



Large Infrastructure

Transport and Logistics Infrastructure

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Transport and Logistics Infrastructure

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Briefly

The transport infrastructure in all four subsectors (roads, railways, air and ports) is a major bottleneck for development across much of Africa. Persistent transport infrastructure gaps and high logistics costs continue to constrain trade competitiveness and inclusive development, making accelerated, integrated and climate-resilient investment an urgent priority.

Road infrastructure

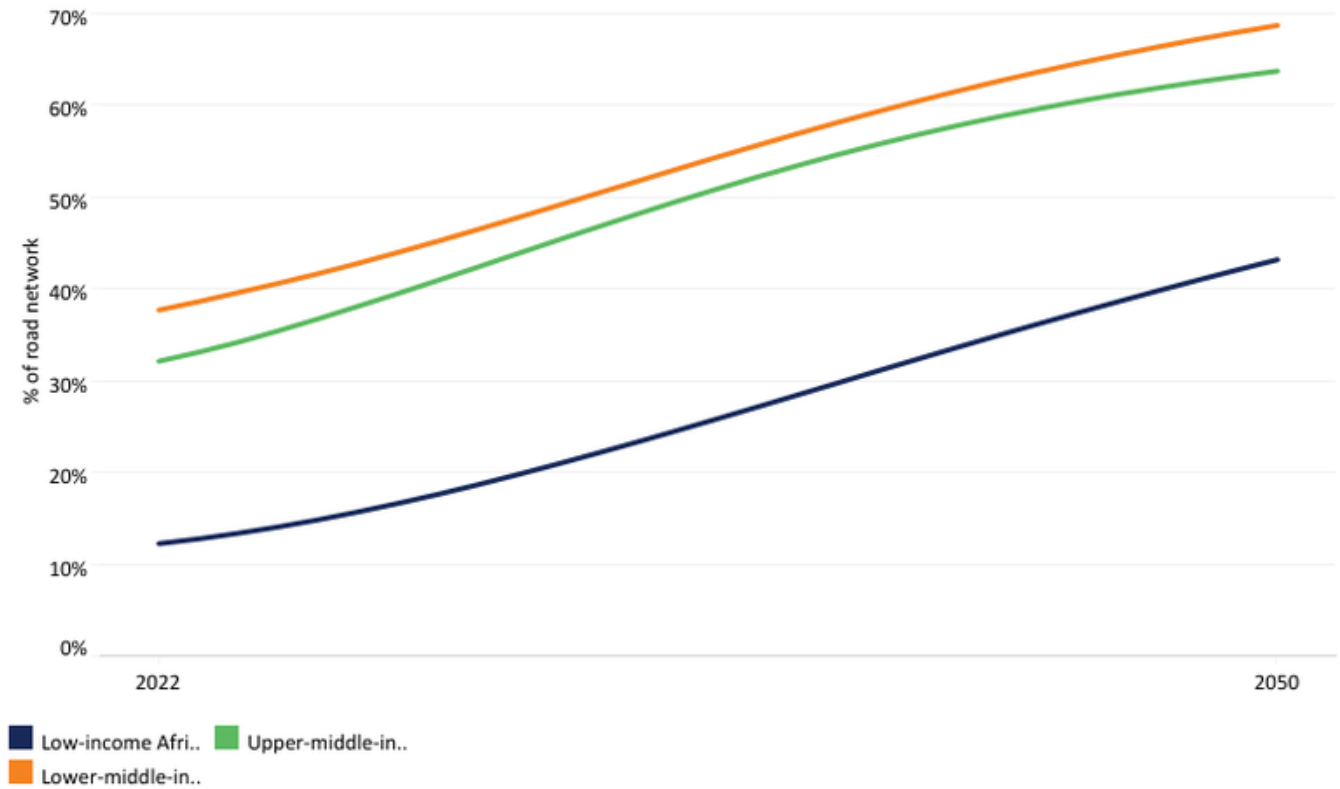
Road transport remains the backbone of mobility in Africa, accounting for an estimated **80% of freight and 90%** of passenger traffic. Yet the scale, quality and spatial distribution of the continent's road infrastructure fall well short of development needs.

