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Digital Transformation in Motion: The Growth of Fintech and Mobile Money in Africa

Africa is experiencing a financial revolution as fintech and mobile money services offer accessible alternatives to traditional banking, especially in regions with limited infrastructure. As fintech and mobile money services continue to revolutionize access to financial services across Africa, ensuring the security and integrity of these platforms has become a top priority. The rapid adoption of digital financial solutions exposes both consumers and service providers to an increasing array of fraud and cybersecurity risks. It is crucial to prioritize the development of robust fraud prevention and security strategies to ensure that this financial revolution is built on a foundation of trust.

Tione Kafumbu, Marketing and Communication Professional, Mobile Money expert

> The lack of standardization in measures applied across regions often hinders effective fraud prevention

This evolution is not just a change in service delivery; it's a reimagining of financial accessibility, enabling greater participation in the global economy, particularly for Africa's vast rural and underserved populations.

Fintech and Mobile Money: Drivers of Financial Inclusion

Tione Kafumbu, a seasoned Marketing and Communication professional and Mobile Money expert, with years of experience in the telecommunications, mobile money, and microinsurance industries in Malawi, highlights the transformative power of fintech. The inspiring impact of these innovations on financial inclusion and access to essential services is evident. Crucial lifelines in rural areas, platforms like M-Pesa, Airtel Money, and TNM Mpamba have emerged where traditional banking options are scarce. Affordable healthcare solutions for those in need are being provided by microinsurance products such as Abwenzi Rural Health Insurance.

1. **The Impact of Fintech on Financial Inclusion**

Before the advent of mobile money, many individuals were unbanked and lacked access to essential financial services. "With the introduction of digital wallets, we have seen a shift that empowers individuals and small enterprises across Africa," Kafumbu explains. Millions of people are now integrated into the formal economy, allowing them to save, secure loans, and pay for services that were previously out of reach.

The evolution of mobile money into 'super apps' is particularly exciting, as a diverse array of financial products, including loans, savings accounts, and investment opportunities, is now offered by these platforms. Remittances and intra-regional trading have been simplified by this transformation, enhancing the ease of cross-border payment processes and ultimately supporting economic sustainability across the continent.

2. **The Impact of Fintech on the Insurance Sector**

Interestingly, mobile money platforms are now venturing into the insurance space, with microinsurance products catering to diverse needs. "The rise of fintech has significantly lowered distribution costs for insurers, enabling them to provide more affordable options," Kafumbu states. For example, health, agriculture, and life microinsurance can now be accessed directly from individuals' phones, ensuring that even those with limited means can obtain coverage for less than a dollar a day.

The claims process has been revolutionized by mobile technology, allowing payments to be made directly from customers' cellphones and claims to be deposited into their accounts. This advancement has effectively eliminated the long and cumbersome compensation processes that once plagued the insurance industry.

3. **Building Financial Resilience**

The integration of fintech and insurance is playing a crucial role in empowering underserved and vulnerable populations by providing them with tools to safeguard their financial well-being. Through the seamless blending of mobile financial services and microinsurance products, individuals who previously had limited access to traditional insurance can now protect their assets and livelihoods from unforeseen circumstances. These microinsurance offerings cover a range of essential needs, such as healthcare costs, losses from natural disasters, and agricultural challenges like crop failures.

For instance, low-income families can access affordable health insurance through their mobile phones, allowing them to manage medical emergencies without falling into crippling debt. This integration provides not just financial security but also peace of mind, enabling these individuals to recover more quickly from hardships and focus on long-term growth.

José Sobreira Martins, Unitel (Angola), Director, Risk, Fraud and Security Chair, GSMA Africa Fraud and Security Group (AFASG)

> Prioritizing security and collaboration will be essential to address the evolving landscape of fraud and cybersecurity threats

The Impact of Fraud and Security Challenges

Highlighting this transformative shift, José Carlos Sobreira Martins, Director of Risk, Fraud, and Security at Unitel (Angola) and Chair of the GSMA Africa Fraud and Security Group (AFASG), emphasizes, "The evolution of fintech has empowered millions, transforming them from unbanked individuals to active participants in the financial ecosystem." His insights underscore the critical role that fintech plays in expanding financial inclusion and reshaping economic landscapes across Africa.

Both fintech and mobile money services rely on digital platforms to offer financial services such as payments, transfers, financial transactions, international remittances, credits, savings, etc. Both are also driven by technological innovation, leveraging smartphones, mobile apps, APIs, and digital networks to deliver financial services in a mobile-centric nature. All of these makes accessing financial services more convenient and faster than traditional banking methods. We may say that the rapid growth of fintech and mobile money across Africa has brought significant advantages in terms of financial inclusion and social-economic development, however it also introduces several fraud and security challenges:

- **Social Engineering Attacks**

Fraudsters frequently employ tactics such as phishing, smishing (SMS phishing) and vishing (voice phishing), tricking users into divulging sensitive information like account details, PINs and passwords. These attacks are one of the most prevalent issues in Africa due to low digital literacy among a large segment of the population and fraudsters exploit human psychology to deceive users into sharing personal data to promote account takeover attacks. Also, SIM swap fraud continues to be a big issue in Africa, where fraudsters hijack users' mobile phone numbers to gain control of their mobile money and fintech accounts. This enables them to carry out unauthorized transactions, often draining users' accounts before the fraud is detected. So fintech and mobile money providers must ensure that strong authentication methods (KYC) and financial transactions monitoring (KYT) are in place.

