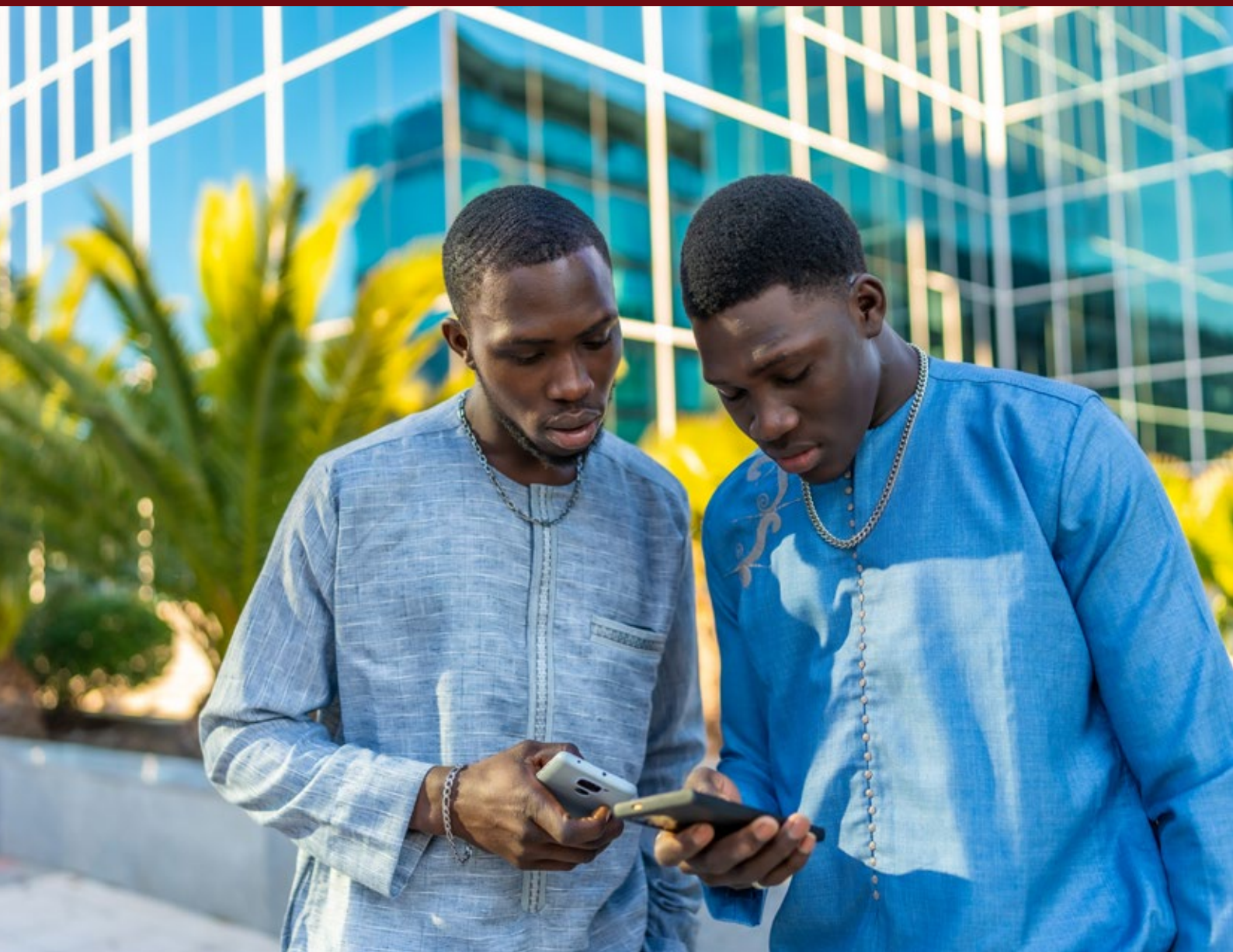
2024 **5 million**

jobs directly supported by the mobile ecosystem in 2024

Plus 3 million indirect jobs

01

The economic impact of mobile



1.1
Macroeconomic outlook

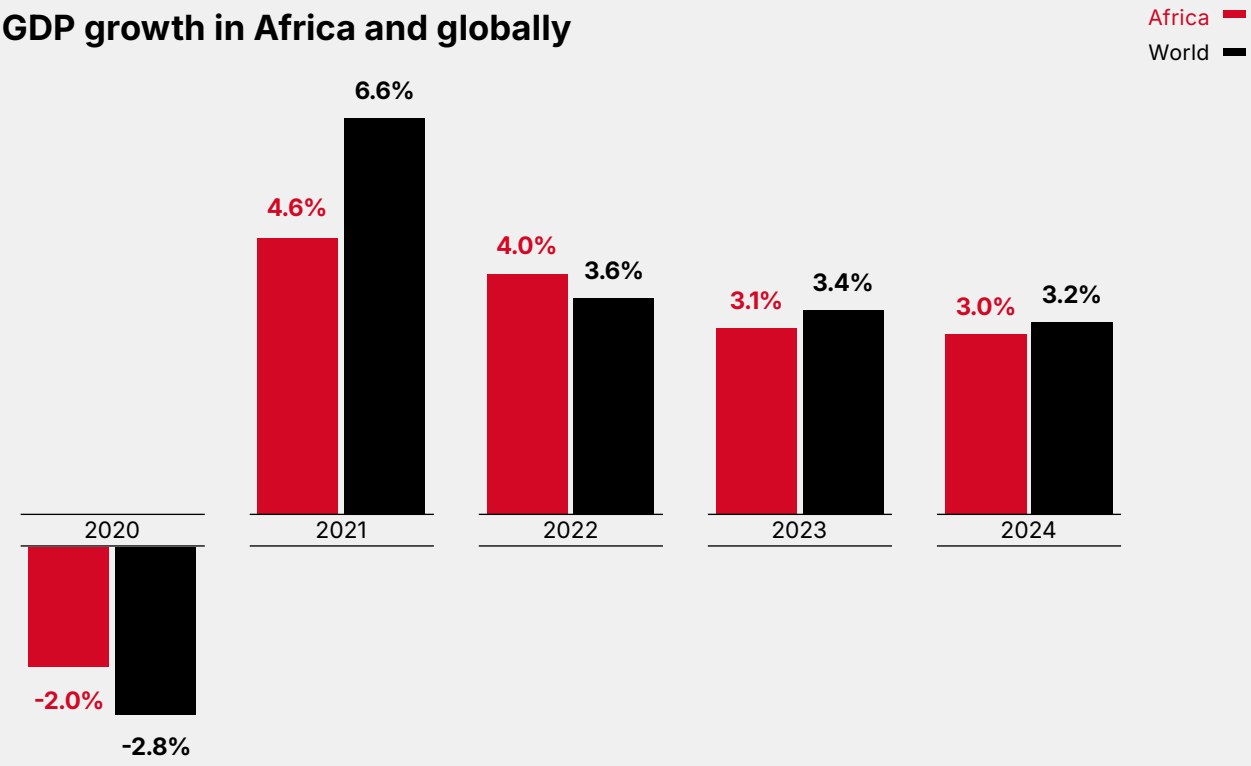
The African economy has shown moderate growth over the last four years, with a similar trend to the global economy. The factors that contributed to the growth in the region were the reduction of inflation and the stabilisation of public debt. However, uncertain global conditions resulted in tighter financial access, affecting commodity exporter countries. Moreover, there are internal vulnerabilities in the region, with some countries facing high borrowing costs and elevated inflation lowering Africa's capacity to address development needs.[1]

In 2024, GDP growth in Africa was 3.0%, slightly below the global figure of 3.2%. The region's dependence on commodity exports makes it vulnerable to external shocks, highlighting the need for diversification of the economy, which can be achieved with digitalisation. The African countries with the highest GDP growth in 2024 were Niger (10.3%), Rwanda (8.9%), Ethiopia (8.1%) and Senegal (6.7%).

The African economy shows signs of recovery, with growth remaining moderate and below its full potential. To unlock this potential, structural reforms will be critical to lay the foundation for long-term growth and development. In this context, the mobile sector can play a transformative role by delivering fast and reliable connectivity that supports the digital economy and promotes diversification across industries.[2] This will drive efficiency and increase productivity for consumers and enterprises across all economic sectors by enabling access to the latest wave of digital technologies, including 5G, IoT and AI. For example, in Benin, the mobile sector added XOF960 billion ($1.7 billion) to the economy in 2023, equivalent to 8% of GDP. In the same year, the contribution of mobile technologies reached ETB700 billion ($4.8 billion) in Ethiopia and KES1.2 trillion ($9.2 billion) in Kenya, representing 8% of GDP in both cases.

Figure 1

Real GDP growth in Africa and globally



Source: GSMA Intelligence using WEO-IMF April 2025 data

1. Regional Economic Outlook: Sub-Saharan Africa – Recovery Interrupted, April 2025
2. The digital economy is defined as the economic activities that originate from the integration of individuals, business, devices, data and operations through technology.

1.2
Economic impact of mobile

The mobile sector added $220 billion to the African economy in 2024

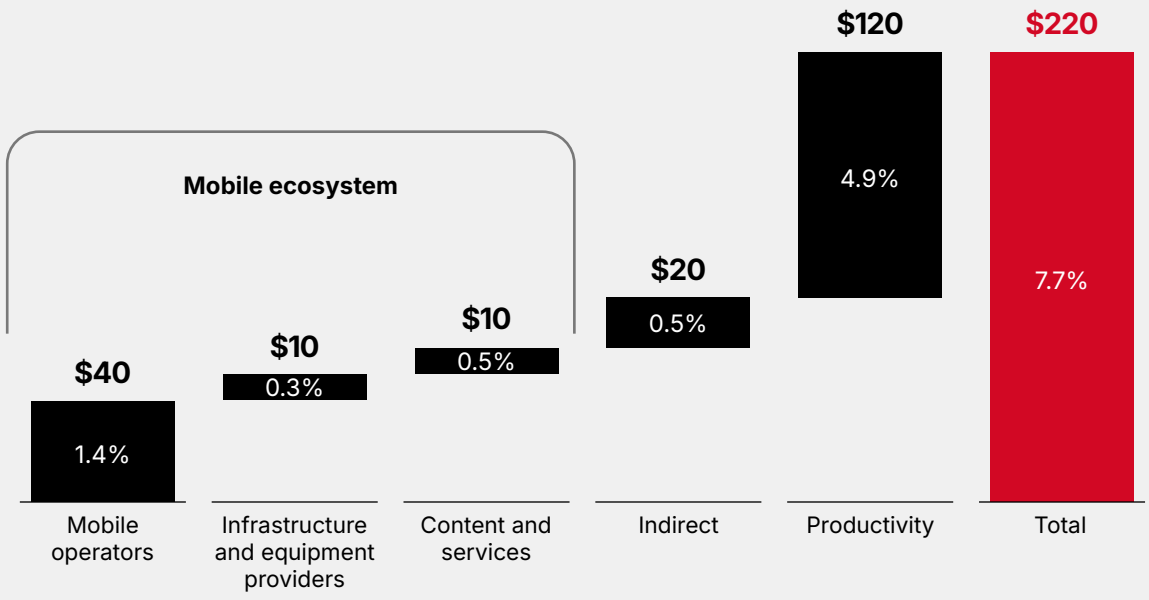
In 2024, mobile technologies and services generated 7.7% of GDP across Africa, a contribution that amounted to $220 billion of economic value added. The greatest benefits came from the productivity effects reaching $120 billion, followed by the direct contribution, which generated $60 billion. This was driven by the growth in 5G adoption in 2024, with strong 5G growth in markets such as South Africa, Réunion and Botswana.

The mobile ecosystem is formed of three categories: mobile operators; infrastructure and equipment; and content and services. The infrastructure and equipment category encompasses network equipment providers, device manufacturers and IoT companies. Meanwhile, the content and services category encompasses content, mobile application and service providers, distributors and retailers, and mobile cloud services.

Figure 2

Africa: total economic contribution of mobile, 2024

Billion



Note: Totals may not add up due to rounding.
Source: GSMA Intelligence

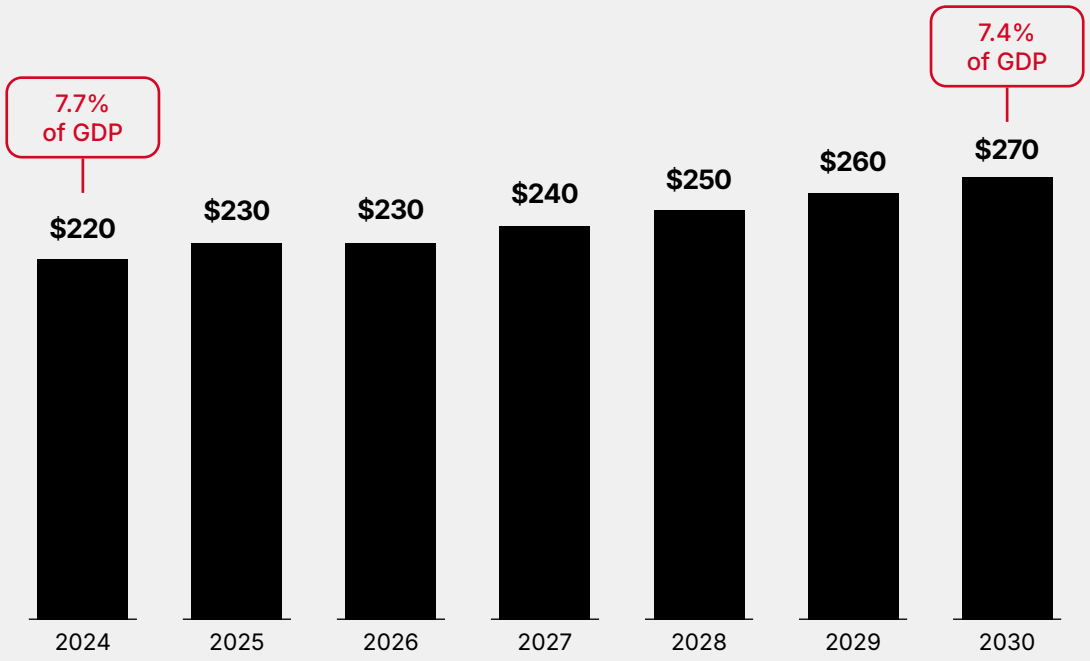
Mobile technologies will contribute $270 billion to Africa's economy by 2030

By 2030, mobile's contribution in Africa is expected to reach approximately $270 billion, or 7.4% of GDP, driven by the improvements in productivity and efficiency brought about by the continued expansion of mobile services and the growing adoption of digital technologies, including 5G, IoT and AI. Between 2025 and 2030, mobile's contribution is expected to grow at a CAGR[3] of 3.7%, slightly below the regional GDP growth forecast at 4.5% in 2030, meaning the contribution as a percentage of GDP will be slightly lower towards the end of the decade.[4] This is because the adoption of advanced digital technologies is restricted to a few countries, which highlights the need to design policies to accelerate the digitalisation of the economy across industries in order to benefit all countries in the region.