By global standards, Africa's road density is extremely low, averaging about **2.8 kilometres per 100 square kilometres**, compared with 138 kilometres in India—an economy with a comparable population but only one-tenth of Africa's landmass. This places Africa well behind other regions, including Asia, where ASEAN countries average nearly 30 kilometres per 100 square kilometres. The gap is equally stark in road quality. Africa's paved road network totals approximately 818 000 kilometres, about one-third of India's. As of 2024, paved roads accounted for roughly 30% of Africa's total road network; under current trends, this share will rise to about 59% by 2050.

Significant disparities persist across countries, subregions and income groups. Algeria, Egypt and South Africa together account for almost half of Africa's paved road network. At the same time, South Africa ranks highest among large economies in both overall road density and paved road density. Although countries such as the DR Congo, Ethiopia, Kenya and Tanzania have extensive total road networks, their paved road coverage remains relatively limited. Small island states—including Mauritius, Seychelles, Comoros, São Tomé and Príncipe and Cabo Verde—record the highest road densities on the continent, reflecting their compact geography rather than network scale.

Chart 6 illustrates historical trends and projections for paved roads in Africa, disaggregated by income group from 2022 to 2050. Overall progress in expanding paved road networks remains limited, particularly in low-income countries. As of 2024, only about 13% of the total road network in low-income African countries was paved, compared with more than 30% in lower-middle- and upper-middle-income countries. By 2050, low-income Africa will reach only 43% of paved roads, while the share will rise to about 68% in lower-middle-income countries and 64% in upper-middle-income countries. In general, upper-middle-income African countries have a higher proportion of paved roads; however, slow progress in countries such as Gabon, South Africa and Botswana pulls the group average below that of lower-middle-income countries.

Chart 6: Paved roads by Africa by income groups, 2022-2050



Source: IFs 8.50 initialising from WDI data

Road condition and functionality present equally serious challenges. In much of sub-Saharan Africa, large portions of the network are in fair or poor condition. According to the Northern Corridor Transit and Transport Coordination Authority, only 41% of corridor roads across Kenya, Uganda, the DR Congo, Rwanda, South Sudan and Burundi are rated in “good” condition. Even in countries with sustained investment efforts, such as Ghana, only 44% of the road network met this benchmark as of 2023. Data from the IMF’s Mean Speed Score, used as a proxy for road quality and traffic efficiency, further illustrates these challenges. Countries such as Namibia, Botswana and Zimbabwe perform relatively well despite low road density, indicating more efficient use of limited infrastructure. By contrast, Nigeria and Ghana, despite higher reported densities, rank poorly on speed metrics, pointing to congestion and substantial rehabilitation needs.

Spatial concentration further constrains logistics efficiency. African road networks are heavily skewed toward urban areas and major corridors linking large cities, ports and borders, while rural areas remain markedly underserved. Many rural roads are unpaved, limiting year-round vehicle access and raising transport costs for agricultural products and mineral resources from remote regions. According to the World Bank, around half of Africa’s main road network—typically under central government responsibility—is in good condition, compared with only 25% of classified rural roads managed by local authorities.

Measures of accessibility reinforce these findings. The World Bank’s Rural Access Index (RAI), which tracks the share of rural populations living within two kilometres of an all-season road, shows notable progress in countries such as Kenya, Gambia, Rwanda, South Africa and Uganda over the past decade. In contrast, Madagascar, Chad, Zambia, Ethiopia and Lesotho have experienced much slower gains.

Complementary indicators on access to cities reveal strong regional contrasts: Southern and Western Africa generally record travel times of 60–120 minutes to the nearest densely populated area, while many Central African countries—including the Central African Republic, the Republic of Congo and the DR Congo—require between 400 and 600 minutes. These gaps highlight the extent to which inadequate road and logistics infrastructure continues to impede market integration, raise trade costs and limit inclusive growth across the continent.

Railways in Africa

Africa's railway systems were largely shaped by colonial pit-to-port strategies, designed to move resources from inland areas to coastal ports rather than to support domestic connectivity or regional integration. Although railways initially dominated long-distance transport, the rapid expansion of road networks has since displaced rail as the primary mode for passenger travel and regional trade. Today, the sector faces persistent challenges, including underinvestment, low utilisation, ageing infrastructure and incompatible technologies. Only 36 of Africa's 54 countries have operational railway systems, and about 15% of Africa's rail network is non-operational, with conflict further disrupting systems such as Sudan's, where only a fraction of the network remains functional. In addition, 13 countries—many landlocked—still lack direct rail access to the sea.