- **Know Your Customer (KYC) Procedures**

Although efforts are in place to improve KYC protocols, fraudulent registrations using fake identities or identity theft remain common. This fraud often arises due to poor identity verification processes, leading to the opening of fake or fraudulent accounts. Weak KYC controls make it easier for fraudsters to bypass security checks and gain access to financial systems. Therefore, it is essential to have continued investment in more robust digital authentication solutions, such as biometrics or two factor authentication methods.

- **API Security Risks**

Application programming interfaces (APIs) are essential for fintech and mobile money services as they facilitate the integration between platforms, enabling services like cross-border payments, partnerships with banks, and third-party solutions. However, insecure APIs can introduce significant risks. Poorly designed or inadequately protected APIs can be exploited by attackers to gain unauthorized access to sensitive data, manipulate transactions, or disrupt services. API vulnerabilities can also expose mobile money platforms to data breaches or distributed denial of service (DDoS) attacks, particularly when security measures like proper authentication, encryption, and rate limiting are not enforced. As fintech and mobile money ecosystems grow, ensuring that APIs are secure and regularly updated is critical to maintaining the integrity of these digital financial services.

- **Cybersecurity Threats**

In the context of fintech and mobile money services in Africa, cybersecurity threats pose

significant risks due to the growing reliance on digital financial platforms and mobile devices, which broadens the attack surface, providing cybercriminals with more entry points. Some African fintech and mobile money platforms may lack advanced cybersecurity infrastructures or do not have a dedicated security operations center (SOC) to monitor and respond to real-time threats, leaving them vulnerable and making it easier for cybercriminals to launch successful cyberattacks.

- √ Many systems are interconnected through APIs, creating potential weak spots if these interfaces are not securely managed.
- √ Cybercriminals often use malware to target user's devices and service providers networks that can be deployed to steal user credentials, intercept transactions, or manipulate financial data.
- √ Ransomware attacks, which encrypt critical data and demand payment for decryption, are becoming more common in the African fintech ecosystem.
- √ DDoS attacks, which overwhelm a platform with excessive traffic to render it unavailable and disrupt financial services.
- √ As fintech and mobile money services handle vast amounts of personal and financial data, they become also prime targets for data breaches. The stolen data can be then used to commit other frauds or to be sold on the dark web.
- √ Since fintech and mobile money services in Africa are primarily accessed via mobile devices, they inherit the security risks of these platforms, such as outdated operating systems and lack of proper endpoint protections that renders the mobile devices insecure.

- **Expansive Commercial Networks**

The extensive agent networks used by fintech and mobile money services in Africa, especially in regions with limited banking infrastructure, present significant challenges in mitigating fraud. The real-time, faceless nature of transactions enables fraudulent agents or sub-agents to manipulate or divert funds before detection. Weak KYC procedures and the complex hierarchical structure of agents and sub-agents often blur accountability, making it harder to identify fraudulent activities. Additionally, collusion between agents and external fraudsters further complicates monitoring, making it crucial for providers to implement strong oversight, vetting processes, and advanced transaction monitoring tools to mitigate these risks effectively.

- **Regulatory Gaps and Fragmentation**

While regulation is improving, inconsistencies across countries create loopholes that fraudsters may exploit. There is often a lack of standardization in the measures applied across different regions. In addition to regulatory fragmentation, law enforcement's limited ability to cooperate across borders is a significant issue. Financial crime, especially in fintech and mobile money, is increasingly transnational, requiring close cooperation between multiple countries' law enforcement agencies. However, this cooperation is often hampered by differing legal frameworks, slow collaboration processes, inefficient communication channels and technological know-how limitations.

- **Collaboration Between Mobile Operators, Fintechs, and Banks to Enhance Fraud Prevention**

José Sobreira also stated: "As financial services become more digitized and interconnected, stronger partnerships between mobile operators, fintechs and banks are essential for building a more robust defense against increasingly sophisticated fraud schemes". The GSMA Open Gateway initiative provides APIs to enhance collaboration between mobile operators, fintechs, and banks, helping manage fraud risks more effectively. By using APIs like Identity

Verification and SIM Swap Detection, stakeholders can detect suspicious activities in real time. The GSMA's *'Mobile Money Fraud Typologies and Mitigation Strategies' (April 2024) study outlines key fraud tactics and mitigation strategies*, while the Open Gateway initiative highlights how API-based collaboration boosts fraud prevention in fintech and mobile money services.

This initiative enables mobile operators to share valuable insights and capabilities with fintech and banking sectors, helping the financial ecosystem to better manage risks, including fraud. By leveraging these APIs, all the financial sector, mobile money, fintech and banks can detect suspicious activities before fraudulent transactions occur. This collaborative approach creates a more secure financial ecosystem, where real-time data exchange and monitoring can significantly reduce fraud risks, ensuring safer digital financial services across Africa. APIs such as "Identity/Number Verification", "Transaction Monitoring API", "Location APIs", "Device Change API" and "SIM Swap API" are today realistic APIs that can contribute to prevent fraud in the financial industry.

In conclusion, the growth of fintech and mobile money in Africa is a double-edged sword. While it has brought financial inclusion, convenience, and socio-economic development to millions, it also presents challenges in terms of security and fraud. By investing in advanced security measures, strengthening collaborations, and improving regulatory frameworks, fintech and mobile money providers can continue to drive innovation while safeguarding the financial well-being of their users. TR

Peter Ndegwa, Chief Executive Officer, Safaricom

Peter Ndegwa on Safaricom's Vision: Challenges, Innovations, and Growth in Africa

In an exclusive interview, Peter Ndegwa, Chief Executive Officer at Safaricom shares insights on navigating market challenges, future advancements in M-PESA, expansion plans beyond Kenya, support for local tech startups, and the company's commitment to sustainability and corporate responsibility.

