Leapfrogging

Mobile Phones and Broadband—a big Leap for Africa

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Africa's experience with mobile technology is one of the clearest examples of technological leapfrogging. In the early 2000s, many African countries had limited access to landline telecommunication systems, but in subsequent years, mobile networks rapidly expanded across the continent. Today, hundreds of millions of Africans rely on mobile devices for communication, financial services and internet access, making mobile phones the primary gateway to digital participation for individuals and businesses. This transformation has delivered significant economic benefits, including increased access to information, improved business communication and expanded digital markets.

Instead of following the traditional path of building extensive fixed-line infrastructure, many countries moved directly to mobile networks, dramatically accelerating access to communication services and digital tools.

Falling ICT costs played a critical role, enabling mobile penetration to grow across both urban and rural areas. While fixed-line access has remained minimal in Africa, rising only from 2.4 to 2.9 lines per 100 people between 2000 and 2023, mobile subscriptions surged from 1.9 to over 100 per 100 people over the same period. Today, mobile phones provide access not only to communication but also to financial services, education, healthcare and agricultural support, significantly broadening economic opportunities.

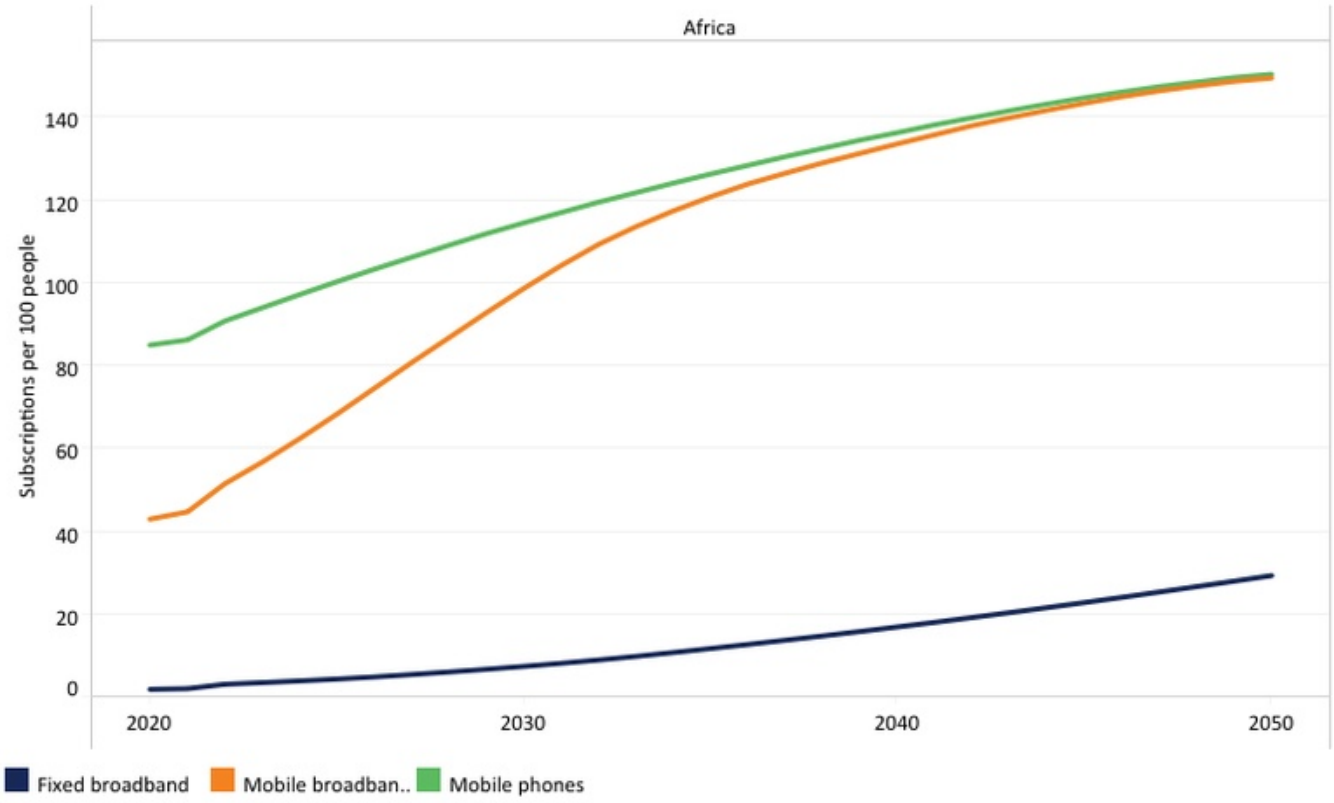
Mobile-enabled digital tools are transforming livelihoods. Farmers use platforms to access market prices and connect directly with buyers, while small businesses increasingly rely on smartphones and social media to reach customers. In education, digital platforms are extending learning opportunities beyond traditional classrooms, particularly in underserved areas.