Despite its vast land area, Africa's rail network is small by global standards. India, with just 11% of Africa's landmass, has a railway network roughly 75% the size of Africa's. Chart 7 shows the distribution of railway networks across the continent. Rail capacity is concentrated in North and Southern Africa, with South Africa, Egypt, Algeria, the DR Congo and Nigeria accounting for the largest networks. South Africa and Tunisia have the highest rail density. However, fragmented track gauges and technical standards—metre gauge and standard gauge in much of North, East and West Africa, and Cape gauge in Southern Africa—severely limit interoperability, cross-border connectivity and efficient logistics, particularly for landlocked countries.

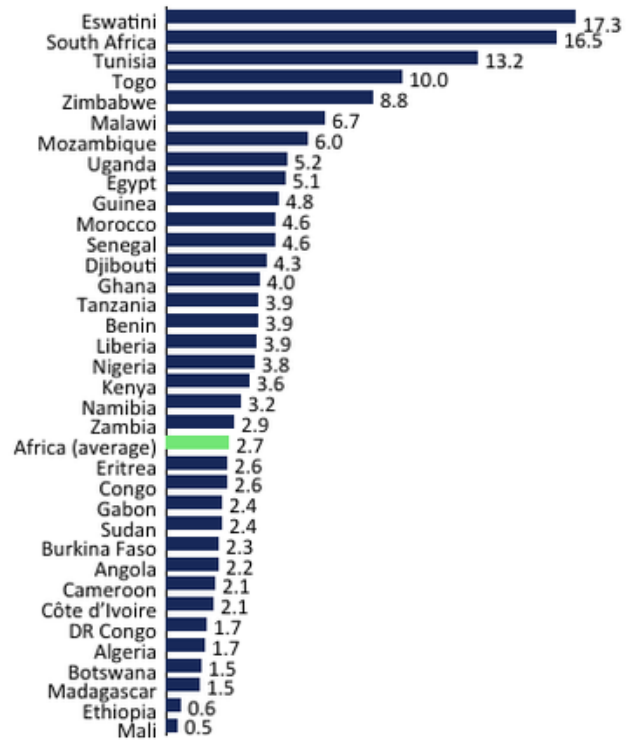
Chart 7: The distribution of railway network in Africa



Railway network



Railroads: km per 1000 km²



Source: Global Infrastructure Map, World Bank and Worldstat.info

Between 2015 and 2024, Africa added around 2 000 km of rail lines. The period 2015–2019 was dominated by greenfield projects, including standard gauge railways and high-speed lines, while 2020–2024 shifted toward rehabilitation as fiscal pressures and COVID-19 constrained new investment. However, Tanzania’s standard gauge railway marked a notable exception. With major projects under construction across North and sub-Saharan Africa, railways are entering a renewed phase of development. Rising demand for efficient, low-emission transport and the need to link inland markets to ports are reviving rail’s strategic role, with the potential to transform it into a backbone of Africa’s integrated and inclusive logistics systems.

Ports and airports in Africa

Since colonial times, ports have been key to Africa’s integration into global trade, initially serving as gateways for exporting natural resources such as minerals and oil. Today, their role has expanded beyond extractive exports to supporting Africa’s rapidly growing domestic markets. With the continent’s population projected to increase to 2.6 billion by 2050, and with strong economic growth in West and East Africa, rising consumption and imports are transforming ports into highly attractive assets for private investment, offering scale, diversification and long-term growth potential.

Port infrastructure remains uneven across the continent. Northern African countries—particularly Egypt, Morocco, Algeria and Tunisia—host a dense concentration of international and regional ports, while South Africa, Nigeria and Angola lead

outside the region. According to indicators published by the World Bank and UNCTAD, Africa lags globally in port connectivity. However, Morocco and Egypt rank highest on the Liner Shipping Connectivity [Index](#), which captures how well countries are connected to global shipping networks based on the status of their maritime transport sector.