Figure 3

Africa: forecast of the economic impact of mobile

Billion



Source: GSMA Intelligence

3. Compound annual growth rate (CAGR) measures the mean annualised growth rate for compounding values over a given time period.
4. IMF Data Mapper

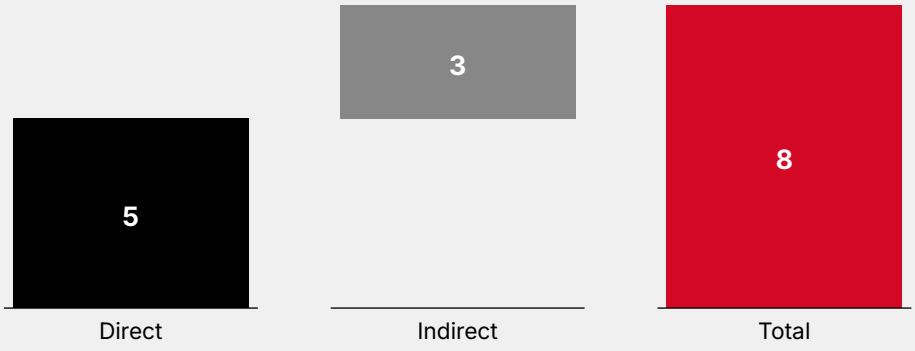
The mobile ecosystem in Africa supported around 8 million jobs in 2024

Mobile operators and the wider mobile ecosystem provided direct employment to approximately 5 million people in Africa in 2024. In addition, economic activity in the ecosystem generated around 3 million jobs in other sectors, meaning that around 8 million jobs were directly or indirectly supported.

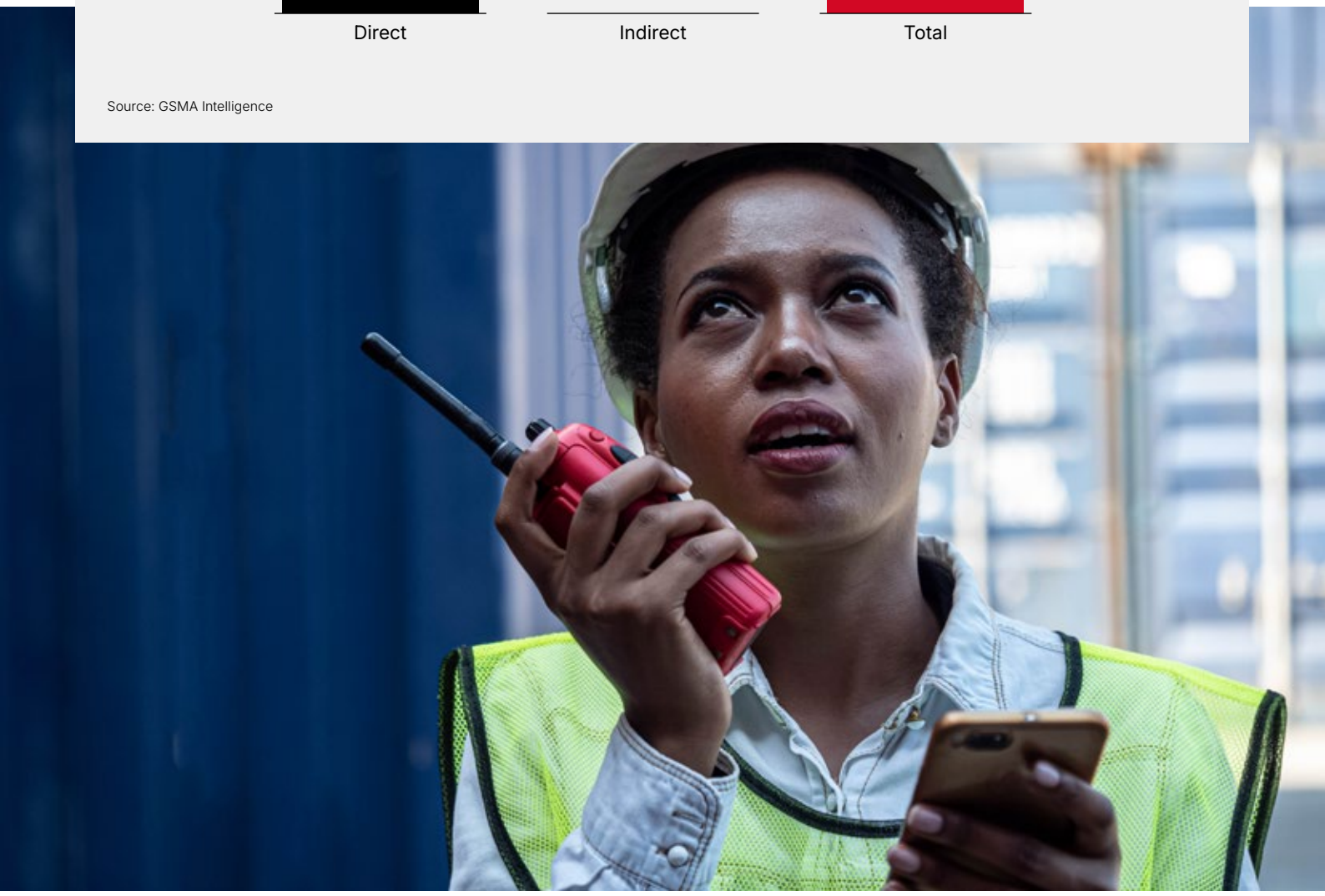
Figure 4

Africa: employment impact of mobile, 2024

Jobs (million)



Source: GSMA Intelligence



The fiscal contribution of the mobile ecosystem in Africa reached $30 billion in 2024

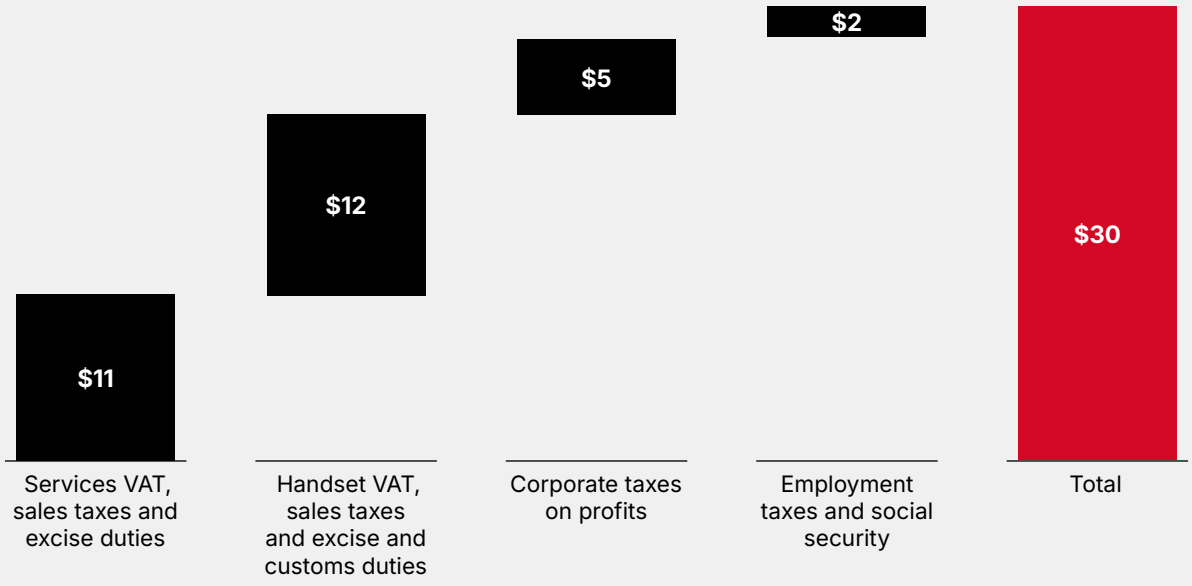
The total tax revenue in Africa reached $320 billion in 2024, representing an increase of 3% over the previous year.[5] In 2024, the mobile sector in Africa made a substantial contribution to the funding of the public sector, with more than $30 billion raised through taxes. A large contribution was driven by handset VAT, sales taxes and excise and customs duties ($12 billion). In 2024, the fiscal contribution of the mobile ecosystem represented 9.8% of the total tax revenue in the region.

Beyond its direct contribution, the mobile sector can enable a more efficient tax revenue collection by enhancing tax processes across the economy. One channel for achieving this is through digital payments and mobile money, which is particularly relevant in developing countries within Africa, where large segments of the economy are informal. Another method involves leveraging mobile platforms for tax filling and payment. High compliance tax costs are a main barrier discouraging individuals and small and medium-sized enterprises (SMEs) from paying taxes. In response, governments are rolling out mobile apps for filling and paying taxes to reduce friction and improve compliance rates.

Figure 5

Africa: fiscal contribution of mobile, 2024

Billion



Note: Totals may not add up due to rounding.
Source: GSMA Intelligence

5. IMF Fiscal Policies: World Revenue Longitudinal Database

5G and its ecosystem will significantly boost GDP in Africa by the end of the decade

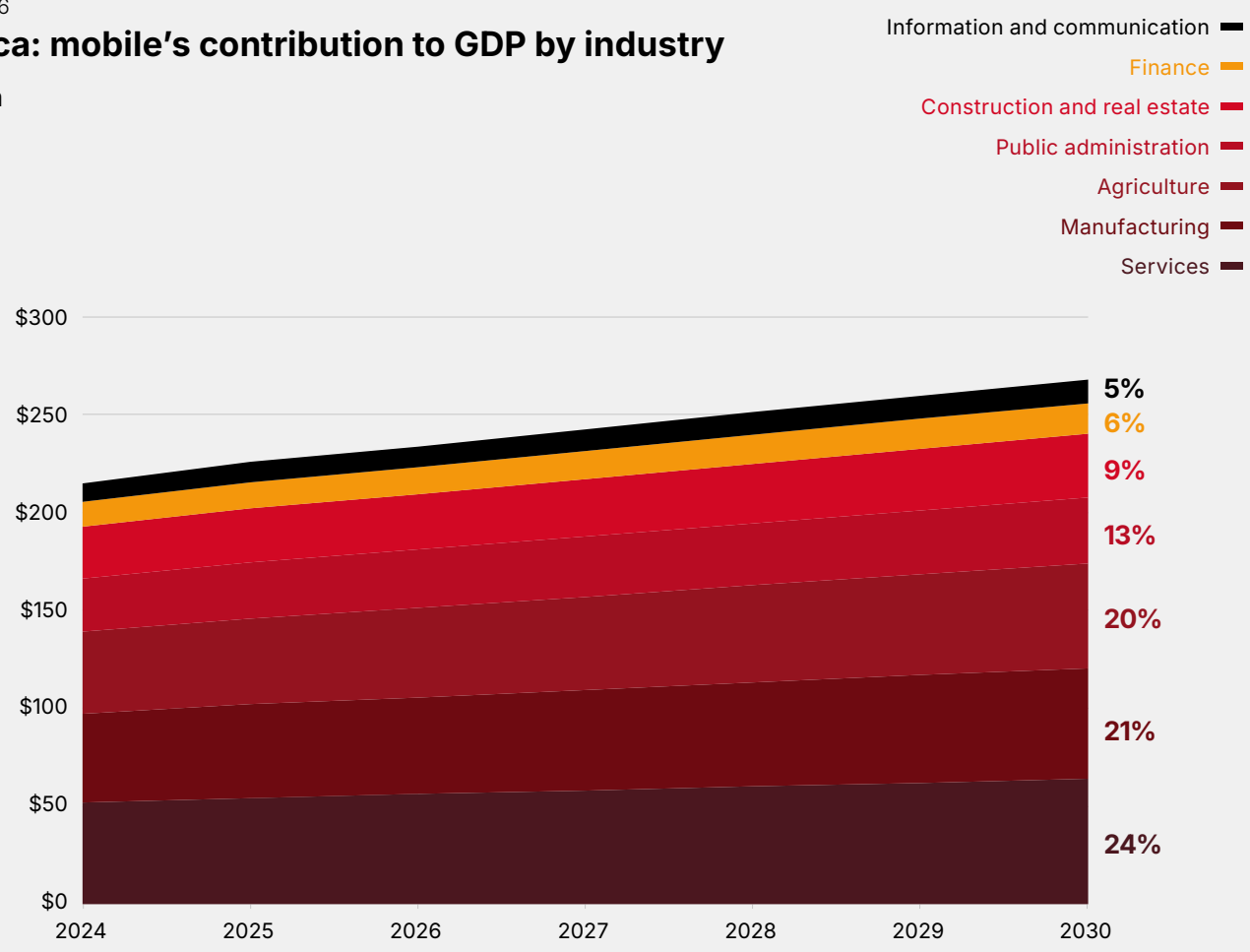
Mobile technologies and the ensuing digital transformation are expected to benefit the African economy by $270 billion in 2030. Most countries are at incipient levels of adoption, limiting the digital transformation of the economy. By 2030, 5G use is expected to increase across most African countries and, with it, the use of advanced digital technologies.

Mobile technologies are expected to drive growth across all sectors of the African economy, though some industries will benefit more than others due to their ability to incorporate the latest wave of digital technologies, including 5G, IoT and AI. These gains will stem from new revenue streams and improvements in productivity and efficiency enabled by the growing adoption of digital technologies. Between 2024 and 2030, growth generated by mobile-enabled technologies will be greatest in the services sector (24%), followed by manufacturing and agriculture.

