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Equipping tomorrow: What does 5G mean for African businesses and economies?



This article is part of a series on the introduction to 5G.

Highlights:

- By 2025, there will be 3.6 billion 5G connections globally, powering over 50 billion connected devices. The promise of 5G is enormous: low latency, unmatched speed, impressive bandwidth
- By the year 2025, there will be commercial 5G services in at least seven African markets including Kenya, Nigeria, and South Africa, with 28 million 5G connections.
- Policy makers must establish market structures that significantly reduce the friction for technology investments and innovation, and support technology hubs to drive 5G benefits.
- 5G comes with the speed and bandwidth that supports hitch-free and seamless connections, communication, and file sharing, with transformative implications for transport, health, logistics, education, insurance amongst other sectors.
- We are convinced that the deployment of 5G network in Sub-Saharan Africa will be driven by supply side market forces as competition intensifies.

INTRODUCTION

Technology disruptions that we see today revolutionizing our lives reflect a future we can only imagine in the recent past. From artificial intelligence, virtual and mixed reality, and a slew of new technologies pointing to a world without borders and limits, where lives will be easier, safer, and healthier. The future depends on connectivity.

Tomorrow will be powered by wireless networking technology and its fifth generation, 5G will herald an explosion of new connected devices and vehicles, with speeds of around 10 gigabits per second to mobile phones, 600x faster than the typical 4G speeds on today's mobile phones.



Asides from speed, 5G offers lower latency and greater capacity than 4G LTE networks. Each successive generation of mobile network technology comes with marked improvement in voice and data capabilities, to meet the speed, capacity, and reliability needs of an increasingly interconnected world. 5G is expected to connect phones, cars, machines, homes, and 'who knows what else' today, and in the years ahead. As of February 2021, [commercial 5G is available in 1,336 Cities Across 61 Countries](#), with an estimated 3.6 billion connections globally by 2025.

The Fourth Industrial Revolution has created the need to build technological support for 21st-century connectivity demands of smart cities, smart cars, 3D video, enhanced cloud environment experience, remote medical services, virtual learning, virtual and augmented reality, and machine-to-machine communications for industrial automation.

Although Africa is yet to fully utilize the capabilities of 4G technology (at 62% coverage for Africa and 41% coverage for Nigeria) and lay the requisite infrastructural foundation for a massive 5G roll out, this fifth generation of wireless technology has implications for economies and businesses in the region.

Future editions of Verraki Insights will focus on the implications of 5G for healthcare, banking, and retail businesses in Africa.



What are the capabilities of 5G?

According to the [International Telecommunication Union \(ITU\)](#), the number of connected devices on the Internet is projected to reach 50 billion any time from 2025 onwards; and web traffic is estimated to increase by between 10 and 100 times between 2020 and 2030 driven by evolving consumer demands, as well as industrial demand for machine-to-machine communications, Internet of Things (IoT), smart cities, connected vehicles, amongst others. The ITU believes that 5G networks will deliver more speed and capacity to support massive machine-to-machine communications and provide low-latency (delay) and high-reliability service for time-critical applications in transportation, healthcare, and emergency services. 5G offers broadband possibilities based on the following non-exhaustive capabilities:

Speed:

5G spectrum offers 10 times more speed than the 4G and 4.5G networks, using shorter frequencies (millimeter waves between 30GHz and 300GHz). For context, the advanced 4GLTE has a potential speed of 1,000Mbps, whilst 5G changes the game with up to 10,000Mbps. Users could download movies in seconds as compared to minutes.

Latency:

5G comes with a game-changing 1-millisecond latency (compared to 200 milliseconds in 4G). This enables real-time interactivity for cloud-based services and is key to the success of self-driving cars and other IoT applications. Latency measures the time lag between the sending and receiving of information over a network.

Bandwidth:

5G's spectrum includes the 28 and 39 GHz radio frequencies and delivers higher capabilities and experience compared to 4G (which used less than 6 GHz). Bandwidth is the capacity of a network for data transfer across devices.