Container traffic data further highlight divergent performance across African ports. Egypt, Morocco and South Africa dominate in absolute volumes. At the same time, countries such as Togo, the Republic of Congo, Djibouti, Ghana, Senegal, Mozambique and Tanzania record the fastest growth, largely driven by trans-shipment activities and strong links to landlocked economies. Togo, in particular, has emerged as a leading Atlantic trans-shipment hub, with trans-shipment accounting for about 70% of total port traffic. This growth has accelerated by increased use of Togolese ports by landlocked countries of the Alliance of Sahelian States (AES), notably Burkina Faso, Mali and Niger, which have increasingly relied on Togo as a key maritime gateway.

Performance indicators reinforce these trends. The Container Port Performance [Index](#) (CPPI) measures the time container ships spend in port. Chart 8 shows the top 10 ports with the highest CPPI in 2024. A high ranking reflects above-average fast turnaround times for all vessel and port call categories. Most of the top-ranked ports are leading export and transshipment hubs. In 2024, Port Said in Egypt ranked third globally on the CPPI and first among its regional peers, while Tanger-Med in Morocco ranked fifth worldwide. In contrast, ports in South Africa, Tunisia and Namibia experienced stagnating or declining performance, underscoring widening disparities across the continent.

In 2024, no port in sub-Saharan Africa ranked among the top 20 ports with the highest CPPI. The region continues to face persistent structural constraints, notably limited automation and weak hinterland connectivity. These challenges were exacerbated in 2024 by the Red Sea crisis, which further strained port operations, particularly in Durban Port and Cape Town Port, which were already affected by prolonged vessel waiting times. The decline in CPPI scores for Durban and Cape Town is primarily driven by longer arrival and anchorage waiting times.

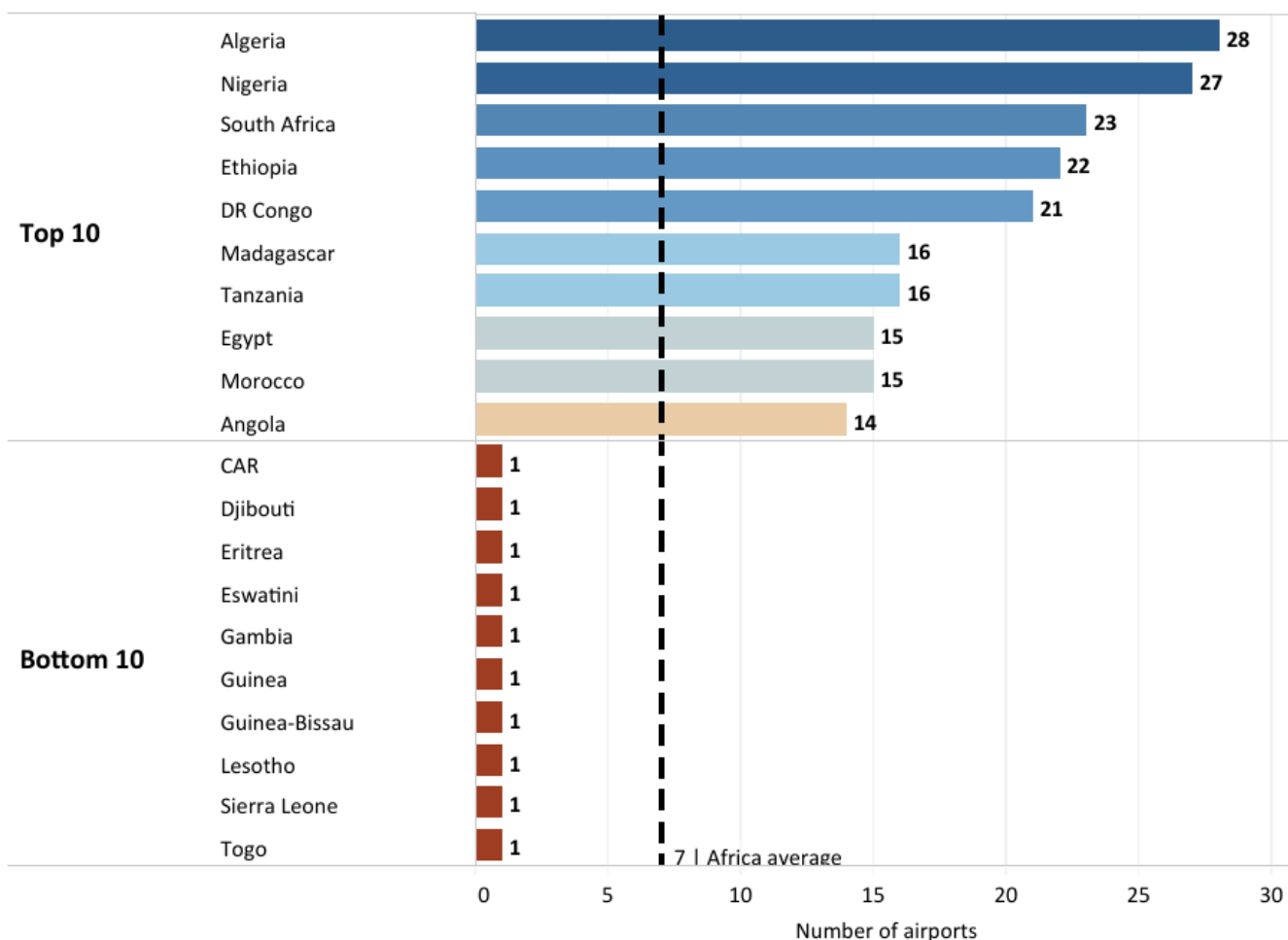
Africa's airport infrastructure has also [expanded](#) steadily in recent years, driven by powerful demographic and urbanisation trends. With more than half of Africans expected to live in cities by 2035, demand for domestic, regional and international air travel is rising rapidly.