Figure 6

Africa: mobile's contribution to GDP by industry

Billion



Source: GSMA Intelligence

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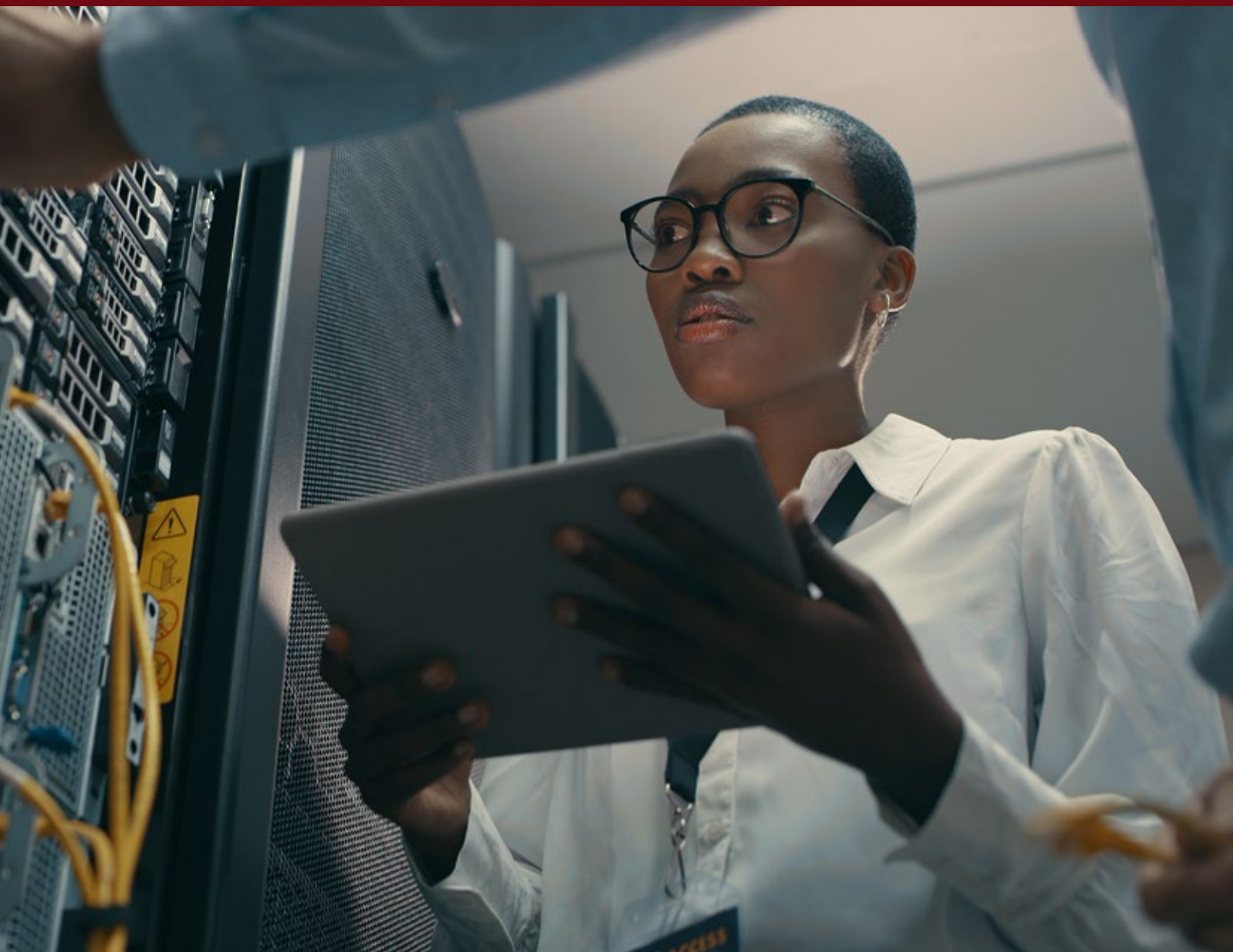
Trends shaping the mobile industry



2.1
Development of AI in Africa

AI has become an important enabler of digital transformation in Africa and a policy priority for governments across the continent. As national strategies emerge and operators shift from AI pilots to commercial deployment, the continent faces a defining moment of translating AI potential into inclusive growth while navigating infrastructure gaps, talent shortages and governance challenges. Continental-wide efforts have also started to take place, with the African Union launching the Continental AI Strategy to recognise the transformative potential of AI to drive both socioeconomic development and a cultural renaissance (see Figure 7).[6]

This strategic focus aligns with recent estimates suggesting that AI could boost Africa's economy by $2.9 trillion by 2030, equivalent to increasing annual GDP by 3% across Africa.[7]

Figure 7

Focus areas of the African Union's Continental AI Strategy

Focus area	Description
Maximising AI's benefit	Ensuring AI technologies contribute to economic growth, social inclusion and improved public services across the continent.
Minimising AI's risk	Putting in place safeguards to manage ethical, security and privacy risks while preventing misuse of AI systems.
Enabling infrastructure and skills that underpin AI development	Building digital infrastructure, investing in data ecosystems and equipping the workforce with the skills needed to develop and use AI responsibly.
Fostering cooperation and partnerships	Promoting collaboration between governments, the private sector, academia and international partners to accelerate AI adoption and governance.
Stimulating investment	Encouraging public and private investment in AI research, innovation and startups to drive sustainable growth and competitiveness.
Creating an inclusive governance and regulatory framework	Establishing clear, inclusive and adaptive governance structures to ensure AI deployment aligns with societal values. Policies must balance innovation with accountability, promoting transparency, fairness and equitable access to AI benefits.

Source: GSMA Intelligence based on the Continental Artificial Intelligence Strategy

6. Continental Artificial Intelligence Strategy, African Union, 2024
7. AI in Africa: The state and needs of the ecosystem, AI4D Africa, 2024

AI policy and the regulatory landscape in Africa

Several African countries have already developed or launched national AI strategies (while others are in advanced stages of consultation), including the following:

- **Mauritius** was an early mover, publishing its National AI Strategy in 2018, with a strong focus on skills development, incentives for innovation and government-led AI use cases.
- **Egypt** launched its National AI Strategy 2025–2030 in 2021. It is currently aiming to grow ICT contribution to 7.7% of GDP and create a workforce of 30,000 AI professionals by 2030.[8]
- **Rwanda** approved its National AI Policy in 2023 and established the Centre for the Fourth Industrial Revolution to accelerate implementation and attract partnerships.
- **Benin** launched the National AI and Big Data Strategy in 2023, which prioritises data infrastructure, skills and governance frameworks.
- **Nigeria** published its National AI Strategy in 2024, focusing on infrastructure, skills, governance and ecosystem development.
- **Kenya** unveiled its National AI Strategy in 2025, positioning itself as a regional AI hub by investing in data governance, research and commercialisation of AI-driven solutions.
- **South Africa** launched its AI policy framework in 2025, with a strong emphasis on ethics, inclusion and transparency.

A critical enabler for AI policy is data governance, and Africa is making steady progress here. According to the UN Trade and Development (UNCTAD), 76% of African countries now have data-protection laws,[9] laying a foundation for privacy, trust and responsible AI deployment. In parallel, regulators are increasingly using regulatory sandboxes to experiment with AI-driven solutions in controlled environments, particularly in sensitive sectors such as health and finance. For instance, Kenya's National AI Strategy explicitly references the need for regulatory sandboxes to facilitate safe experimentation and to inform future AI legislation.

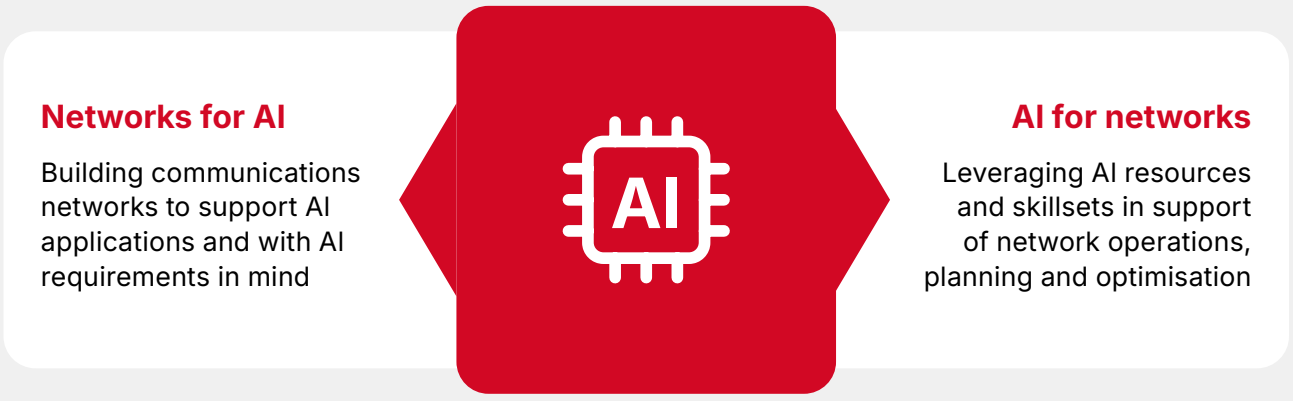
8. "Egyptian president launches 2025-2030 National AI Strategy", Middle East AI News, January 2025
9. See https://unctad.org/page/data-protection-and-privacy-legislation-worldwide

The role of mobile operators in scaling up AI development in Africa

Mobile operators have a pivotal role in Africa's AI journey, both as enablers and adopters. On one hand, their networks form the backbone for AI-driven services, providing the digital infrastructure required for data generation, connectivity and cloud access. On the other hand, operators are increasingly embedding AI within their own operations to optimise network performance, improve customer experience and drive efficiencies. This dual role – network for AI and AI for networks – positions operators not just as participants, but as catalysts for accelerating AI adoption in Africa at scale. Mobile operators are scaling up AI applications, investing in infrastructure and ecosystem development and navigating the implications of responsible AI deployment.

Figure 8

The dual role of operators in the development of AI



Source: GSMA Intelligence

Networks for AI

Operators in Africa are investing heavily in building digital infrastructure that can support the scale and complexity of AI applications. This includes expanding 4G coverage, accelerating 5G rollouts and upgrading backhaul capacity to handle the massive volumes of data generated by AI-driven services. In parallel, they are deploying edge computing and forming cloud partnerships to bring processing power closer to end users, reducing latency for applications such as precision agriculture, connected health and smart manufacturing.

Beyond connectivity, operators also play a role in enabling the broader AI ecosystem by offering platforms for data hosting, APIs for developers and IoT connectivity for enterprises. These investments not only create the technical foundation for AI deployment, but also help to overcome Africa's unique constraints of affordability, geographic spread and uneven access to reliable digital infrastructure.

Below are some recent examples of operator investments in AI infrastructure:

- In **Kenya**, Safaricom has entered a strategic partnership with data centre operator IXAfrica to deliver East Africa's first AI-ready data centre services to enterprise and cloud-solution clients.
- In **Nigeria**, MTN has launched the Sifiso Dabengwa Data Centre, a state-of-the-art facility designed to support AI and cloud services in Nigeria. The Tier III data centre, the largest in West Africa, provides cost-effective, naira-priced services, allowing Nigerian entities to compete on a global scale for AI and digital transformation initiatives.
- In **South Africa**, MTN entered into a strategic partnership with China Telecom and Huawei to advance its capabilities in 5G, cloud, AI and IoT technologies. This move enhances MTN's digital infrastructure, enabling smart solutions across sectors such as mining and industrial automation.

AI for networks

Operators across Africa are investing in AI capabilities to transform how their networks are designed and managed. By leveraging AI resources and cultivating in-house expertise in data science and machine learning, operators are enhancing operational efficiency through predictive maintenance, intelligent traffic management and automated fault detection. This reduces downtime, lowers operational costs and ensures higher service reliability, particularly in markets where infrastructure challenges remain acute. At the same time, AI supports long-term strategic planning, helping operators to forecast demand, optimise spectrum and energy use and model investment scenarios with greater accuracy. In doing so, African operators are not only modernising their own networks but also building the technical capacity and skillsets needed to scale up AI adoption across the wider economy.

Airtel Africa and MTN Nigeria are two such operators:

- **Airtel Africa** has entered a multi-year, multi-million dollar partnership with Xtelify to deploy a cutting-edge, AI-powered software platform aimed at simplifying telecoms operations and improving customer experience across its 14 African markets.
- **MTN Nigeria** is implementing AI solutions in Nigeria to optimise network traffic and enhance service delivery. This deployment is a step towards modernising operations using responsible AI technology.

As Africa builds its AI future, mobile operators are emerging not only as adopters, but as critical catalysts of inclusive, sustainable innovation. Their role in enabling talent, infrastructure and policy dialogue will shape the trajectory of AI's impact across the continent.

Examples of AI innovations and developments across Africa

Africa is witnessing a surge in AI innovations, driven by governments, startups and global tech companies investing in the continent's digital future. AI is increasingly being applied across multiple sectors, including agriculture, healthcare, finance, logistics and creative industries. These applications are helping to improve service delivery, drive efficiency gains and unlock new opportunities for businesses and governments alike. Below are some examples of recent activities in the AI space by global and local stakeholders:

- **Google** has committed $37 million to expand AI development in Africa, supporting startups, research institutions and educational initiatives in sectors such as health, agriculture and education.[10] The funding aims to accelerate AI talent development and foster local AI solutions.
- **Meta's** open-source AI platforms are driving accessibility and adoption of AI through tools such as Llama, enabling developers across Africa to experiment with and deploy AI solutions. These tools are being applied in areas such as local language processing, customer service chatbots and agricultural advisory platforms, helping make AI solutions more relevant to African contexts.
- **Microsoft** has announced a $300 million investment in South Africa to expand AI infrastructure, including cloud computing, data centres and AI-powered services.[11] This supports enterprise adoption and positions the region as a hub for AI innovation.
- Local startups are also applying AI in diverse ways:
  - In **South Africa**, Aerobotics is using drones and machine learning to monitor crops.
  - In **Rwanda**, Zipline leverages AI to forecast demand and optimise drone delivery routes for medical supplies.
  - In **Ghana**, mPharma uses AI for autonomous navigation and real-time route optimisation to improve medication availability across pharmacies.
  - In **Kenya**, Delta Pay utilises AI-powered risk assessment to evaluate creditworthiness using alternative data, expanding access to affordable credit.
  - In **Nigeria**, Trust Decision employs AI for fraud detection and credit risk analysis.

10. "Google Commits $37 Million to Expand AI Development in Africa", Empower Africa, July 2025
11. "Microsoft to invest $300 million more in South Africa's AI infrastructure", Reuters, March 2025

The case for AI language models in local African Languages

Globally, AI is reshaping economies and societies, with language models at the forefront of this transformation. Yet, as the world accelerates towards AI-driven solutions, there is a risk of digital exclusion in Africa becoming more severe. The underrepresentation of African languages in mainstream AI systems highlights a critical gap: while Africa is home to over 30% of the world's languages,[12] current AI systems and language models cover only a small fraction of global languages, with a heavy concentration on North American and English-language datasets.