As CEO, what are the biggest challenges you face in maintaining Safaricom's leading position in the African communications market, and how do you plan to address them?

Our industry is no different from others in the region. We are cognizant that we operate within communities, so what affects the community affects us. The economy continues to pose a challenge to our customers due to inflationary pressures, geopolitical shocks, assertive tax regimes, and uncertainty regarding foreign currency exchange conditions.

To combat these challenging economic times, we continue to push for innovation to cushion against the economic shocks while creating enhanced products and service offerings that meet the needs of our customers. We operate in a complex and heavily regulated environment, where changes in laws or regulatory requirements could adversely impact our business. To this end, we continue to build and maintain proactive and constructive relationships with regulators and governments, informed by a shared understanding of the need for inclusive economic development.

In our shift from a conventional telco to a technology company, we are facing heightened competition both for customers and digital talent from various nontraditional players. We are leveraging this competitive and disruptive environment to deliver innovations that are setting us apart, allowing us to be agile, drive partnerships, and explore new markets while providing our customers with a world-class experience.

Lastly, our customer value proposition is based on the reliable availability of our high-quality network and services. To this end, we have undertaken extensive investment in a robust network architecture driven by customer needs to ensure we always meet customer expectations. In addition, we have strong technology redundancies to minimize technology failures.

Safaricom has been a pioneer in mobile payment systems with M-PESA. What innovations or

advancements can we expect from M-PESA in the near future?
M-PESA is a platform that leverages partnerships to enhance lifestyles and financial inclusion. As a Technology Company that puts our customers at the center of all that we do, we continue to innovate and seek partnerships that align with our strategic intent of being a digital lifestyle enabler.Beyond payments, we are advancing M-PESA into a platform offering wealth management, diversified credit, and savings propositions.

We continue to leverage our digital platforms and solutions, such as the M-PESA Super App and Business App, to provide an end-to-end excellent customer experience. With over 9 million Consumer App sign-ins, our platform now offers access to more than 80 mini-apps that span various sectors, including transport & travel, events, and public services.

Additionally,we are committed to foster collaborations with banks, Fintechs, underwriters, fund managers to spur innovation as we enhance our service offerings.

Can you share your vision for Safaricom's expansion beyond Kenya, and what markets are you targeting next?
To achieve this vision, we will have a focused approach to defending and growing our connectivity and mobile financial services businesses.

As part of our strategy, we will accelerate the transition to TechCo while evolving Ethiopia into a full-scale digital business. We aim to maximize opportunities, particularly in Ethiopia, where we foresee strong commercial progress. To date, we have made significant strides, now covering 40% of the population and growing our 90-day active customer base to over 4.4 million as of 31st March 2024.

In Kenya, with a mature connectivity business, we see opportunities to accelerate smartphone acquisition and expand internet access for all.

In mobile financial services, we are focused on driving financial health. Additionally, in the public sector, we are working to enable digitization to ease the delivery of public services to citizens.

In line with our digital economy agenda, we, together with other industry players, have launched a first-of-its-kind device assembly plant in Kenya. This plant will manufacture smartphones and other devices, making it easier to achieve our digital economy goals.

What steps is Safaricom taking to support and nurture local tech startups and innovation within the African tech ecosystem?
In line with our ambition to be a purpose-led technology company, we launched the Spark Accelerator Program with our partners M-PESA Africa and Sumitomo Corporation. This initiative aims to nurture, grow, and scale commercially viable tech startups that make a positive societal impact by offering them access to product and technology support, market opportunities, and capital. The first cohort, comprising 9 selected startups, has already begun.

As we continue to scale M-PESA, we are continuously enhancing our Daraja platform enabling businesses to seamlessly integrate to M-PESA. The platform currently hosts over 88,000 developers with over 44,000 integrations reflecting on its growing impact.

To foster collaboration and ideation within the tech industry, the Safaricom Engineering Community and Summit have accelerated the acquisition of tech skills and provided a networking platform for tech professionals over the past two years. The Community is now partnering with 10 higher education institutions to train students in on-demand tech skills.

Additionally, to create a healthy digital talent pipeline, we have partnered with various organizations from academia, training partners, tech hubs, government, and industry players through the Industry Digital Talent Program. This program focuses on upskilling participants in the digital skills currently in high demand.

Sustainability and corporate social responsibility are increasingly important for companies worldwide. How is Safaricom integrating these principles into its business strategy and operations?
Our purpose of transforming lives and our commitment to society remain at the core of our operations. As part of our dedication to environmental, social, and governance (ESG) initiatives, we have successfully grown 1.5 million trees and converted 23% of our sites to solar power, aligning with our Net Zero target by 2050. We are continually focused on creating a sustainable business by decarbonizing our operations and advancing the circular economy.

Our commitment extends beyond environmental efforts. Through our M-PESA and Safaricom Foundations, we strive to enable Kenyans to access quality healthcare, education, skills, and sustainable employment, thereby providing resources, opportunities, hope, and dignity to communities. In Ethiopia, our Green Legacy Initiative has seen the planting of over 5,000 trees by Safaricom Ethiopia and its vendors, with a goal of having 40% of our sites powered by solar energy by 2030.