Despite these gains, broadband access remains uneven. While mobile internet use is expanding rapidly, high-speed fixed broadband, critical for large businesses and data-intensive applications, lags. Emerging solutions such as low Earth orbit satellite internet are helping extend connectivity to remote areas, though cost and regulatory challenges persist. Starlink, developed by SpaceX, uses a constellation of satellites in low Earth orbit 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, 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 data-intensive uses. However, relatively high equipment and subscription costs, as well as regulatory hurdles in several markets, remain barriers to widespread adoption.

Chart 2 illustrates the projected number of subscriptions per 100 people in Africa for fixed broadband, mobile broadband and mobile phones. By 2050, mobile phone subscriptions will reach 150 per 100 people, mobile broadband 149 per 100, and fixed broadband 29 per 100 on the current trajectory. The projected near one-to-one alignment between mobile phone and mobile broadband subscriptions in Africa by 2030 means that most phone users will also be internet users, marking a shift to data-driven connectivity where mobile networks become the main platform for services like banking, education and communication. However, this does not eliminate inequality, as affordability, quality and digital skills gaps will remain, shifting the focus from access to the effectiveness and inclusiveness of mobile internet use.

Chart 2: Mobile phone, mobile broadband and fixed broadband subscriptions, 2020-2024 with forecast to 2050



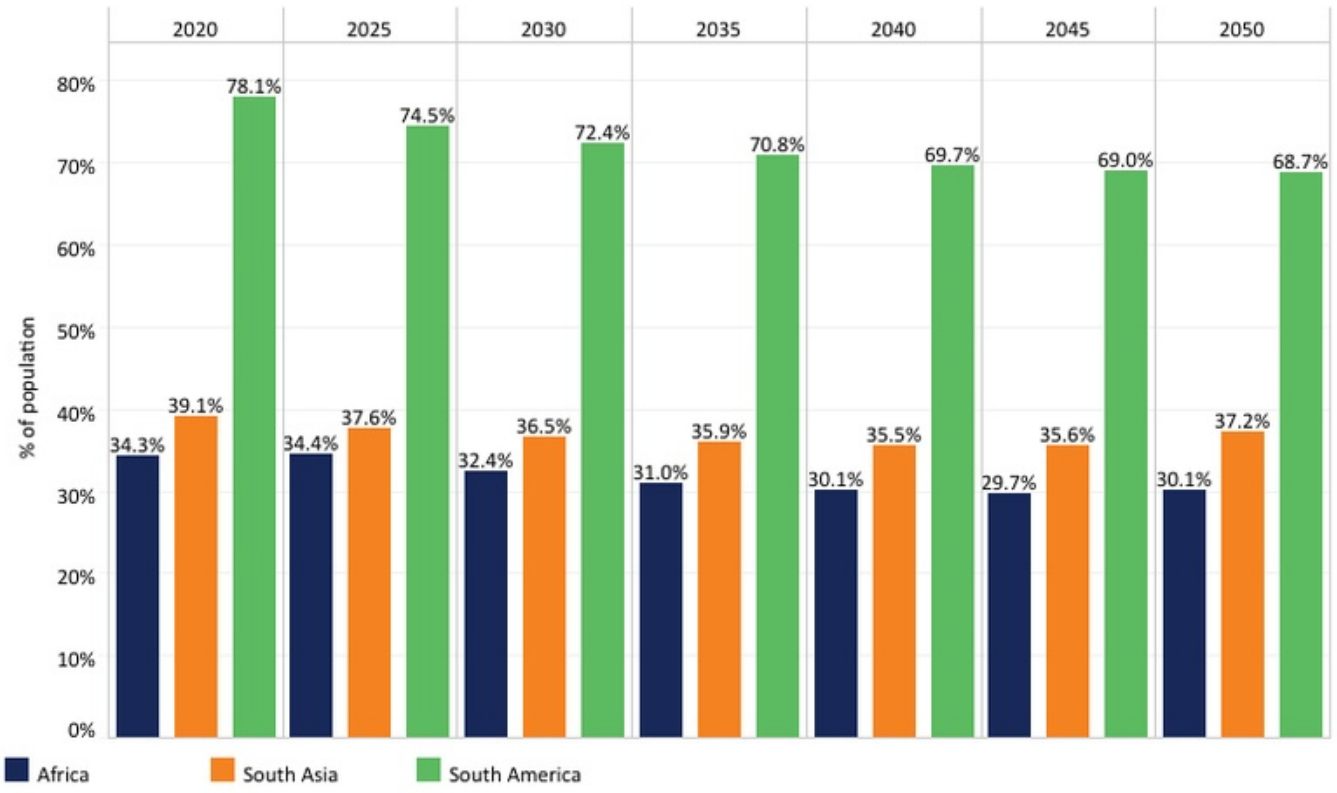
Source: IFs 8.50 initialising from ITU data