This imbalance poses a limitation to the full realisation of AI's benefits in Africa. The absence of local languages in mainstream AI systems reduces the accessibility of AI-powered services for many communities, particularly in rural and underserved areas. Without adequate language coverage, opportunities for using AI in education, public services and business remain constrained.

Investing in African language models offers a pathway to close this gap. By training models in local languages, Africa can democratise access to knowledge, digital tools and public services. For example, a teacher in rural Senegal could use AI to generate lesson plans in Wolof, a farmer in Tanzania could receive market forecasts in Swahili and a health worker in Ethiopia could access medical guidance in Amharic. These applications show that localised AI is not just about inclusion, but about empowering citizens to participate in the digital economy on their own terms.

The opportunities extend beyond social impact to unlock economic value in priority sectors:

- **Governance:** Improving citizen engagement and transparency through multilingual e-government services.
- **Healthcare:** Enabling accurate medical information in local languages, supporting frontline workers and enhancing patient trust.
- **Financial services:** Facilitating digital financial inclusion by breaking down language barriers to mobile banking and fintech solutions.
- **Education:** Delivering culturally relevant learning resources that reach rural and marginalised communities.

Localised African language models represent more than a technological ambition – they are a strategic imperative for inclusion, competitiveness and sovereignty in the digital age.

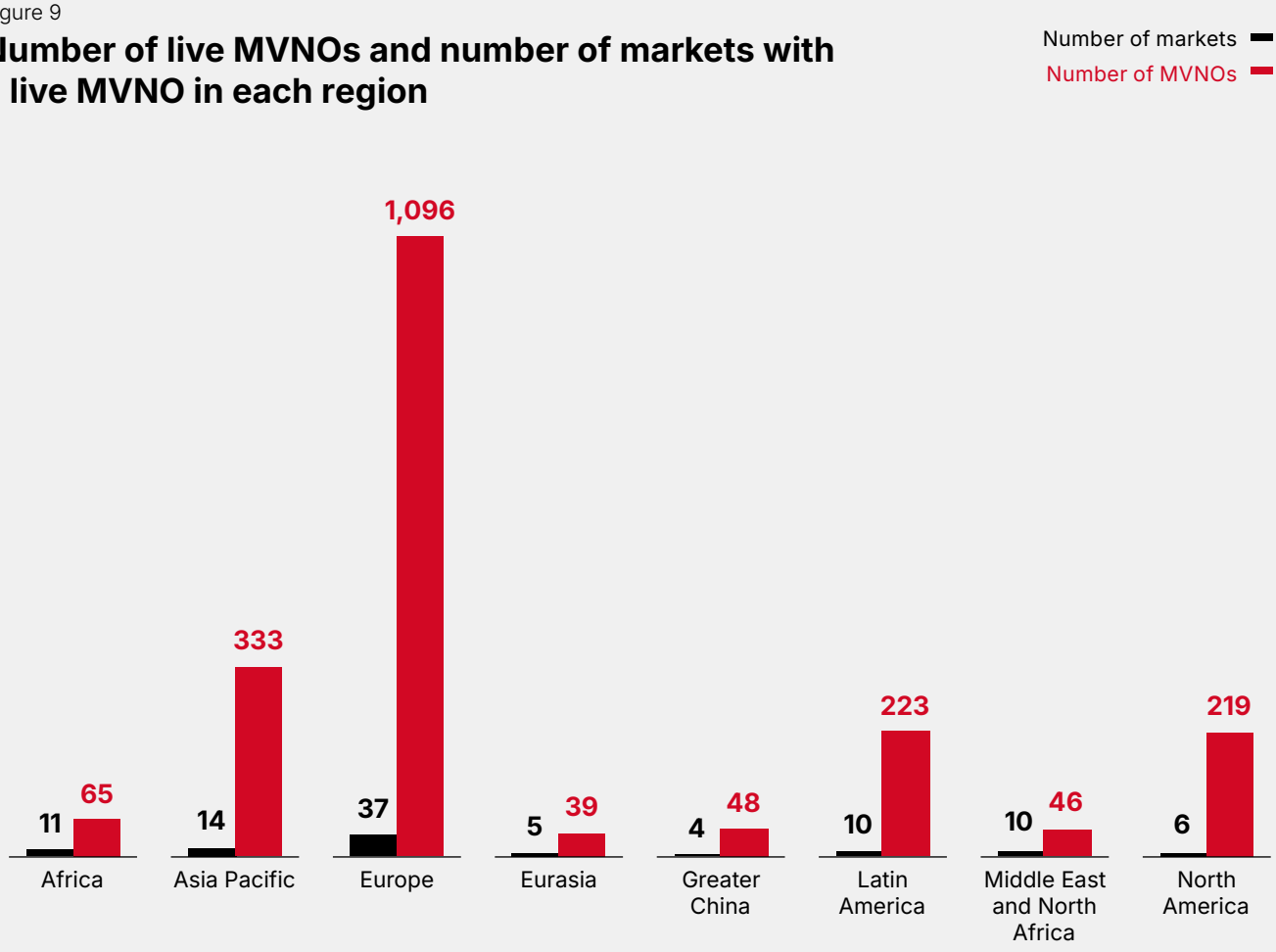
12. "How Colonialism Causes Language Endangerment", Zeitgeister, April 2022

2.2
The role of MVNOs

The mobile virtual network operator (MVNO) model has been used in various advanced mobile markets around the world as a tool to widen access, diversify services and foster competition in mobile markets. It is based on providing mobile services by leasing network access and infrastructure from a mobile network operator, rather than owning it directly. MVNOs focus on brand marketing, customer service and specialised services for niche markets, offering consumers tailored plans, competitive pricing and increased choice by leveraging the operator's existing network without the operator's overhead costs. Some examples of segments targeted by MVNOs include retail, media and entertainment, sports, migrants and the charity sector. Today there are over 2,000 MVNOs in nearly 100 markets around the world.

Figure 9

Number of live MVNOs and number of markets with a live MVNO in each region



Source: GSMA Intelligence

MVNOs in Africa

In Africa, momentum is building for MVNOs, though regulatory approaches and commercial outcomes vary across countries. Across the continent, MVNO development has followed diverse paths, reflecting regulatory frameworks, market conditions and strategic priorities. Central to this discussion is the question of whether MVNOs complement existing operators or risk cannibalising their revenue streams – a question that is especially relevant in markets where operators face financial and operational constraints. As of September 2025, there are 63 MVNOs in 11 countries across Africa, with South Africa representing 61% of the total number of MVNOs in the region.

Figure 10

MVNO regulatory approaches in Africa

Country	MVNO approach and development
Botswana 	**Regulatory-led expansion with active MVNOs:** Botswana's communications regulatory authority allows MVNOs to operate through agreements with licensed operators. MVNO Africawide Mobile provides services that include public Wi-Fi, commercial and residential mobility and rural connectivity, leveraging host networks to reach urban and underserved areas.
Cameroon 	**Regulatory-led entry:** Cameroon's telecoms regulator has issued MVNO authorisations since 2022, aiming to expand competition in a highly concentrated market dominated by MTN and Orange. While licensing has been granted to players such as Viettel (Nexttel) commercial traction has been slow due to pricing challenges, limited wholesale agreements and infrastructure dependency on host operators. This model illustrates that licensing alone is not sufficient without clear wholesale frameworks and incentives.
Kenya 	**Light-touch regulatory model:** In Kenya, MVNOs operate under the application service provider (ASP) licence. The Communications Authority of Kenya has designed this licensing framework to promote competition and innovation in the telecommunications sector. This has enabled banks, fintechs and retailers to become MVNOs, integrating mobile services with financial products or other consumer offerings. Equity Bank's Equitel is a prime example, combining mobile connectivity with mobile money to expand access to financial services. In Kenya, MVNOs demonstrate that market demand, coupled with a strong value proposition, can sustain operators even in the absence of heavy regulation.
Morocco 	**Partnership-led entry:** Morocco has seen MVNOs emerge primarily through commercial arrangements with Maroc Telecom, Orange and Inwi. Early entrants such as Win by Inwi operate as digital-first sub-brands rather than independent operators. The market demonstrates how MVNOs in mature, highly penetrated environments must differentiate through digital service bundling, niche targeting or customer experience innovation, rather than price competition.
Nigeria 	**Regulatory-led expansion:** In Nigeria, MVNOs are regulated through a comprehensive five-tier licensing framework that ranges from simple resellers to unified operators capable of bundling multiple services. Over 40 licences had been granted by mid-2024, with commercial launches expected later in 2025. The Nigerian Communications Commission aims to use this framework to expand coverage in underserved regions, enhance competition and increase consumer choice. However, the success of MVNOs in Nigeria will depend on robust enforcement, infrastructure mandates and commercial protections to ensure that they complement rather than destabilise financially pressured host operators.

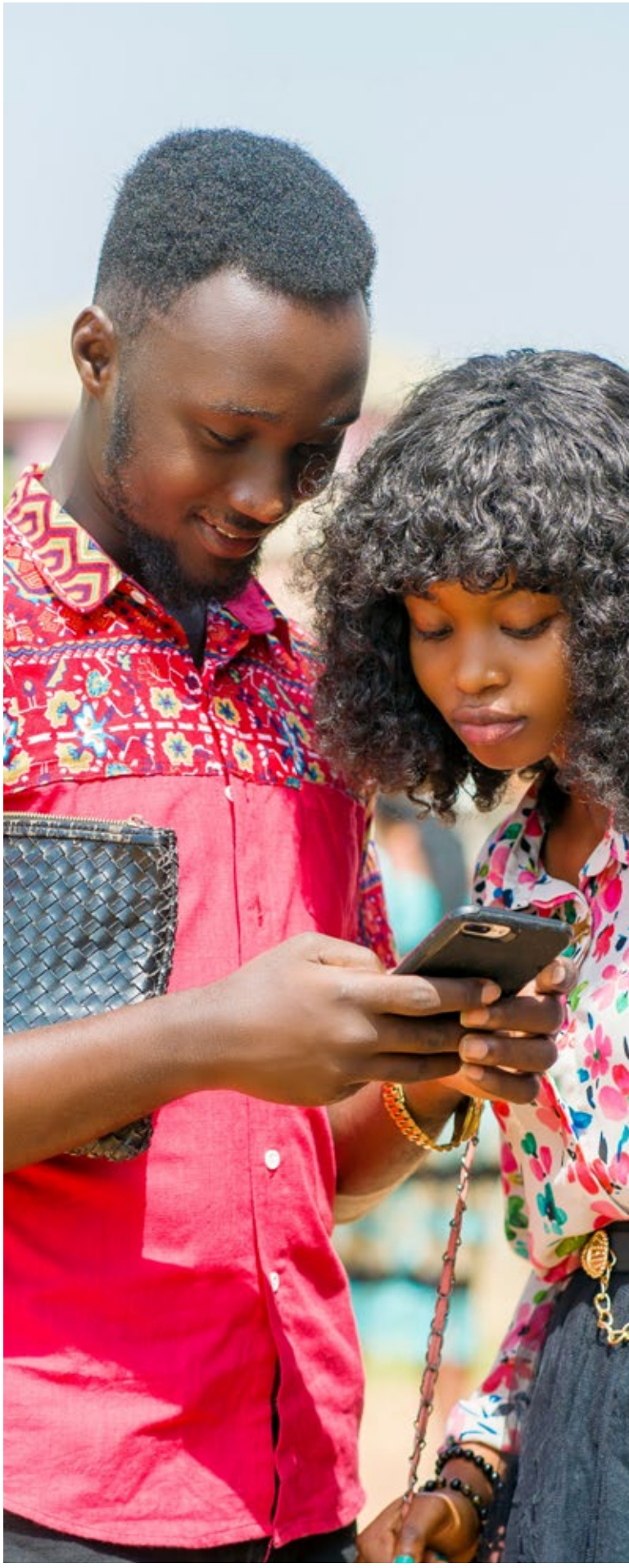
Country	MVNO approach and development
Senegal 	**Hybrid approach:** In Senegal, regulators have selectively awarded MVNO licences through tenders, yet operations still depend on commercial agreements with operators. Examples include You Mobile (Sonatel), Sirius Télécoms (Tigo) and Origines SA (Expresso). The success of these MVNOs demonstrates that even with regulatory facilitation, alignment with host operators is essential. Across all these markets, the sustainability of MVNOs hinges on clear value propositions, strategic synergies and their ability to complement operators by introducing affordability, innovation and inclusion to segments that operators may underserve.
South Africa 	**Market-driven innovation:** In South Africa, MVNOs have emerged entirely through commercial agreements with host operators, without a formal licensing framework. Operators such as Rain, Afrihost Mobile and FNB Connect have successfully leveraged their parent companies' existing customer base, branding and distribution networks to establish a market presence. This demonstrates that MVNOs can thrive without regulatory mandates if they bring a compelling value proposition to the market.
Tanzania 	**Niche player experimentation:** Tanzania's MVNO environment is still nascent, with a few fintech-linked MVNOs licensed by the Tanzania Communications Regulatory Authority. Services are generally focused on urban centres and tied to value-added services such as mobile payments. Uptake remains constrained by affordability, with most traction expected from vertical integration (e.g. banking/retail groups leveraging mobile).
Tunisia 	**Regulated but domestically contained:** Tunisia's telecoms regulator formally authorised MVNOs in 2015, with Tunisie Telecom hosting the first players, such as Lycamobile Tunisia. While MVNOs exist, their role remains small, serving mostly niche low-cost and migrant segments.
Uganda 	**Bank-led innovation:** Uganda's MVNO ecosystem has emerged under the Uganda Communications Commission's flexible licensing regime, with fintech and banking entities experimenting in the space. Examples include Smart Telecom's MVNO operations and fintech-linked entrants aiming to bundle payments and connectivity. The model reflects MVNOs' potential in East Africa to deepen digital financial inclusion rather than compete purely on connectivity.
Zimbabwe 	**Slow uptake despite regulatory provision:** The Postal and Telecommunications Regulatory Authority of Zimbabwe has allowed MVNO entry, with state-linked players such as Telecel Zimbabwe exploring partnerships. However, commercial deployments have been limited by macroeconomic instability, forex shortages and strained wholesale agreements with operators such as Econet.