Security:

5G enhanced the security protocols of 4G with improved user authentication, stronger data, and roaming encryption. 5G uses 256-bit encryption (vs 28-bit standard used by 4G), allowing the encryption of the user's identity and location.

What is the status of the deployment of 5G?

To appreciate the capabilities of 5G, let us look at the **current deployment and use cases** of 5G technology across the globe. In the United States Verizon, AT&T, and T-Mobile offer 5G fixed wireless broadband internet, with T-Mobile recording impressive [download speeds of 118.7 Mbps](#). In Canada, Rogers, Telus, and Videotron commenced a 5G rollout in 2020. Similarly, Vivo's 5G network became available in eight Brazilian cities in 2020. The United Kingdom officially launched 5G in 2019, with most of the country expected to be covered by 2022. Japan and South Korea began commercial 5G services in 2018 and 2019 respectively, whilst China's three leading carriers officially launched 5G on October 31, 2019. In the UAE, Etisalat and du partnered with Nokia and Huawei to launch 5G in 2019, whilst India's Bharti Airtel announced its 5G readiness in early 2021. MTN and Vodacom are leading the 5G deployment in South Africa with their launch in 2018 and 2020 respectively. In Nigeria, MTN ran successful 5G trials across various locations in 2019, with deployment expected in 2022. Uganda's ZTE and MTN launched the first 5G in 2020, whilst many other African countries (Egypt, Ethiopia, Senegal, Congo DRC, Kenya, Uganda, etc.) are at various pre-deployment.

Smartphone production companies have recorded early wins in the 5G boom. In 2020, 5G-enabled smartphones account for 20% of global phone shipments and are forecast to attain 69% by 2023. 5G smartphone sales reached a record 136 million units in Q1 2021, led by Samsung, Apple, BlackBerry, Oppo, amongst others. In Canada and the USA, 5G network offers [169.5Mbps](#) and [87.5 Mbps](#) download speeds respectively. In Germany, O2 leads with a download speed of [143.9 Mbps](#). In the gaming industry, 5G-powered augmented reality enables more immersive multiplayer experiences, making cloud gaming more universal and realistic (e.g Pokémon Go, ARCore, etc.). Revenue from cloud gaming globally is [forecast](#) to surpass \$5bn in 2022 and \$12bn by 2026. About 500 million smart home devices (video surveillance cameras, smart speakers, lighting, and thermostats, etc.) were shipped globally in 2020 led by brands such as Apple, Google, and Amazon. The industry is valued at [\\$121.4 billion](#), with 88.5 million smart homes worldwide. Esports is another use case for 5G where low latency is critical for optimized gameplay. AT&T currently leads the 300million global fan industry, forecast to attain a [one billion dollar valuation soon](#). As 5G rollout continues across countries and sectors, its transformative impact of speed, low latency, and larger bandwidth is bound to shape people, processes, and the planet phenomenally.

5G in Sub-Saharan Africa (SSA) is inevitable; it is a natural progression from previous technology generations. But with only 62% 4G coverage, the question then is: **is Africa ready for 5G?** It is a global bandwagon, and Africa is taking the necessary 5G baby steps as potential use cases for the technology remain very strong in the region. It is imperative to highlight however that Sub Saharan Africa ranks very low in the [GSMA's 5G Market Readiness Index](#) as of early 2019. Most markets in the region are still in the early stages of mass-market 4G rollout, coupled with limited availability of key 5G spectrum, especially the mid and high-frequency bands, across most SSA countries. This notwithstanding, some cities in Africa are 5G ready, offering a take-off point towards harnessing the opportunities it offers the continent. Data from the GSMA suggests that by the year 2025, there will be commercial 5G services in at least seven African markets including Kenya, Nigeria, and South Africa, with 28 million 5G connections.