We also remain dedicated to supporting Kenyan communities through our passion for sports. For example, our Chapa Dimba football tournament has this year enabled thousands of young Kenyan girls and boys to pursue their passion for the game, becoming one of the most successful sporting events in Kenya.

For more details on our programs and initiatives that positively impact our customers, colleagues, company, and community, the Safaricom Sustainability Report 2024 will be published in October this year. TR

AI-Powered CapEx: Smarter Investments for Telecom Operators

In today's fast-paced telecommunications environment, operators face more than just the challenge of maximizing return on investment (ROI); they must do it at the right time and place. A solid ROI is crucial, but achieving it efficiently and smartly has become a critical factor for success, particularly with investments in technologies like 5G and edge cloud.

At YUVO, our Smart CapEx approach leverages all the available network data (configuration, control plane, and user plane data) through our Network Intelligence tool to enable timely decisions that ensure a consistent ROI, while still modernizing infrastructure.

The Smart CapEx Process

Our Smart CapEx solution begins with exploratory data analysis, ensuring that all data points across cells and KPIs are complete. During this exploration, we often encounter the following issues:

- **Limited Scope:** Historical data is often insufficient.
- **Outliers:** Spikes in data can skew results.
- **Missing Data:** Some KPIs may lack complete information.
- **Inorganic Shifts:** Unexplained changes in data may arise, affecting forecasts.

Once identified, we address these issues in different ways:
For missing or null data, if the gaps are small, we apply polynomial interpolation to fill them by using natural variations in the real data. If the amount of missing data is too large, we may exclude the affected cells or KPIs from further processing to maintain data integrity.

Inorganic shifts in the data, such as abrupt changes that could stem from configuration adjustments or specific network conditions, require close collaboration with the customer to understand their cause. To address these shifts, we scale the historical data pre-shift to normalize it and drop unreliable data points. We then re-fill any missing data using tools like the FEDOT library's ModelGapFiller component.

Data Spikes are another common challenge that can distort predictions. To mitigate their impact, we apply convolutional smoothing techniques. This reduces the noise in the data and helps the forecasting models perform more accurately.

Our Smart CapEx solution is built on two key components: a predictive system and a prescriptive system.

Predictive System

The predictive component analyzes historical data to forecast future network demands. It takes into account trends, seasonality, and external factors,

allowing for more accurate long-term projections.

- **Trend Analysis:** Identifies consistent growth patterns, such as a 5% annual increase in traffic that might indicate the need for additional capacity within six months.
- **Seasonality:** Takes into account temporary spikes in usage, like a 20% rise in data demand during holidays or tourist seasons.
- **External Factors:** Accounts for market disruptions, events, and other external variables that may influence network usage.

The model's accuracy improves over time as it learns to recognize patterns in the historical data. During training, it adjusts internal weights and parameters to minimize errors between predicted and actual outcomes, continuously refining its ability to provide reliable forecasts.

Selecting the right model is crucial, as no single model fits all scenarios. YUVO's Smart CapEx solution automates this process by allowing multiple models to compete, selecting the one that best fits the unique data patterns of each network site. This ensures that operators receive the most reliable forecast for every specific network element.

Prescriptive System

After forecasting future demands, the prescriptive system helps operators determine the best course of action by solving a mathematical optimization problem. Its goal is to maximize objectives such as return on investment (ROI) or network performance while adhering to operational and investment constraints like budget limits, regulatory requirements, and capacity constraints.

Given the complexity and number of possible investment decisions, our optimization models help operators navigate these decisions, recommending optimal scenarios.

Integrated Dashboards for Actionable Insights

Our Smart CapEx solution provides three key dashboards, each tailored to different aspects of the decision-making process:

Figure 1 - YUVO Smart CapEx - Executive Dashboard

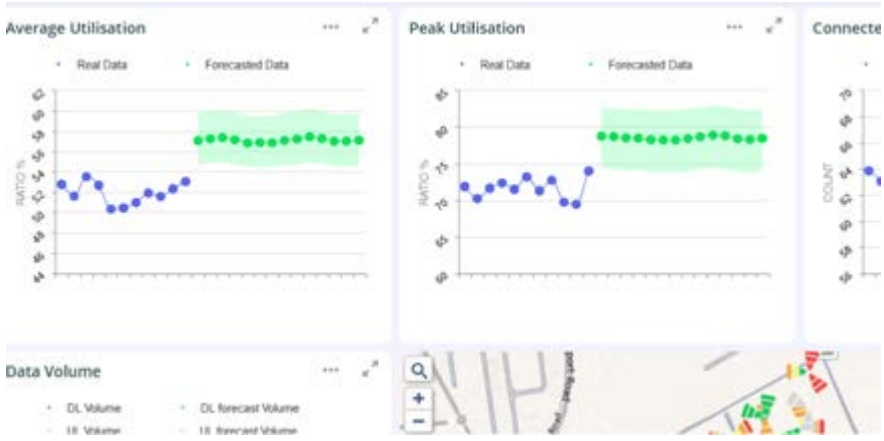


Figure 2 - YUVO Smart CapEx - Technical Dashboard

Figure 3 - YUVO Smart CapEx – Financial Dashboard

1. **Executive Dashboard:** Offers a high-level overview of network performance and investment opportunities, including both real and forecasted revenue per cell. This dashboard integrates geographical information, allowing users to easily pinpoint areas with better investment potential.
2. **Technical Dashboard:** Provides detailed insights at a granular level, including real-time and forecasted data on metrics such as average and peak utilization, connected users, and data volume.
3. **Financial Dashboard:** Identifies top and underperforming sites and cells, highlighting recommended actions for improving ROI.