Chart 3 depicts the share of the population with internet from 2020 to 2024, with a forecast to 2050. Although internet penetration in Africa remains the lowest globally, at around 35% in 2024, it has increased rapidly from 7.5% in 2009. Much of this expansion has been driven by private-sector investment, underscoring Africa's significant growth potential as a digital connectivity market. Broadband, as a general-purpose technology, has far-reaching economic effects: higher penetration is consistently linked to gains in GDP, productivity, market access and poverty reduction.

A study by GSMA (Global System for Mobile Communications Association) and the World Bank, using data from Nigeria, finds that just one year of mobile broadband coverage can increase total household consumption by around 6%, rising to 8% after two years. The impact on poverty is similarly significant: the share of households living below the extreme poverty line falls by about 4 percentage points after one year of coverage and by 7 percentage points after two or more years, effectively lifting roughly 2.5 million people out of extreme poverty.

Looking ahead, sustained investment in infrastructure, including undersea cables, satellite systems and next-generation mobile networks, will be essential. While 3G and 4G technologies still dominate in sub-Saharan Africa, the broader rollout of 5G networks promises substantial improvements in speed, capacity and innovation. Globally, more than 90% of people in high- and middle-income countries were covered by 4G and 5G in 2024, with 5G dominant in high- and upper-middle-income countries, reaching over two-thirds of the population. In contrast, 5G remains limited in low-income countries at just 4%.

Chart 3: Internet access, 2020-2024 with forecast to 2050



Source: IFs 8.50 initialising from WDI data

Expanding both electricity access and internet connectivity will be critical to unlocking these opportunities. Africa's growing digital ecosystem, anchored in mobile and broadband networks, provides a strong foundation for integrating emerging technologies such as AI, which can help extend services to underserved and rural areas, narrowing the digital divide. When countries combine technological adoption with investments in education, skills development and effective regulatory frameworks, leapfrogging can deliver significant economic, social and environmental benefits.

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About the authors

Dr Jakkie Cilliers is the founder and former executive director of the ISS. He currently serves as chair of the ISS Board of Trustees, head of the African Futures and Innovation (AFI) programme at the Institute's Pretoria office, and an extraordinary professor at the University of Pretoria. His 2017 best-seller Fate of the Nation addresses South Africa's future from political, economic and social perspectives. His three most recent books, Africa First! Igniting a Growth Revolution (March 2020), The Future of Africa: Challenges and Opportunities (April 2021), and Africa Tomorrow: Pathways to Prosperity (June 2022) offer rigorous analyses of the continent as a whole. From August to December 2025, Cilliers was a Richard von Weizsäcker Fellow at the Robert Bosch Academy in Berlin.

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