How will 5G technology help equip African businesses and economies for tomorrow, and ultimately help position the continent towards continued relevance in the Fourth Industrial Revolution? Africa's population is forecast to double by the year 2050 (in less than 30 years) to attain [2.5 billion people](#). Using 2021 population estimates, 41% (over half a billion people) of the population is below the age of 15. These young Africans will very likely own a mobile (smart?) phone in the next decade, with a natural inclination towards a digital-first approach to life and markets: social interaction, education, work, communication, and entertainment. 5G offers a network infrastructure that can power the connectivity and digital lifestyle needs of these 'digital natives', and the broadband requirements of businesses and institutions that serve them.

For businesses, 5G offers transformative scale and scope capabilities. The low latency enables businesses to communicate in real-time without any lag or glitch - stream high-resolution video, audio, and images. This implies enriched communication between customers and amongst staff, leveraging the capabilities of 3D images and augmented reality to create virtual rooms and simulations for easier decision-making and richer engagement. The connectivity advantage of 5G technology brings together millions of devices and machines communicating at incredible speed, addressing known business frictions in transportation, health, logistics, insurance, amongst other sectors. 5G's improved bandwidth will enable huge video files or presentations to be downloaded in seconds, whilst live HD video communication can be seamlessly transmitted. This has implications for education, health medicine, and the future of work in Africa.

African businesses and organizations must get ready to optimize 5G for business transformation or growth. At the core, 5G will activate a boom in connected smart devices and sensors, expanding the volume of data that businesses can leverage to make smarter decisions.



What must businesses do or be doing today?

First, African businesses must begin to develop a 5G optimization strategy, analyzing the current use cases to establish how 5G could help solve pressing business challenges (communication, logistics, cost, etc.). The plan must include the determination of in-house use cases and pilots, establish required changes to processes, products, and services offerings, and the budget implications. In addition, businesses must scale or replace legacy IT network infrastructure in favor of decentralized, cloud-based, virtual networks that can leverage the agility and flexibility that 5G brings. Thirdly, businesses must put in place appropriate frameworks, tools, and skills to distill valuable insights from data. Educating the workforce is very critical for success as business leaders and employees must understand the possibilities of 5G and how it supports the set objectives of the business. This is also the time to be part of a relevant ecosystem of 5G partners to gain scale and keep abreast of emerging trends.

Governments and policymakers in Africa have a very important role to play for the continent to translate 5G potential to economic benefits. Government and other stakeholders must begin to establish the necessary building blocks for a smooth transition to 5G, for the benefits of African economies and in the wider context of [Africa's Agenda 2063](#). Specifically, policymakers must establish market structures that significantly reduce the friction for technology investments and innovation. Deliberate policy support must be provided to the operators to facilitate network deployment, allow network flexibility, and hitch-free spectrum access, as well as lower regulatory costs, paying particular attention to issues around infrastructure sharing, taxation, and spectrum. Leaders must also pay attention to the [over 1031 active technology hubs](#) in the continent, as they hold immense potential as a backbone of Africa's technology ecosystem and are critical for enriching the 5G use cases for the continent. Policy initiatives must also ensure equitable spread, access, affordability, and traffic prioritization for all citizens, to drive digital inclusion across both urban and rural locations.

The promises of 5G are enormous. It is more than just hype. 5G is optimized to connect everything and everyone at unprecedented speed and reliability, giving consumers and machines access to more information faster than ever before. Full 5G deployment in Africa remains a question of 'when', as network providers have started making huge infrastructure investments across major cities. We are convinced that the deployment of 5G networks in Sub-Saharan Africa will be driven by supply-side market forces, as mobile network operators compete for market share and competitive positioning to meet the needs of Generation Z consumers and the businesses that serve them. Connected cars, smart cities, advanced robotics, and gaming amongst others— will all soon rely on 5G networks. In Nigeria, the road to 5G has been effectively activated with [planned licensing](#) (through an auction process) of two (2) lots of 100 MHz TDD each in the 3.5 GHz spectrum band on December 13, 2021, by the regulator, NCC. Ready or not, 5G is here and Africa must very urgently scale up infrastructure and policy support towards full utilization.