With YUVO's Smart CapEx solution at their disposal, telecom operators can leverage cutting-edge technology to make smarter infrastructure decisions, ensuring high ROI while advancing their network capabilities. TR

Shalini Boodhooa, Alliance & Partnerships Manager, MTN

Empowering the Cloud: Shalini Boodhooa on Cybersecurity, Regulation, and Women in Africa's ICT

As Africa's digital landscape evolves, cloud services are spurring growth and innovation. Shalini Boodhooa, Alliance & Partnerships Manager at MTN, provides insight into cloud adoption, essential cybersecurity measures, and the effects of regulatory frameworks. She also addresses challenges women face in the ICT industry, such as gender bias and mentorship gaps, and assesses initiatives to support women in tech. Boodhooa highlights the crucial role of community and networking in enhancing support for women in the field.

How is the adoption of cloud services evolving in Africa, and what are the key cybersecurity measures necessary to protect data and ensure business continuity?

Adoption of Cloud Services: The adoption of cloud services in Africa is accelerating rapidly. Many African businesses are transitioning to cloud environments to leverage benefits such as cost efficiencies, scalability, and enhanced collaboration. For

instance, a recent survey indicated that about 45% of workloads in major African businesses are now in the public cloud. This trend is driven by the need for digital transformation and the ability to leapfrog traditional infrastructure limitations.

To protect data and ensure business continuity, organizations should implement several key cybersecurity measures:

- Data Encryption: Encrypting data both at rest and in transit to prevent unauthorized access.
- Multi-Factor Authentication (MFA): Implementing MFA to add an extra layer of security to user accounts.
- Incident Response Plan: Developing and regularly updating an incident response plan to quickly address and mitigate the impact of cyber incidents.
- Employee Training: Conducting regular cybersecurity awareness training for employees to recognize and avoid potential threats as they are typically the ones handling sensitive company information.

How are current regulatory frameworks in Africa supporting or hindering the growth of cloud services and cybersecurity?

Supporting Growth: Several African countries are making strides in establishing regulatory frameworks that support cloud services and cybersecurity. For example, the African Union's Convention on Cyber Security and Personal Data Protection (Malabo Convention) aims to create a unified legal framework for data protection across the continent. Additionally, countries like Ghana and Mauritius have implemented comprehensive cybersecurity regulatory frameworks to align with global standards.

Hindering Growth: However, the regulatory landscape can also pose challenges. The diversity in regulations across different countries can create complexities for businesses operating in multiple regions. The lack of harmonization in data protection laws can lead to increased compliance costs and operational inefficiencies.

What specific challenges do women face in the ICT industry, including issues like gender bias and lack of mentorship, and how can these be overcome?

The tech industry, especially the Telecoms industry, can be daunting as it has heavily been perceived as a male-dominated industry. Women in the ICT industry often face gender bias and stereotyping, which can hinder their career progression. This includes assumptions about their technical abilities and leadership potential.

The lack of mentorship and role models is another significant challenge. Women often struggle to find mentors who can guide them through their career paths and provide support.

Overcoming Challenges:

- Mentorship Programs: Establishing mentorship programs that connect women with experienced professionals in the industry. Inspiring Fifty Africa or Africacom offers great programs that women in the tech industry can leverage on.
- Diversity & Inclusivity | Support Networks: Creating support networks and communities where women can share experiences and resources prioritizing diversity and inclusion initiatives to create a more equitable workplace culture.

What initiatives and programs are currently in place to encourage more women to pursue careers in ICT, and how effective have they been?

- Most OEMs and vendors like Microsoft, Google or AWS are embracing D&I initiatives to help close the gender gap as well and offer various free training on Cloud and Cybersecurity like https://learn.microsoft.com/ or https://www.cloudskillsboost.google/
- International Girls in ICT Day: An annual event that inspires and encourages girls to pursue careers in ICT through mentorship and hands-on activities.
- African Girls Can Code Initiative (AGCCI): A program that trains young women in digital literacy, programming, and work-readiness skills.
- Coding Workshops and Tech Camps: Various organizations offer coding workshops and tech camps specifically designed for girls to develop their technical skills.

These initiatives have been effective in raising awareness and providing opportunities for young women to enter the tech industry. However, continuous efforts are needed to sustain and expand these programs to reach more women across the African continent.

How important is community and networking in supporting women in tech, and what can be done to strengthen these networks?

Community and networking are crucial for supporting women in tech. They provide a sense of belonging, access to resources, and opportunities for mentorship and collaboration. Networking helps women build professional relationships, gain visibility, and find career opportunities.

Strengthening Networks:

- Professional Associations: Encouraging participation in professional associations and women-in-tech groups like Women in Tech Global.
- Mentorship Programs: Expanding mentorship programs to include more women mentors and mentees as part of HR imperatives for organizations
- Networking Events: Organizing regular networking events, both online and offline, to facilitate connections and knowledge sharing. TR

GSMA Appoints New Director General

Following the conclusion of a rigorous selection process, the GSMA Board has announced Mats Granryd's successor. Effective from April 1, 2025, Vivek Badrinath will become the new Director General and Member of the GSMA Board.

José María Álvarez-Pallete López, Chairman of the GSMA, said, "During our selection process, it was clear that Vivek's deep understanding of the industry and its potential make him the ideal individual to lead the GSMA into the next phase of its evolution. I am confident that Vivek will work together with the Board and our excellent GSMA leadership team to drive change and innovation, creating value for both the industry and society."