Yet Africa's aviation sector continues to lag behind global standards. In 2022, the continent accounted for only 2.3% of global passengers carried and less than 3% of total aircraft kilometres flown. Likewise, Africa represented less 3% of global passenger and freight tonne-kilometres, underscoring the sector's limited efficiency in utilising available capacity for both passengers and cargo.

Chart 8 presents the number of airports in selected African countries. Airport capacity and traffic also remain highly concentrated, notably in Algeria, Egypt and South Africa, and no African airport ranked among the world's top 60 for passenger or cargo traffic in 2023, according to the [Airports Council International](#). Connectivity is strongest in Egypt, Morocco, Ethiopia, South Africa, Kenya and Nigeria, with traffic patterns generally oriented toward Europe. South Africa's traffic is more regionally focused within Southern Africa, while Ethiopia shows relatively balanced intra-African links.

Chart 8: Number of airports per African country, 2026

Airports shown are those who have a scheduled airline service



Source: OurAirports.com

Limited regional interconnectivity, especially for air freight, remains a key weakness. Cargo capacity is concentrated in a few hubs, including Nairobi, Cairo, Johannesburg, Addis Ababa and Lagos, constraining trade, particularly for landlocked countries and perishable goods. Progress toward an integrated continental air market has also been slow, despite initiatives such as the Yaoundé Treaty and the Yamoussoukro Decision, due to restricted competition, skills shortages and weak regulatory harmonisation.

Looking ahead, growth prospects are strong. Boeing projects passenger traffic growth of about 6% annually through 2044, requiring Africa's commercial fleet to more than double to around 680 aircraft, largely single-aisle jets serving domestic and regional routes. Aviation expansion will support tourism, trade, investment and job creation, but realising this potential will require modernised airports, large-scale skills development, around 74 000 new aviation professionals by 2044 and coordinated policies to strengthen intra-African connectivity and support the goals of the AfCFTA.

In sum, strengthening Africa's transport and logistics infrastructure is critical to unlocking industrialisation, managing rapid urbanisation and realising the continent's ambitious intra-African trade agenda. Achieving these objectives will require the development of a modern, integrated and climate-resilient network encompassing roads, railways, ports, airports and key logistics assets, including dry ports, container depots and efficient border facilities.