Source: GSMA Intelligence

The problems that MVNOs are solving

Primarily, MVNOs are used as a lever to close gaps that traditional operators alone may not be able to address. Rather than acting as rivals, MVNOs often extend the value of operator infrastructure by focusing on underserved niches and bringing fresh commercial models to the market. In Africa, some of the focus areas by existing MVNOs include the following:

- **Affordability and inclusion:** Many African markets still face high costs of connectivity, particularly for low-income consumers. MVNOs offer a route to more affordable, targeted packages that make mobile services more accessible to segments often overlooked by larger operators. In Senegal, Sirius Telecoms (operating through a deal with Free/Sonatel) offers low-cost mobile and internet services tailored for everyday users, while Origines SA has positioned itself as a provider of accessible data bundles. Such models make connectivity more affordable and help bridge digital divides.
- **Financial inclusion and mobile banking:** Access to formal financial services remains limited in many African countries, with cash transactions still dominating and millions of people excluded from traditional banking. MVNOs led by banks and fintechs are addressing this gap by embedding financial services into connectivity. In Kenya, Equitel (backed by Equity Bank) leverages Airtel's network to offer customers integrated mobile banking, payments and connectivity services through a single SIM card. This model supports financial inclusion by enabling seamless transfers, low-cost payments and access to banking products, even for previously unbanked populations.
- **Innovative and targeted propositions:** Africa's population is the youngest in the world, with over 60% under the age of 25. This demographic is digitally savvy but demands services that go beyond basic connectivity, often seeking entertainment, cultural relevance and identity-driven offerings. As one example of an innovative value proposition, Red Bull Mobile (hosted on Cell C) in South Africa leverages its global brand identity to target youth interested in music and sports, offering mobile plans bundled with perks (such as free event tickets, concert access and exclusive Red Bull content) and aligning connectivity with lifestyle aspirations. Meanwhile, Stadio Connect (hosted on MTN via megsApp) provides affordable connectivity tailored to students, including free SIMs, preloaded data and zero-rated access to e-learning platforms.



Implications for Africa

Across African markets, MVNOs are addressing gaps in coverage, affordability and service innovation. They often target underserved regions or niche customer segments that operators are less incentivised to serve. By leasing network capacity rather than investing in new infrastructure, MVNOs can expand reach at lower cost, introduce innovative service bundles and promote financial inclusion or localised offerings.

Critically, their value lies in enabling operators to monetise excess capacity, access new consumer segments and stimulate competition, without displacing core revenue streams. Success depends on a clear strategic alignment – operators that treat MVNOs as extensions of broader business ecosystems, rather than speculative ventures, are the ones most likely to thrive.

The African MVNO experience provides several lessons for policymakers and industry players:

- **Regulatory frameworks are not the only determinant of success:** Taking Nigeria's comprehensive licensing system as an example, the developments may accelerate MVNO entry, but without enforcement, infrastructure mandates and commercial protections, it may struggle to achieve sustainable outcomes. Conversely, commercial-driven markets such as South Africa and Kenya demonstrate that strong value propositions can sustain MVNOs even without formal regulatory support.
- **MVNOs can drive inclusion and innovation:** By targeting underserved or niche segments, MVNOs can expand affordability, digital financial access and service innovation, complementing the broader telecoms ecosystem. Their presence can also incentivise operators to improve offerings across the board.
- **Sustainability requires alignment with operator interests:** In all models, the willingness of host operators to provide access is critical. Without strategic alignment, MVNOs risk being short-lived, while those that enhance the operator value chain can achieve long-term viability.
- **A balanced approach is needed:** Africa's diverse markets suggest that neither a purely regulatory-led nor a purely commercial approach is universally optimal. Policymakers must consider market maturity, financial sustainability and strategic objectives when designing frameworks to enable MVNOs.

A vital question in Africa's telecoms sector is whether MVNOs erode operators' revenues or whether they strengthen the ecosystem. Evidence clearly shows that MVNOs tend to complement, rather than cannibalise, existing operators through strategic value propositions and are not direct competition. When paired with thoughtful regulation and well-designed market strategies, MVNOs can expand coverage, foster competition and introduce innovative services. They are not a cure-all for Africa's connectivity challenges, but they play a critical role in shaping inclusive, diverse and sustainable digital ecosystems.

Accordingly, in markets where strong competition already exists, MVNOs may not be required. For countries considering their introduction, regulators must focus on sustainability and commercial viability, issuing licences with clear objectives to avoid excessive competition that could erode value or trigger a 'race to the bottom' in the telecoms sector.

2.3
Driving enterprise digitalisation in Africa

The digitalisation of enterprises across various vertical industries has become a defining force in Africa's economic growth and social progress, with connectivity at the heart of transformative solutions for improving productivity and achieving efficiency gains. Beyond enabling communication, mobile networks now underpin innovative applications in critical sectors such as healthcare, education, agriculture, logistics and manufacturing. Mobile networks amplify the importance of these sectors for the economy and society, in addition to enhancing the competitiveness of African enterprises in global markets.

Enterprise digitalisation is critical in Africa due to the continent's unique economic, social and infrastructural context. The African Development Bank expects overall economic growth to hover around 4% in the near term. However, many enterprises, especially SMEs, face barriers such as limited access to markets and capital, high operating costs and skills shortages. Additionally, over 60% of Africans lack access to traditional banking, hindering growth, while limited physical infrastructure (e.g. roads and grid electricity) restricts business operations, especially in rural areas, where over half of the population live.

For enterprises in Africa, digitalisation offers an opportunity to scale up their operations and overcome many of these challenges. In Africa, mobile networks and platforms are key enablers of this digital transformation, enabling new business and operational models. Some examples of mobile-based solutions powering the transformation of enterprises in verticals across Africa include mobile money, open APIs and cloud and AI solutions.

Mobile money

Mobile money exemplifies the vertical digitalisation opportunity for operators in Africa, serving as a foundation for expanding digital services beyond traditional financial transactions. With over 1.1 billion registered accounts in Sub-Saharan Africa and transactions valued at $1.1 trillion in 2024, the region remains the global leader in mobile money adoption, accounting for nearly 65% of the worldwide transaction value.[13]

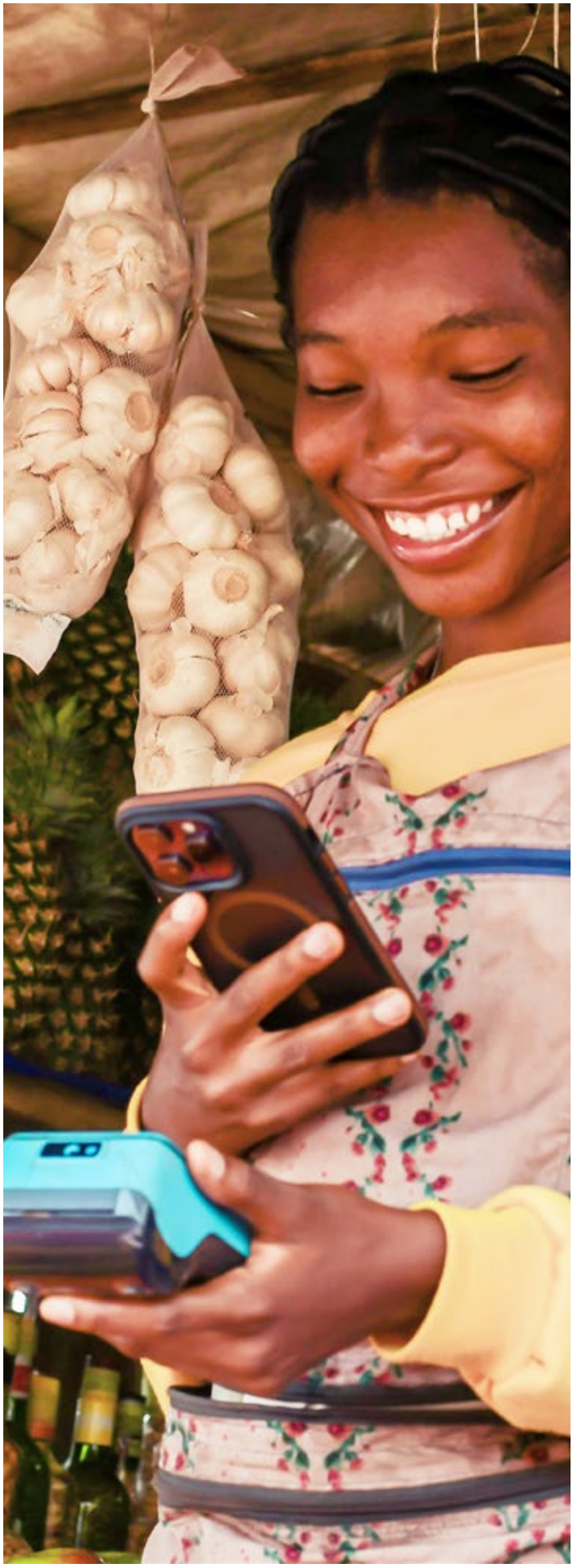
Beyond its established role in financial inclusion, mobile money is increasingly embedded in enterprise operations, enabling seamless payments, digital payrolls, working capital management and supply-chain financing, such as in the following sectors:

- **Retail and e-commerce:** SMEs and informal retailers leverage mobile money to accept payments remotely, enabling access to previously untapped rural markets.
- **Agriculture:** Cooperatives and agritech platforms use mobile money to pay farmers digitally, disburse microloans and reduce cash-handling risks, improving both transparency and operational efficiency.
- **Logistics:** Mobile money facilitates payments across multi-party supply chains, reducing friction and enabling real-time reconciliation.

Open APIs

Open APIs, exemplified by the GSMA Open Gateway initiative, allow enterprises to embed mobile network functionalities directly into their business processes. This integration accelerates service innovation, reduces time to market and lowers operational complexity, such as in the following sectors:

- **Fintech and payments:** Startups leverage SMS, USSD and mobile money APIs to deliver cross-border payments and embedded finance solutions without heavy infrastructure investment.
- **Logistics and mobility:** Enterprises integrate location tracking, notification systems and authentication services into existing platforms, improving efficiency and customer satisfaction.
- **Utilities and services:** APIs enable real-time consumption tracking, automated billing and alerts, enhancing operational transparency and customer engagement.



13. The State of the Industry Report on Mobile Money 2025, GSMA, 2025

Case study

GSMA Open Gateway

Launched in February 2023, the GSMA Open Gateway initiative aims to harness the capabilities of mobile networks worldwide by providing access through standardised APIs. There are now 60 APIs available for development, as of September 2025, within the CAMARA Fall25 release.[14]

In Africa, 14 networks have adopted the initiative in 12 countries, with South Africa at the forefront of adoption. In February 2024, South African operators Cell C, MTN and Telkom launched standardised APIs for Number Verification, OTP Validation and SIM swap. These APIs have been rapidly integrated by banks, fintech companies and retailers to strengthen digital security and reduce SIM swap fraud, a common threat in markets with high mobile money and digital payments usage.

In addition to financial services, APIs also support efforts to tackle fraud in other industries. The GSMA Open Gateway initiative unlocks these new opportunities and enhances capabilities across various sectors, such as the following:

- **Finance:** The SIM Swap and Number Verification APIs assist banks and financial institutions in identifying and preventing identity theft and fraud. They help ensure the security of transactions and the accurate verification of customer identities.
- **Healthcare:** The Device Location and Quality on Demand APIs can be utilised in telemedicine to guarantee high-quality video consultations and precise location tracking for emergency services.
- **Retail and e-commerce:** The Carrier Billing API enables the smooth integration of payment services, allowing customers to make purchases directly through their mobile operator. This streamlines the checkout process and enhances customer experience.
- **Entertainment:** The Edge Site Selection API optimises the delivery of high-definition video and immersive gaming experiences, ensuring low-latency and high-quality streaming for users.
- **Transport and logistics:** The Device Status and Verify Location APIs aid in tracking shipments and managing fleet operations more efficiently. They provide real-time updates on the status and location of vehicles and goods.

In addition to providing fraud prevention services through the GSMA Open Gateway APIs, operators can serve enterprises with anti-fraud solutions. For example, operators can offer specialised fraud prevention services, such as real-time transaction monitoring and risk assessment. Another opportunity lies in developing and selling advanced data analytics and AI-powered fraud-detection solutions that can analyse extensive data to identify suspicious patterns and prevent fraudulent activities. This can deliver significant value to enterprises across multiple sectors. Forming partnerships with financial institutions and other stakeholders is crucial for creating monetisation opportunities and developing innovative fraud prevention solutions. By leveraging expertise in fraud prevention, operators can develop valuable products and services that drive revenue and contribute to a safer digital environment.

14. See Fall25 meta-release - CAMARA Project

Cloud and AI solutions

The adoption of cloud and AI solutions via mobile networks is enabling African enterprises to scale up operations without traditional IT infrastructure. Cloud-based tools allow businesses to access enterprise resource planning (ERP), customer relationship management (CRM) and analytics platforms on demand, while AI supports predictive decision-making. For example, cloud and AI solutions can benefit sectors such as manufacturing, healthcare and agritech:

- **Manufacturing:** SMEs deploy cloud-based ERP and AI-driven predictive maintenance to optimise production and reduce downtime.
- **Healthcare:** Telemedicine and AI-driven diagnostics improve access to services in underserved regions, enabling providers to scale up efficiently.
- **Agritech:** AI-powered analytics platforms integrated with mobile networks support yield prediction, weather advisories and market pricing for farmers.

Case study

MTN's Ambition 2025: enabling enterprise digitalisation across Africa

MTN Group has positioned itself at the forefront of Africa's digital transformation through its Ambition 2025 strategy, which marks a significant shift from being a traditional telecoms operator to becoming a digital platform leader. Central to this vision is the goal of enabling enterprise digitalisation across multiple sectors, reinforcing MTN's role as a strategic partner rather than a simple connectivity provider.

Under this strategy, MTN Business offers a comprehensive suite of solutions designed to support enterprises of all sizes. These include cloud services, IoT platforms, cybersecurity solutions and unified communications, all tailored to the specific needs of African markets. For instance, MTN's IoT solutions are driving smart agriculture initiatives in South Africa and Nigeria, enabling precision farming techniques that improve yields and reduce resource waste.

MTN has also expanded its digital ecosystem through Chenosis, an API marketplace that allows developers and businesses to integrate services seamlessly, fostering innovation across sectors such as logistics, healthcare and financial services. This initiative reflects MTN's commitment to building an open, collaborative environment for enterprise applications to thrive.