Following MWC Barcelona 2025, Granryd will step down as planned and take on a new role—Special Advisor to the Board—for the remainder of 2025.

GSMA's New Leadership

"I'm proud and honored to be joining the GSMA at such an exciting time in the industry's development," said Badrinath. "I look forward to working with the GSMA Board, its members, and the leadership team to extend and amplify the positive impact of the mobile ecosystem for people, industry and society globally."

Badrinath's extensive expertise in technology and management has led him to hold significant leadership roles, most recently at Vantage Towers AG where he was the Chief Executive Officer and Chairman of the Management Board.

In 2016, Badrinath was appointed Regional CEO of Africa, Middle East and Asia Pacific at Vodafone, and became a member of Vodafone's Executive Committee.

Prior to his time at Vodafone, Badrinath held key positions at Orange, culminating in his appointment as Deputy CEO, Innovation, Marketing, and Technology, where he played a crucial part in driving digital transformation, expanding market reach, and improving customer experience.

His leadership style and accomplishments have made him a respected figure in the global technology community.

Closing the Digital Gap: Kenya's Ambitious ICT Plan and Regional Integration

Kenya's ICT Authority has launched a US$2.4 billion initiative to tackle digital inequality, modernize business processes, and enhance the nation's digital infrastructure. This follows the announcement of another regional effort—the Eastern Africa Regional Digital Integration Project (EARDIP).

The ICT Authority's 2024-2027 Strategy Plan outlines nationwide projects, including digital literacy programs, expanded broadband infrastructure, and e-government services, aiming to close connectivity gaps and create a more equitable digital future.

Kenya's Minister for ICT, Dr. Margaret Ndung'u, emphasized the government's commitment to expanding the country's fiber network, adding 100,000 kilometers of fiber optic cable, 25,000 public Wi-Fi hotspots, and 1,450 Digital Village Smart Hubs.

Meanwhile, EARDIP, spearheaded by the East African Community (EAC) and the Intergovernmental Authority on Development (IGAD), seeks to create a unified digital network across the region. It aims to harmonize digital policies, enhance cross-border trade, and develop a regional cybersecurity framework to bolster cooperation and secure digital infrastructure.

Cameroon's Telecom Regulator Warns of Declining Service Quality, Urges Network Reforms

The Telecommunications Regulatory Agency (ART) of Cameroon has issued a public alert about the deteriorating quality of mobile communication services from major operators such as MTN Cameroon, ORANGE Cameroon, and CAMTEL across their 2G, 3G, and 4G networks.

Recent inspections by ART have identified key factors behind this decline, including inadequate power supply within the operators' networks and fuel shortages at technical sites, particularly in urban centers. Additionally, frequent disruptions to the national fiber optic network have worsened the situation.

In response, MTN Cameroon and ORANGE Cameroon have deployed technical teams and are coordinating with CAMTEL to quickly restore normal network performance. The government has also instructed ART to conduct an operational audit of CAMTEL's national fiber optic infrastructure, with preliminary findings revealing ongoing degradation. This has led to a call for a reassessment of maintenance protocols.

Public authorities are now prioritizing not only improving the maintenance of the national network but also rehabilitating and expanding it for better performance. ART has committed to closely overseeing operators' investment plans aimed at extending network coverage and enhancing service quality for consumers across Cameroon.

NCC Launches Device Management System to Tighten Mobile Security in Nigeria

The Nigerian Communications Commission (NCC) has introduced the Device Management System (NCC-DMS), a Central Equipment Identity Register (CEIR) aimed at regulating mobile devices on Nigeria's networks.

Under the "Type Approval Business Rule 2024," all Mobile Network Operators (MNOs) are required to connect to this system. The NCC-DMS will centralize device tracking, enhance security, and ensure compliance with regulatory standards.

The NCC-DMS will collect and synchronize the International Mobile Equipment Identity (IMEI) of all connected devices with global databases. Device suppliers must register type-approved devices, and MNOs must align their Equipment Identity Registers (EIRs) with the system.

A fee will be required for device registration on the NCC-DMS, separate from type approval charges, applicable to both suppliers and individual users.

Transforming DRC's Tech Landscape: The Arrival of New Data Centers

The Democratic Republic of Congo (DRC), one of Africa's most resource-rich nations, has long been viewed as a country with vast untapped potential. However, despite its wealth in natural resources, the DRC has historically lagged in technological infrastructure. This narrative is beginning to change with the arrival of new data centers, marking a significant step towards transforming the country's tech landscape. These developments signal a critical shift in the DRC's digital economy, paving the way for enhanced connectivity, improved data management, and a powerful foundation for future technological advancements.

The Importance of Data Centers in the Digital Age

Data centers are the backbone of modern digital economies. They house critical computing resources that store, process, and distribute vast amounts of data essential for running applications, services, and platforms that power the digital world. In regions with advanced technological infrastructures, data centers play a vital role in supporting cloud services, big data analytics, and artificial intelligence, all of which are cornerstones of today's digital transformation.

For the DRC, the introduction of data centers is a game-changer. As the country embarks on its digital journey, these facilities will be instrumental in providing reliable, secure, and scalable data solutions. They will help local businesses and government agencies manage data more efficiently and securely, driving greater adoption of digital services and fostering an environment conducive to innovation.

Bridging the Connectivity Gap

One of the most pressing challenges in the DRC has been the lack of reliable and widespread internet

connectivity. According to recent statistics, internet penetration in the DRC is still below 20%, with many rural areas completely disconnected from the digital world. The arrival of new data centers offers a promising solution to this problem.