ICT infrastructure

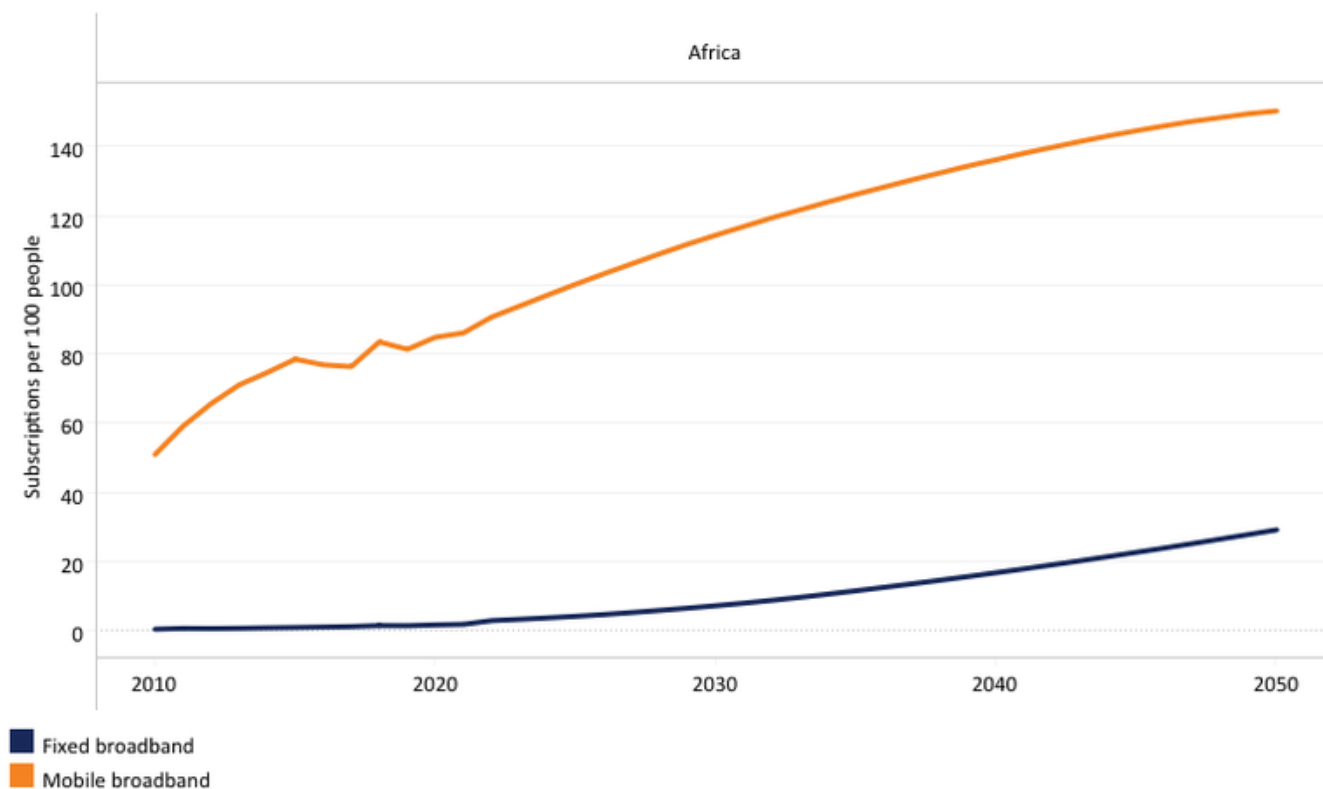
Information and communication technology (ICT) infrastructure is foundational for Africa's digital transformation, economic growth and integration into the global digital economy. Over the past two decades, rapid mobile phone adoption and rising internet use have significantly expanded connectivity across the continent. These gains have supported greater access to information, digital services and markets. However, deep and persistent infrastructure gaps continue to limit universal access, affordability and the deployment of advanced digital applications such as cloud computing and artificial intelligence (AI).

Mobile telephony remains the backbone of ICT connectivity in Africa. Sustained investment by major telecom operators has driven the expansion of third-generation (3G) and fourth-generation (4G) networks, leading to strong growth in mobile broadband subscriptions. Mobile network infrastructure continues to attract the majority of digital investment, accounting for around 60% of total digital infrastructure capital in 2024. As a result, mobile networks reach far more people than any other form of digital infrastructure and serve as the primary mode of internet access for most Africans.