Mobile financial services remain a cornerstone of MTN's enterprise strategy. Through mobile money, MTN provides not only payment solutions but also value-added services such as microloans, savings products and insurance, creating synergies between financial inclusion and enterprise growth. This approach has strengthened SME participation in formal economic activities, contributing to job creation and local economic development.

03

Mobile industry impact

Mobile technology is increasingly recognised as a pivotal force for inclusive development throughout Africa. By improving access to energy, healthcare, education, financial inclusion and climate resilience, the mobile industry is facilitating significant transformation across the region. Operators are collaborating with governments, development partners and innovators to implement connectivity solutions that reach underserved populations and create new opportunities. These initiatives underscore the sector's expanding role in empowering individuals, strengthening economies and advancing a more inclusive digital future for Africa.

3.1 Addressing energy-related barriers to digital development

Energy access remains a foundational barrier to digital inclusion across Africa. Without reliable and affordable electricity, communities cannot fully benefit from mobile connectivity, digital services or broadband expansion. As Africa accelerates efforts to close the usage gap, bridging the energy divide requires an integrated approach that combines energy and digital infrastructure planning. Energy investment in digital infrastructure is not just a cost-saving strategy but a national development opportunity.

Sub-Saharan Africa accounts for more than 80% of the global population without electricity.[15] Across the region, there are significant differences. Countries such as Ghana, Kenya and Rwanda have made notable gains and are on track to achieve universal access by 2030. In contrast, countries such as the Democratic Republic of Congo, Malawi and Chad record energy access rates below 20%. For operators and large industrial users, persistent energy shortages have directly impacted business performance and the environment. Three main challenges stand out: the reliance on energy imports and exposure to global price volatility; low electrification and grid availability in rural areas, leading to continued dependence on diesel; and insufficient supply of renewables and weak transmission infrastructure. These factors work against the transition to net zero, create an unsustainable operator cost structure, hinder network investment and slow progress toward digital inclusion and digitalisation.

The next step for Africa is to look closely at where renewable energy can be set up in rural areas to address the energy challenge. However, such initiatives require a coalition of financing partners, telecoms operators, tower companies, energy specialists and governments. Governments, in particular, can help resolve barriers to renewable deployments, including land access, building rights, taxation and investment incentives. In some cases, government co-investment may be required to unlock or complement private funding. To address energy challenges at scale, the Mission 300 initiative, jointly led by the World Bank and the African Development Bank, aims to connect 300 million Africans to electricity by 2030. National energy compacts developed by several African countries provide a framework to articulate priorities and mobilise partnerships. The opportunity now lies in aligning digitalisation with these energy ambitions, ensuring that development finance institutions and governments integrate connectivity goals into energy rollout strategies.

15. Rural renewal: telcos and sustainable energy in Africa, GSMA Intelligence, 2024

Building energy and digital synergies

Delivering both reliable electricity and digital connectivity to underserved communities is essential for inclusive growth by closing the energy gap while accelerating Africa's digital transformation. Operators are already at the forefront of building these synergies. In late 2024, Nigeria's Distributed Access through Renewable Energy Scale-Up (DARES) programme was launched with the aim of bringing clean and reliable energy to the 17.5 million Nigerians who remain underserved or unserved. The programme, which is backed by $750 million in funding by the World Bank, incentivises private-sector actors through results-based financing to roll out solar hybrid mini-grids and standalone solar systems. Such partnerships provide electricity but also ensure access to mobile and broadband services, creating a multiplier effect for community development.

Meanwhile, the GSMA is helping to advance integrated digital-energy planning through geospatial analysis tools. These tools help mobile operators, governments and development finance institutions overlay mobile coverage data with energy access indicators, enabling joint investment planning and smarter site selection. By aligning infrastructure deployment, the GSMA and its partners are helping to ensure that future investments deliver both electricity and connectivity – two essential enablers of Africa's social and economic transformation.

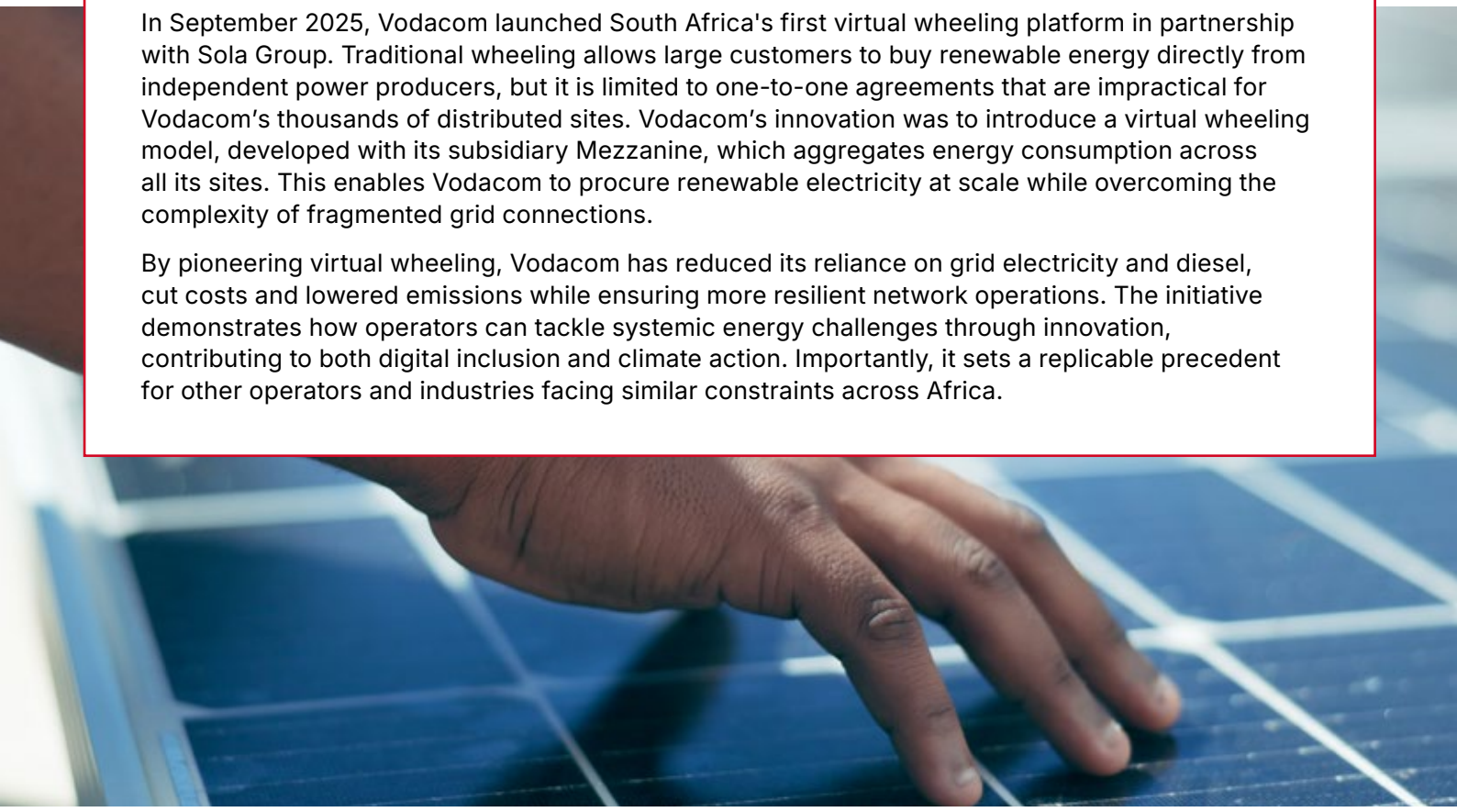
Case study

Vodacom's virtual wheeling platform for renewable energy

Africa's energy shortages, frequent load-shedding and reliance on fossil fuels have posed a major obstacle to businesses, including mobile operators. For Vodacom, which has more than 15,000 low-voltage sites across 168 municipalities,[16] keeping networks running meant high operational costs, a dependence on diesel generators and rising carbon emissions. These pressures not only threatened service reliability but also undermined the operator's ability to progress towards net-zero commitments.

In September 2025, Vodacom launched South Africa's first virtual wheeling platform in partnership with Sola Group. Traditional wheeling allows large customers to buy renewable energy directly from independent power producers, but it is limited to one-to-one agreements that are impractical for Vodacom's thousands of distributed sites. Vodacom's innovation was to introduce a virtual wheeling model, developed with its subsidiary Mezzanine, which aggregates energy consumption across all its sites. This enables Vodacom to procure renewable electricity at scale while overcoming the complexity of fragmented grid connections.

By pioneering virtual wheeling, Vodacom has reduced its reliance on grid electricity and diesel, cut costs and lowered emissions while ensuring more resilient network operations. The initiative demonstrates how operators can tackle systemic energy challenges through innovation, contributing to both digital inclusion and climate action. Importantly, it sets a replicable precedent for other operators and industries facing similar constraints across Africa.



16. "Vodacom's virtual wheeling platform for renewable energy is live", Developing Telecoms, September 2025

3.2
Tackling mobile fraud and the scam economy

Mobile fraud continues to pose a significant threat to digital inclusion and financial services across Africa. In 2023, the GSMA estimated mobile money fraud in Africa exceeded $1 billion,[17] undermining user trust and slowing the adoption of digital financial services. To put this in perspective, in Uganda, over 60% of mobile users receive potentially fraudulent messages weekly, with an estimated UGX23 billion ($6.5 million) lost to mobile-based scams in 2024 alone.[18] In Kenya, the Communications Authority of Kenya reported that digital payments are becoming targets of such attacks. In Q1 2025, it detected over 2.5 billion cyberthreats, a 201.85% increase from the previous quarter.[19] With mobile money transactions continuing to grow rapidly in Africa, fraud has become a critical barrier to inclusive digital growth.

Operators step up security and user protection

Operators are increasingly leading the fight against mobile scams. In 2025, Airtel Africa launched an AI-powered spam alert service in Nigeria, Uganda and Tanzania. The system analyses over 250 parameters in real time to flag suspicious SMS messages, protecting users without compromising their privacy. Between March and May 2025 alone, the service flagged 9.6 million suspicious messages in Nigeria,[20] significantly reducing scam attempts and restoring confidence among mobile users.

In 2025, Safaricom in Kenya scaled up its fraud prevention methods in response to rising cyberthreats. The operator deployed ethical hackers, enhanced system audits and embedded fraud detection at multiple platform layers to ward off identity and transaction-based fraud. These proactive measures highlight the growing importance of integrating technology-driven fraud prevention directly into mobile network operations. By detecting threats in real time, operators not only protect users but also reduce operational and reputational risks. The ability to roll out such a solution at scale would be greatly enhanced by the GSMA's Open Gateway framework.

The GSMA Open Gateway initiative, which standardises APIs across mobile operator networks, is enabling cross-sector collaboration. It creates a framework for secure, real-time data exchange for fraud detection and prevention. APIs such as Spam Detection, Number Validation and Device Location allow operators, regulators, fintech companies and other ecosystem actors to collaborate more effectively. In South Africa, for example, mobile operators adopted the GSMA Open Gateway framework in early 2024, implementing APIs such as Number Verification and SIM Swap.

Africa can draw lessons from international best practice. For example, in the UK, the GSMA partnered with UK Finance to enable data-sharing and cross-sector accountability. This led to a 20% reduction in fraud cases and a 2% decline in overall fraud losses, which fell to £450.7 million in 2024.[21]

17. State of the Industry Report on Mobile Money 2023, GSMA, 2023
18. "Airtel Uganda Introduces Africa's First AI-Powered Spam Alert Service to Combat Digital Fraud", CEO East Africa Magazine, April 2025
19. Cybersecurity Report, Communications Authority of Kenya, 2024
20. "Anti-Spam AI System Setting New Standard in Telecom Fraud Prevention", This Day, July 2025
21. "Fraud continues to pose a major threat with over £1 billion stolen in 2024", UK Finance, May 2025

04

Mobile industry enablers

Mobile connectivity is central to Africa's digital transformation, as it enables inclusive growth, innovation and economic opportunities. While network coverage has expanded significantly in recent years, supported by infrastructure investments and emerging technologies such as satellites, the connectivity gap remains substantial. Crucially, the challenge has shifted: the usage gap now far exceeds the coverage gap, with the majority of those unconnected living in areas already covered by mobile broadband.

Addressing both the coverage and usage gaps requires not only expanding infrastructure and connectivity, but also targeted measures to make mobile internet affordable and accessible. Several critical factors influence this outcome: infrastructure investments and emerging technologies such as satellites; sector-specific taxation, which raises the cost of devices and services; and high spectrum prices, which constrain operator investment and affect retail pricing. Addressing these factors is essential to narrowing the usage and coverage gaps, stimulating demand and accelerating progress toward universal connectivity.

4.1 Satellite solutions addressing Africa's coverage gap

Satellite connectivity is becoming a more prominent component of Africa's digital infrastructure, offering promising avenues to reach underserved and remote communities. However, while these developments enhance coverage, they don't address the deeper challenge of the usage gap. Below we highlight the key trends defining the satellite landscape in Africa.

Operator–satellite collaboration

Telecoms operators are forming strategic alliances with satellite providers to close coverage gaps. A prime example is Orange Middle East and Africa's multi-year partnership with Eutelsat to extend broadband reach. Initial deployments are targeting Côte d'Ivoire, Senegal and the Democratic Republic of Congo, with services offering speeds of up to 100 Mbps. This initiative is designed to deliver tailored consumer and enterprise connectivity to isolated regions, supported by Orange's regional presence and regulatory expertise.

Direct-to-consumer satellite services

Alongside operator-led partnerships, a parallel model is emerging where satellite providers market direct-to-consumer (D2C) services. This approach bypasses traditional telecoms operators and positions satellite companies as retail connectivity providers in their own right.

Starlink continues to pursue a D2C model across multiple African markets. As of mid-2025, Starlink is active in at least 18 African countries, including Burundi, Niger, the Democratic Republic of Congo, Lesotho and Chad, reflecting its rapid expansion across the continent.[22] Moreover, partnerships such as Airtel Africa's collaboration with Starlink aim to broaden satellite internet access, particularly in underserved regions, by leveraging existing telecoms infrastructure.