By establishing a local infrastructure that can handle and distribute data more effectively, these data centers will enhance the quality and reach of internet services across the country. This improvement in connectivity is expected to bridge the digital divide between urban and rural areas, allowing more Congolese citizens to access the internet and benefit from the opportunities it presents. Moreover, enhanced connectivity will support the growth of mobile and broadband services, which are critical for expanding digital access and participation in the global economy.

Driving Economic Growth and Job Creation

The establishment of data centers in the DRC is not just a technological upgrade; it is also a catalyst for economic growth. The construction and operation of these facilities require significant investments, which in turn create jobs and stimulate local economies. From the initial stages of construction to the ongoing need for skilled technicians and IT professionals, data centers will generate employment opportunities across various sectors.

Moreover, data centers will attract foreign investments, as international companies seek to establish a presence in the DRC to tap into the growing digital market. These investments will further boost the country's economy, creating a ripple effect that benefits other industries. The presence of data centers also positions the DRC as a potential hub for digital services in Central Africa, offering regional businesses a local alternative for their data needs.

Enhancing Data Sovereignty and Security

Data sovereignty and security are increasingly critical in the digital age. With the rise of cyber threats and the growing importance of data protection, countries worldwide are focusing on maintaining control over their data. For the DRC, having local data centers means that sensitive data can be stored and managed within the country's borders, reducing reliance on foreign servers and enhancing national security.

These data centers will also implement advanced security measures to protect against cyberattacks and data breaches, ensuring that Congolese businesses and government institutions can operate with greater confidence in the digital space. As a result, the DRC will be better equipped to safeguard its digital assets, protect personal information, and comply with international data protection standards.

Empowering Local Innovation and Entrepreneurship

The availability of reliable and scalable data infrastructure is crucial for fostering innovation and entrepreneurship. In the DRC, where the tech ecosystem is still in its nascent stages, data centers will provide the necessary support for startups and small businesses to thrive. These facilities will offer cloud services, data storage, and computing power that are essential for developing and deploying new digital products and services.

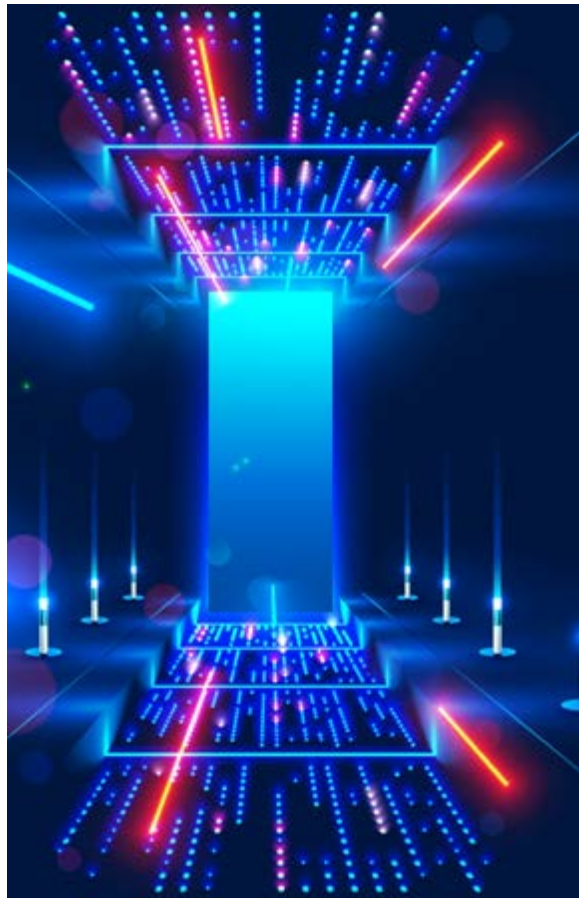
With access to these resources, local entrepreneurs can innovate more effectively, creating solutions tailored to the unique challenges and opportunities in the DRC. This empowerment of local talent is expected to drive the growth of the tech sector, leading to the development of homegrown innovations that can compete on the global stage.

Looking Ahead: A Digital Future for the DRC

The arrival of new data centers marks the beginning of a transformative journey for the DRC. As these facilities come online, they will lay the foundation for a more connected, secure, and innovative digital economy. The benefits of this transformation will extend far beyond the tech sector, touching every aspect of Congolese society.

In the coming years, the DRC's tech landscape will likely evolve rapidly, driven by the increased availability of data services and the growth of digital skills and entrepreneurship. The country's journey towards digitalization will be a testament to the power of technology to drive economic development and improve the quality of life for millions of people.

As the DRC embraces this digital future, the establishment of data centers will stand as a pivotal milestone, signaling the country's commitment to building a modern, inclusive, and prosperous digital economy. TR



Safaricom Ethiopia Grows Network Across 32 Cities

Safaricom Telecommunications Ethiopia PLC has expanded its network in the Chiro cluster, now covering 32 cities and 114 sites across Eastern and Western Hararghe.

CEO Wim Vanhelleputte led a cross-functional team to Chiro, where new retail shops were launched and meetings were held with the mayors of Kulubi, Chelenko, Karamille, and Hirna.

The expansion was celebrated with ribbon-cutting ceremonies in these towns, where local mayors and officials expressed strong support for the initiative.