Despite this progress, mobile connectivity remains uneven in both coverage and quality. Urban centres generally benefit from widespread 4G availability, while many rural and remote areas still lack reliable high-speed mobile coverage. Even where coverage exists, the speed, reliability and overall quality of mobile internet services are below global averages, reflecting capacity constraints and underinvestment in network densification and backhaul infrastructure. These limitations reduce the ability of mobile networks to support more data-intensive and productivity-enhancing digital uses.

The challenges with fixed broadband infrastructure are more severe. Fixed broadband—delivered through fiber-optic cables, copper DSL lines or cable networks to homes, offices and other fixed locations—typically offers faster and more stable connections than mobile broadband. As such, it is essential for remote work, digital education, e-government services and data-intensive business activities. Yet in 2024, Africa recorded only about 3.7 fixed broadband subscriptions per 100 people, compared with 80.6 for mobile broadband. Chart 9 shows access to fixed and mobile broadband in Africa from 2010 to 2050. On the current trajectory, fixed broadband subscriptions will rise to around 29 subscriptions per 100 people in 2050, compared with 149 subscriptions per 100 people for mobile broadband in the same year.

Chart 9: Access to fixed & mobile broadband in Africa, 2010-2050



Source: IFs 8.50 initialising from ITU data

Several structural factors underpin this gap between mobile and fixed broadband access across the continent. Large areas of the continent lack fibre-optic or other wired networks, particularly outside major cities. Nearly half of Africa’s population lives more than 10 kilometres from a fibre connection, creating a major barrier to the expansion of fixed broadband. High costs further restrict access: installation fees and monthly subscriptions are often prohibitively expensive for lower-income households, with broadband costs absorbing a substantial share of monthly income. Consequently, fixed broadband deployment remains concentrated in capital cities and large metropolitan areas, leaving rural and remote populations largely unconnected.

Given these structural limitations, expanding digital access requires a mix of infrastructure solutions. While mobile broadband (3G, 4G and increasingly 5G) will continue to play a central role, complementary technologies are becoming increasingly important for reaching underserved populations.

Low Earth Orbit (LEO) satellite internet services are one such solution. [Starlink](#), developed by SpaceX, uses a constellation of low-orbit satellites that provide highspeed, lowerlatency internet connectivity where terrestrial networks are limited. In early 2026, Starlink launched services in [Senegal](#), contributing to national efforts to extend connectivity to remote and underserved areas. Over the past year, Starlink has also expanded operations in countries such as the Central African Republic, São Tomé and Príncipe, Chad, Somalia, Lesotho, GuineaBissau, the DR Congo, Niger and Liberia, significantly broadening its continental footprint.

By offering an alternative where fibreoptic and traditional mobile network infrastructure are limited, satellite broadband

can support remote work, elearning, telemedicine, digital commerce and other dataintensive uses. However, relatively high equipment and subscription costs, as well as regulatory hurdles in several markets, remain barriers to widespread adoption.

Looking ahead, the continent's annual investment requirement to achieve productive transformation through digital infrastructure is estimated at around **US\$36 billion**. This is lower than the investment needed for transport infrastructure, reflecting the significant progress already made over the past decade. Africa's operational fibre-optic cable network expanded from about 466 000 kilometres in 2010 to 1.3 million kilometres in 2024, contributing to a significant increase in internet access, which reached about 35% of the population in 2024. However, major challenges remain, particularly in affordability, the availability of localised digital services and the need to connect underserved communities. In 2024, the average monthly cost of broadband internet across 18 African countries was US\$56, significantly higher than in Latin America and the Caribbean (US\$46) and developing Asia (US\$17).

Beyond connectivity, enhanced ICT infrastructure can play a critical complementary role. Digital public infrastructure—such as interoperable digital systems that support public service delivery and private-sector activity—can streamline customs procedures, enable cross-border digital services and trade, support the integration of renewable energy systems and expand access to trade finance for small and medium-sized enterprises. Together, investments in digital connectivity and digital public infrastructure will be essential for unlocking Africa's full digital and economic potential.

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Dr Kouassi Yeboua previously worked as a Senior Researcher at AFI, where he led significant ISS studies on the long-term development prospects of the Democratic Republic of Congo, the Horn of Africa, Nigeria, Malawi, and Mozambique. His research focuses on development economics, macroeconomics, gender, and economic modeling. He holds a PhD in Economics.

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