22. "List of African countries where Elon Musk's Starlink is operational in 2025", Business Insider Africa, April 2025

Direct-to-device innovation

Beyond fixed terminals, direct-to-device (D2D) technologies are emerging as a critical enabler of wider coverage. D2D can extend mobile connectivity into sparsely populated and hard-to-reach areas by allowing standard devices to connect directly via satellite. While D2D offers lower bandwidth than terrestrial mobile, it provides an essential layer of resilience and reach. This is particularly relevant given that 4% of the world's population remains completely uncovered by mobile broadband. For the 57% already connected, D2D can further enhance coverage and support network reliability. However, the true impact of D2D will only materialise if regulatory approaches also tackle the much larger usage gap – 39% of the global population are covered by mobile broadband but remain unconnected.

D2D may operate on either mobile or satellite spectrum, with distinct implications. For mobile bands, governments should allow mobile operators to collaborate under commercial agreements with satellite operators to extend the use of licensed spectrum, enabling standard handsets to connect to D2D. Where satellite spectrum is used, however, adoption depends on specialised handsets with the appropriate chipsets, which may constrain affordability and scale in African markets.

Why satellites alone cannot bridge the digital divide

Satellite connectivity offers a strategic means to expand coverage in Africa's geographically challenging regions, including rural, remote and sparsely populated areas. However, experience across the continent demonstrates that coverage alone is not enough:

- **Coverage does not guarantee adoption:** While satellite solutions can extend connectivity to isolated areas, GSMA data indicates that 58% of unconnected Africans already live within a mobile broadband coverage zone. In other words, the challenge is not only reaching these populations but enabling them to use digital services effectively.
- **Affordability constraints:** The cost of end-user devices (smartphones and satellite terminals) and subscription fees remain high for users in low-income brackets. Even where coverage exists, these costs prevent widespread adoption and risk exacerbating digital inequality.
- **Persistent economic and social barriers:** Beyond affordability, other factors hinder digital inclusion across Africa. These include low digital literacy and a shortage of locally relevant content. Together, these constraints suppress demand even when networks – whether satellite or terrestrial – are available.

This reinforces the central insight that satellite connectivity is an important complement to terrestrial networks but cannot serve as a standalone solution for Africa's digital divide. Closing the continent's usage gap requires coordinated policy and industry interventions focused on affordability, demand stimulation, skills development and the reduction of structural barriers such as taxation and spectrum costs. Only through such a holistic approach can satellites fully contribute to inclusive digital development.

4.2
Adopting spectrum policy for inclusive digital development

A forward-looking and investment-friendly approach to spectrum availability and licensing continue to be important means of improving connectivity. Governments and regulators in Africa should adopt forward-looking spectrum management policies, which includes:

- creating a spectrum roadmap
- ensuring access to mid-band spectrum – in particular, 3.5 GHz – given its importance to the future of 5G
- accelerating access to sub-1 GHz spectrum to provide widespread rural mobile broadband services.

Effective spectrum licensing, from roadmap to assignment, is critical to encourage the investment required to expand mobile access, meet the increase in demand for data services and enhance the quality and range of services offered. Spectrum policy also has an important role to play in the race to net zero. Successful policies can help reduce carbon emissions from the mobile ecosystem while advancing mobile connectivity and increasing the enabling effect on emissions-saving use cases for other sectors.

At its core, a spectrum licensing framework should:

- ensure access to sufficient spectrum for operators
- provide predictability to support the new network investment needed
- offer clear procedures for spectrum renewals, well in advance of the end of the licence tenure
- avoid costly restrictions on the use of spectrum beyond those needed to manage interference.

Spectrum roadmaps

A spectrum roadmap is essential to ensure there is enough spectrum to meet demand for mobile services in both the short and long terms. Roadmaps help governments forecast future trends and manage their work. For mobile operators, roadmaps encourage investment by offering increased certainty, based on the government's future allocation, renewal plans and radio spectrum management.

Key themes for a spectrum roadmap should include:

- identifying emerging opportunities and challenges to a radio spectrum framework at least three to five years in advance
- determining future technology trends and drivers, and assessing their impact on spectrum policy and planning
- planning spectrum management programmes to address challenges and maximise opportunities
- creating a plan to regularly review and update the roadmap (an annual review is recommended).

Technology neutrality

Technology-neutral spectrum licensing helps enable legacy network shutdowns and is recognised as best practice when assigning spectrum to mobile operators. It enables mobile operators to refarm spectrum used for 2G or 3G to 4G and 5G at a pace driven by market demand. Experience shows it is possible to refarm bands without leaving any users behind. Implementing technology-neutral spectrum licensing maximises spectral efficiency and allows users to benefit from faster rollouts of 4G and 5G. It can lead to the delivery of better mobile broadband coverage and higher data speeds by allowing operators to upgrade technologies promptly.

Spectrum pricing

Spectrum pricing, when done right, can accelerate the rollout of higher-quality mobile services. Sufficient spectrum bandwidth assigned at reasonable prices is strongly linked to greater population coverage, better download speeds and increased service adoption. The main goal of governments around the world should be to provide long-term benefits to their economy and ensure consumers and the industry can get the most out of mobile spectrum resources and boost national productivity. The GSMA's latest in-depth look at this important topic offers the following recommendations:

- Spectrum prices should promote the optimal use of spectrum for the benefit of society. Low spectrum fees increase the funds available for investment and positively impact the quality and reach of mobile broadband services.
- Licensing authorities should set auction reserve prices conservatively to allow the market to determine a fair price and to reduce the risk of leaving spectrum unassigned.
- Authorities should set renewal fees to recoup administrative costs and ensure licences have a presumption of renewal.
- Costs related to conditions or obligations attached to the licence should be deducted from spectrum fees.
- Regulators can consider lower spectrum prices in exchange for investment commitments for coverage or quality of service.

Spectrum policies with positive impact replacing single wholesale networks

Single wholesale networks (SWNs) have almost died out. Their proponents believed they would better address certain concerns (e.g. coverage or spectrum efficiency) than the traditional model of network competition in some markets. SWNs have not proved successful in solving any of these problems to date, with plans largely abandoned for competition-based approaches.

The best way forward is for governments, regulators and mobile operators to collaborate on long-term solutions based on the following principles:

- Affordable access to low-band spectrum promotes mobile coverage and increases capacity.
- Establishing a robust spectrum roadmap allows long-term planning and minimises opex.
- Technology neutrality and spectrum refarming deliver efficiency.
- Voluntary infrastructure sharing supports wider coverage.
- Voluntary spectrum leasing or trading helps maximise efficiency.

Low-band spectrum

Low-band spectrum is a driver of digital equality, helping reduce the connectivity gap between urban and rural areas and delivering affordable connectivity. Without sufficient low-band spectrum, countries in Africa will struggle to address the digital divide. Those living in rural areas may be excluded from the latest digital technologies. There are numerous benefits for countries that prioritise access to more low-band spectrum for mobile. For example, adding the 600 MHz range to existing low bands can raise download speeds by 30–50% in rural areas.

Through early adopters in the region, low-band 5G is expected to bring benefits of almost $3 billion to the economy of Sub-Saharan Africa, or around 0.08% of GDP, in 2030. While 5G penetration in the region is expected to continue to increase well into the 2030s, its socioeconomic impact as a percentage of GDP will already be similar to the impact in Europe and North America by 2030. This will pave the way for Sub-Saharan Africa to realise even greater benefits from low-band 5G going into the next decade.

Low-band 5G applications will mostly benefit the mining and retail industries, reflecting the level of economic activity driven by these sectors. The wide area coverage enabled by low bands will also be particularly important in driving the digital transformation of the agricultural sector, where IoT applications can support smart farming and agriculture.

Mid-band spectrum

Mid-band spectrum, particularly 3.5 GHz, is important to the future of 5G because it offers city-wide coverage and capacity. In the short term, operators should have access to 100 MHz of contiguous spectrum in this band. Meeting long-term mid-band spectrum demand requires forward planning from policymakers. GSMA analysis shows that a total of 2 GHz of mid-band spectrum, on average, will be required to support the growth of 5G during 2025–2030. 5G growth in Sub-Saharan Africa is expected to develop rapidly in the second half of the decade and continue into the 2030s. The economic impact of mid-band 5G in the region will be around $13 billion or 0.4% of GDP in 2030.

As policymakers look to the future, the 6 GHz band offers significant potential. The mobile industry believes the following:

- 6 GHz capacity is required to support increasing customer demand and will be required for the future evolution of mobile.
- Mobile networks are already densified, but 6 GHz can enable the growth of sustainable mobile capacity on the existing grids of macro-cell sites.
- Timely availability of 6 GHz, at reasonable conditions and price, will drive cost-efficient network deployment, help lower the broadband usage gap and support digital inclusion.
- The future evolution of mobile will be optimised for wider 200–400 MHz channels per operator and 6 GHz is one of the few spectrum bands that can support multiple operators at these channel sizes.
- The 6 GHz band at 6.425–7.125 GHz should be made available at full power in clean, contiguous spectrum for licensed mobile.

WRC-23 and WRC-27: mobile spectrum for Africa's future

The World Radiocommunication Conference 2023 (WRC-23) paved the way for better quality services, delivered to more people by the most affordable networks. Operators need the new spectrum capacity agreed at WRC-23 to provide consistent speeds to more people as 5G services take off. The right amount of capacity helps minimise the number of base stations needed, which keeps costs down and helps with carbon emissions.

In the mid-bands, WRC-23 took steps to meet mobile data growth by identifying additional spectrum for mobile. Final harmonisation of the 3.5 GHz band (3.3–3.8 GHz) was achieved across Europe, the Middle East and Africa (EMEA) and throughout the Americas.

WRC-23 also identified 6 GHz for mobile use by countries in every ITU Region – EMEA, CIS the Americas and Asia Pacific. Global, harmonised conditions for its use have been agreed in the ITU's Radio Regulations. This brings together a population of billions of people into a harmonised 6 GHz mobile footprint. It also serves as a critical developmental trigger for manufacturers in the 6 GHz equipment ecosystem.

With all this in place, it is important for this spectrum to be brought into the long-term spectrum roadmaps of administrations.

At the same time, preparations for WRC-27 are ramping up. The WRC-27 cycle includes looking at some new spectrum for mobile: 4400–4800 MHz, 7125–8400 MHz, and 14.8–15.35 GHz. These bands will enable the new generation of mobile connectivity in the 2030s.

In addition to possible new mobile bands, the WRC-27 agenda will consider studies on other radio services, including satellite D2D connectivity between satellites and mobile devices to supplement terrestrial network coverage.

As always, it is important for countries to get involved in the process, to make their voices heard and help influence the future of mobile connectivity.

4.3
Fiscal pressures shaping digital access

Across Africa, governments continue to grapple with significant fiscal pressures, driven by limited financing options, rising borrowing costs and mounting debt repayments. These economic constraints, combined with currency fluctuations and persistent inflation, have prompted authorities to raise domestic revenues through targeted taxation measures. In the telecoms sector, this has translated into sector-specific levies, with mobile operators often bearing a disproportionate share relative to their contribution to national GDP.

Developments in sector-specific-taxation in Africa include the following:

- **South Africa:** The Independent Communications Authority of South Africa increased licensing and application fees by 4.4% effective April 2025. This covers spectrum fees, equipment approvals and other regulatory services, adding to operators' operational costs and potentially affecting network expansion.
- **Mali:** In February 2025, Mali raised taxes on mobile operators' revenues from 8% to 10%, introduced a 1% mobile money withdrawal levy and increased telecoms service taxes from 5% to 7%. These adjustments directly impact both service affordability and the cost of operating networks.
- **Egypt:** Effective January 2025, Egypt implemented a 38.5% tax on imported mobile phones, significantly raising device costs. This measure affects access to smartphones, a critical gateway to mobile and internet services.

While these measures may help governments generate revenue and support public expenditure, they translate into affordability constraints for end users, particularly in markets where mobile penetration is still expanding. Higher device costs, service fees and mobile money levies increase the financial barriers to mobile ownership and internet usage. Even when coverage exists, these tax-induced costs exacerbate the persistent usage gap, limiting the ability of many citizens to participate fully in the digital economy.

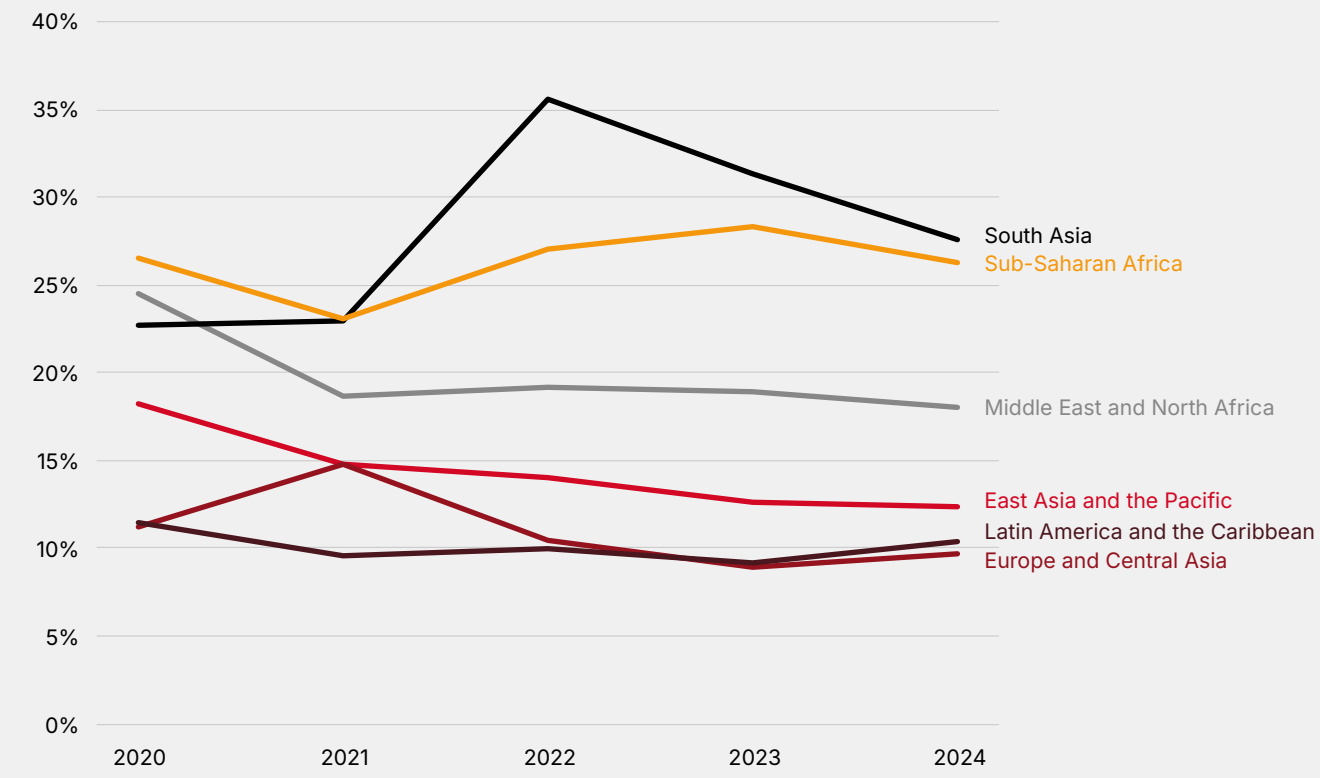
In practical terms, sector-specific taxation affects both broadband access and device ownership. Consumers face higher prices for smartphones, data and other essential services, while operators contend with increased operational costs that can slow network expansion or reduce investments in underserved areas where return of investment is hard to capture. As a result, achieving digital inclusion in Africa remains challenging, particularly for low-income populations who are most sensitive to service costs.