No matter how you plan to get your network and operations ready for 5G, you don't need to do it on your own. Our Technology Advisory team can help profile the 5G readiness of your business and provide direction on how to evolve your business model to take full advantage of the capabilities of 5G. [Talk to one of our technology experts today](#) to learn more.

About Verraki

Verraki is a proudly African company partnering with enterprises and governments to accelerate the development and transformation of Africa by providing business solutions designed for Africa. We build and implement technology solutions for seemingly intractable challenges, provide advisory services to drive the capacity and motivation for change, and curate innovative ventures to unlock new sources of growth across our continent.

A fusion of two words: 'Versorium' (Latin for Turn Around) and 'Meraki' (Greek word used to describe the action of doing something with soul, creativity, pouring oneself into a task), Verraki aptly captures the essence of our company; to turn around African enterprises and governments via smart, future-focused solutions and business insights, new growth opportunities, helping to unleash their potential, turnaround their performance and achieve the seemingly impossible, with the sole goal of creating a better future for Africa.

We are committed to enabling the African (start-up) story by supporting high-impact socially-conscious entrepreneurs and catalysing self-sustaining enterprises and governments within the continent to deliver affordable services across critical sectors.

Our Growth Optimisation Offering

The contemporary business environment is dramatically different from what it was ten years ago, and it continues to evolve at an increasing rate. Consumer trends, macroeconomic shifts, technological advances, changing competitive dynamics and pandemics are accelerating the pace of change, leaving many businesses struggling to grow amidst the turbulence.

At Verraki, we understand client needs and provide innovative new approaches that help enterprises and governments to explore new market opportunities including expansion into new regions, identification of new channels, targeting of new customer segments, or even the creation of new product categories in a way that moves them from "surviving" to "thriving." Verraki develops and delivers the practical tools, frameworks, and organizational capabilities required to gain competitive advantage, and achieve sustainable growth, utilising customer insights, big data, and proprietary knowledge to achieve a deeper understanding of demand, customers, competitors, and opportunities.

Our seasoned executives and team have a broad range of multibillion-dollar P&L experience delivering long-term growth and optimisation vision, strategies, and management at global Fortune 500 companies.

Authors

Olaniyi Yusuf

Managing Partner

olaniyi.yusuf@verraki.com

Niyi is the Managing Partner at Verraki and leads the Social Sector practice. He served as the Country Managing Director for Accenture in Nigeria and was responsible for all aspects of the firm's strategy, team and operations. Niyi holds a combined honours degree in Computer Science and Economics from Obafemi Awolowo and worked at Accenture, Arthur Andersen and JKK in a career spanning over 30 years. Niyi has played critical roles in the establishment of industry infrastructure for the Nigerian banking industry including establishment of Interswitch, CRC Credit Bureau and Shared Service platforms.

Chigozie Muogbo

Research Lead

chigozie.muogbo@verraki.com

Chigozie leads the Research and Intelligence function at Verraki. He is an economist and business analyst with over a decade experience in economic research, investment research and market intelligence within the Nigerian financial services space, cutting across reputable organizations such as Afrinvest, Access Bank and UBA Plc. Chigozie holds a BSc in Economics (first class honours) from Obafemi Awolowo University, MSc in Economics from University of Lagos, and an MPhil in Development Finance (distinction) from University of Stellenbosch Business School.

Contributors

Temitope Osunrinde

Marketing & Communication Lead

Verraki

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Contact

OFFICE ADDRESS

4th Floor, Mansard Place,
Plot 927/928 Bishop Aboyade Cole Street,
Victoria Island, Lagos, Nigeria.

NUMBER

+234 (1) 453 7151,
0901-VERRAKI

EMAIL

info@verraki.africa

WEBSITE

www.verraki.africa