Closing the usage gap will require carefully balanced tax policies that allow governments to mobilise resources without undermining the affordability of mobile services. Measures could include reducing or eliminating excise taxes on mobile services, lowering import duties on devices and avoiding levies that disproportionately affect lower-income consumers. By creating a more predictable and equitable taxation environment, governments can enable operators to invest in network expansion, improve service quality and ultimately ensure that more citizens can access and use digital services.

Figure 11

Affordability of an internet-enabled handset across low- and middle-income countries by region

Percentage of monthly GDP per capita

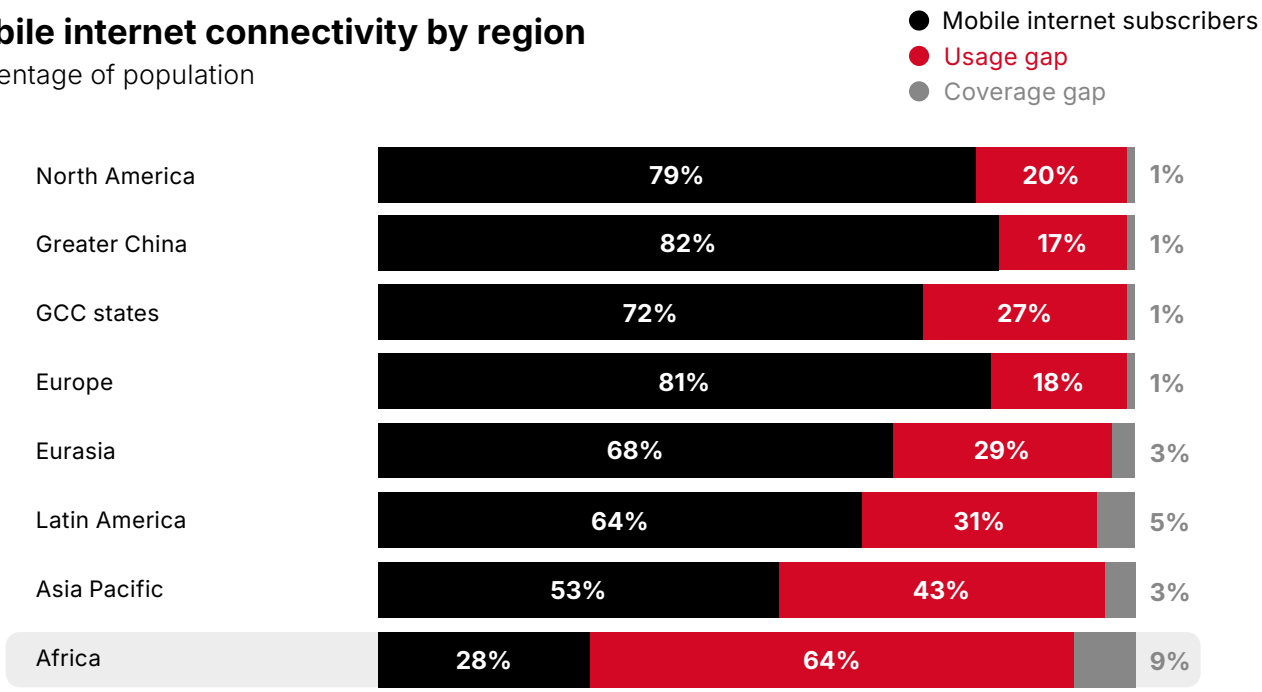


Source: GSMA Intelligence

Industry data

Mobile internet connectivity by region

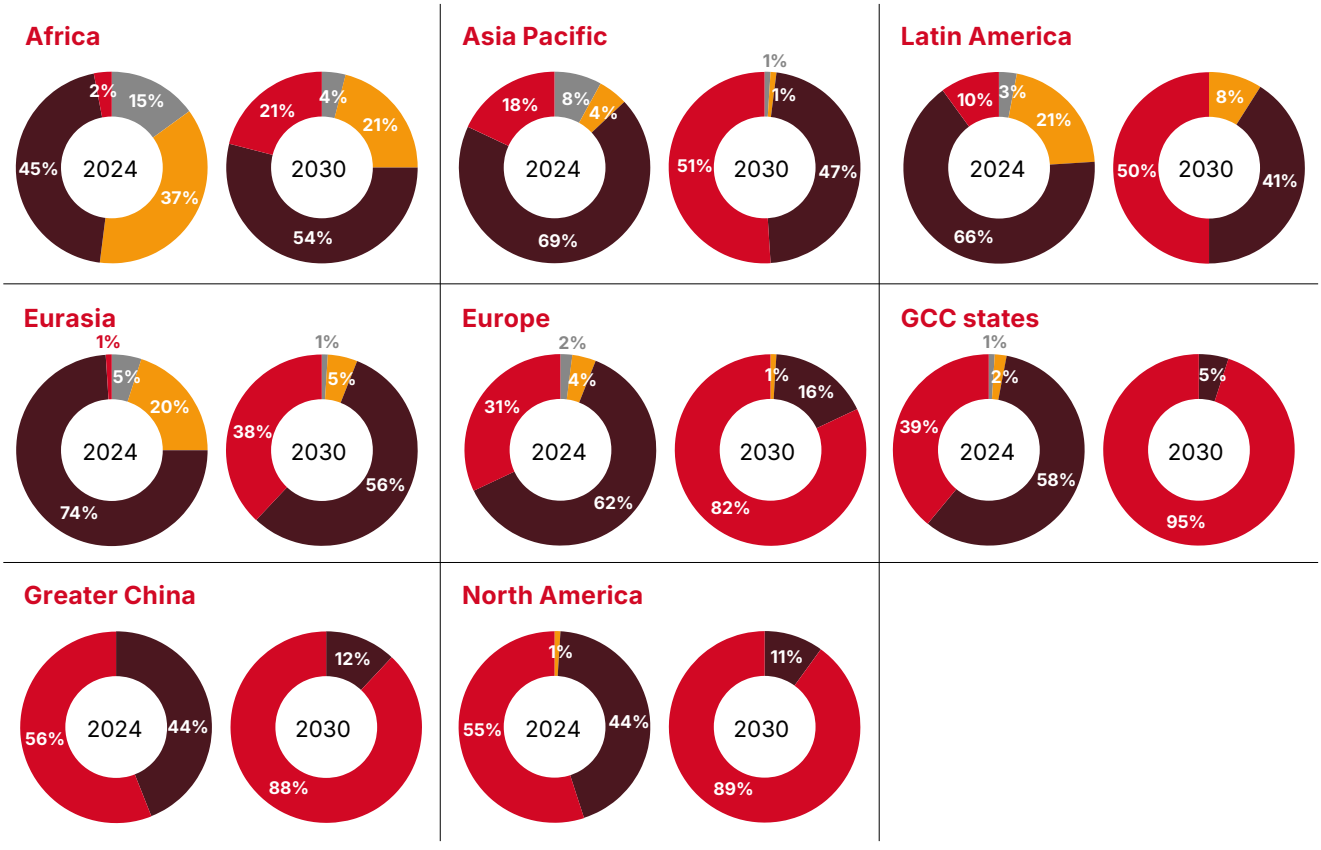
Percentage of population



Data correct to June 2025
Source: GSMA Intelligence

Mobile technology mix by region

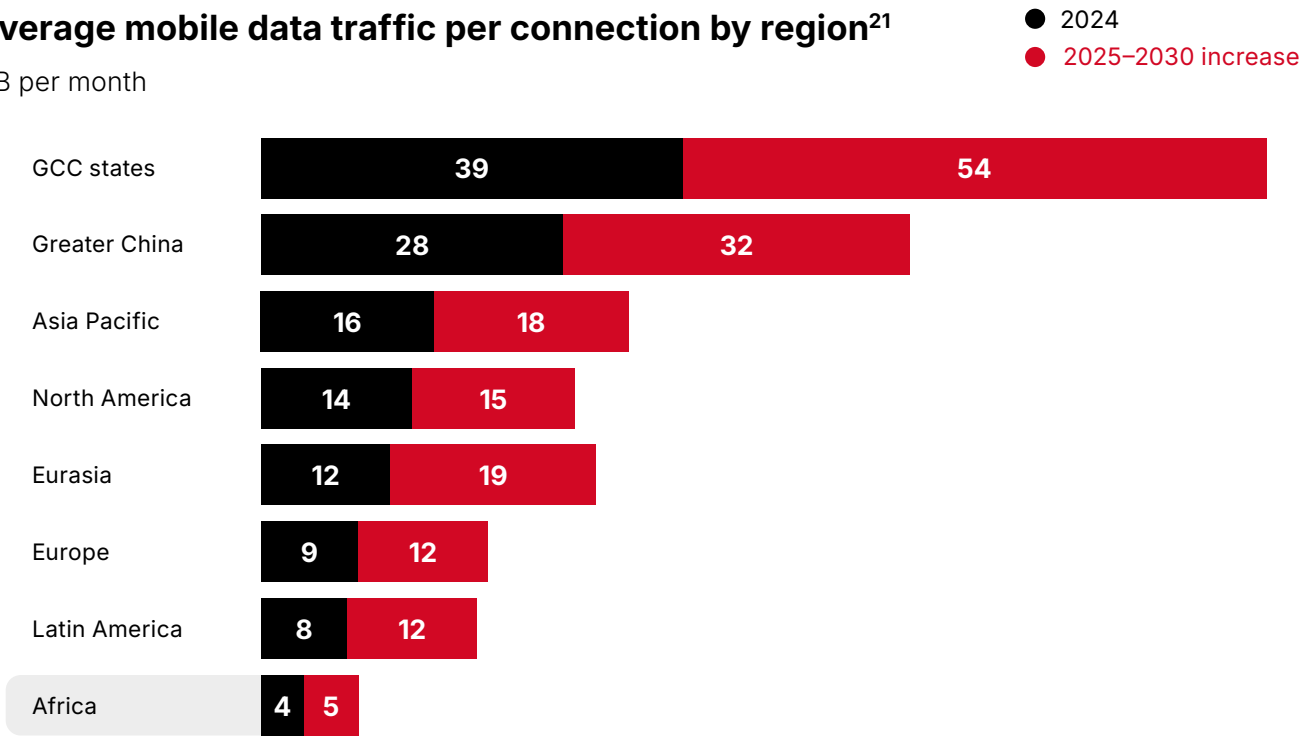
Percentage of total connections (excluding licensed cellular IoT)



Note: Totals may not add up due to rounding.
Data correct to June 2025
Source: GSMA Intelligence

Average mobile data traffic per connection by region[21]

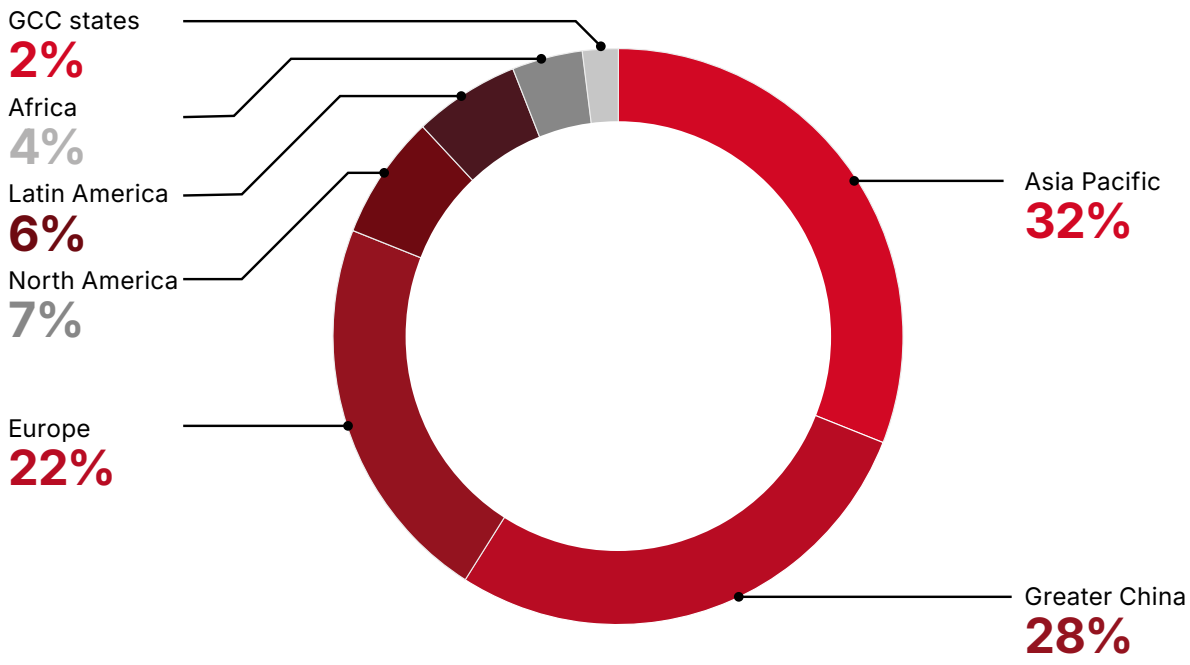
GB per month



Data correct to June 2025
Source: GSMA Intelligence

Participation in the GSMA Open Gateway initiative by region

Percentage of total participating operators based on total mobile connections



Data correct to June 2025
Source: GSMA Intelligence

23. GSMA Intelligence has recently updated its methodology for calculating mobile data traffic. Numbers for some regions have consequently changed compared to previous Mobile Economy reports.

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