The company's contributions to enhancing technology accessibility, job creation, and educational capacity were recognized with a Certificate of Acknowledgment from Chiro Mayor Mohammed Omar. This expansion is part of Safaricom Ethiopia's ongoing commitment to driving regional growth and advancing digital services in Ethiopia.

Vodacom Tanzania Achieves Incredible Growth, Fueled by M-PESA and Expanded Digital Offerings

Vodacom Tanzania Plc has announced strong financial results for the fiscal year ending March 2024, with total revenues reaching TZS 1.3 trillion ($477.9 million), a 19.4% increase from the previous year. Profit after tax also rose by 19.9%, reaching TZS 53.4 billion ($19.8 million). This growth was largely driven by M-PESA, which saw a revenue increase of 27.8%, totaling TZS 456.3 billion ($167.7 million) and accounting for 36.3% of the company's overall service revenue.

M-PESA gained nearly 2 million new users over the year, bringing its total user base to 10.2 million and increasing its market share from 36.5% to 38.2%. The platform also saw a significant rise in transaction volume, with monthly transactions growing by 36% to exceed TZS 8 trillion ($2.9 billion).

Additionally, M-PESA's micro-loan and credit services experienced substantial growth. Digital micro-loan disbursements surged by over 65%, providing businesses and SMEs with short-term financing exceeding TZS 1 trillion ($367.6 million). M-Pawa and M-Godi users deposited more than TZS 400 billion ($147 million) in savings, and over 6 million customers benefited from the Songesha overdraft facility.

Vodacom remains committed to supporting Tanzania's agricultural sector through the M-Kulima platform, which connects over 3.2 million smallholder farmers to the agricultural value chain. This year, the platform paid more than TZS 16 billion ($5.9 million) to farmers, enhancing the digitization of farming communities and providing essential agricultural and market information via app and SMS.

These results highlight Vodacom Tanzania's ongoing dedication to advancing financial inclusion and promoting economic growth through its innovative digital services.

Ethio Telecom Sets Ambitious Targets for 2024 Amid Increasing Competition

Ethio Telecom, Ethiopia's state-owned telecom provider, is aiming for a significant revenue increase this financial year, with CEO Frehiwot Tamru announcing a bold target of a 75% growth. The company is projecting sales of 163.7 billion birr ($1.44 billion) by July 2024 and aims to expand its customer base by 6%, reaching 83 million users.

To achieve these goals, Ethio Telecom plans to enhance its existing services while launching new and improved digital and international offerings. Additionally, they're expanding their enterprise solutions and enriching their mobile money platform, telebirr, to improve accessibility.
The company is relying on these strategies to fuel its growth, anticipating a 43% increase in foreign exchange earnings, with projections to reach $282.8 million.

However, competition is intensifying. Safaricom, a major player from Kenya, is already operating in Ethiopia, and the Ethiopian government is considering issuing a third telecom license, especially as it floats its currency to attract foreign investment.

Looking ahead, Ethio Telecom is also preparing for its own listing on the Ethiopian Securities Exchange, expected to go live by the end of 2024. However, it is likely that shares will be limited to local investors.

MTN Plans to Withdraw from Two West African Markets

MTN Group has decided to exit its operations in Guinea-Bissau and Guinea-Conakry, citing these West African markets as too risky and unsustainable for growth. The decision aligns with MTN's risk management framework, which assesses the viability of markets based on their ability to fund growth independently.

MTN's CEO, Ralph Mupita, explained that despite potential revenue increases, these markets are not considered suitable for MTN's portfolio. Consequently, the company has engaged with third parties interested in acquiring these operations.

Telecel Group has shown interest and has already acquired MTN's Guinea-Bissau operations. Both Guinea businesses were in net liability positions, which Telecel will assume. The sale of Guinea-Conakry is anticipated soon, although no specific timeline has been set.

MTN's strategic focus remains on markets where it can achieve scale and growth, such as Nigeria and Ghana, while continuing to monitor other markets for potential divestment.

mHealth in Africa: Revolutionizing Healthcare Through Mobile Technology

In recent years, Africa's healthcare landscape has experienced a significant transformation, largely driven by the rapid adoption of mobile technology. This evolution, known as mHealth (mobile health), leverages the widespread use of mobile phones to deliver healthcare services, enhance patient outcomes, and address the persistent challenges faced by healthcare systems across the continent. As mobile penetration continues to rise, mHealth is poised to revolutionize healthcare in Africa, bringing essential medical care to even the most remote and underserved communities.

The Surge of Mobile Technology in Africa

Africa, home to over 1.4 billion people, has a substantial portion of its population residing in rural and remote areas where access to healthcare facilities is often scarce. However, the continent has witnessed a remarkable surge in mobile phone usage over the past decade. According to the GSMA, mobile penetration in Sub-Saharan Africa reached 50% in 2022, with over 615 million unique mobile subscribers. This growth has created a unique opportunity to bridge the healthcare gap by utilizing mobile technology to deliver medical services and vital information directly to individuals.

Understanding mHealth

mHealth refers to the use of mobile devices, such as smartphones and tablets, to support various healthcare practices. It encompasses a broad range of applications, including remote patient monitoring, telemedicine, health information dissemination, appointment scheduling, and data collection for research and public health purposes.

mHealth also includes the use of mobile apps to track and manage chronic diseases, remind patients to take medications, and provide health education and awareness campaigns.

Tackling Healthcare Challenges in Africa

Africa's healthcare systems are plagued by numerous challenges, including inadequate infrastructure, a shortage of healthcare professionals, and limited access to essential medicines and medical supplies. These issues are further exacerbated by the continent's high burden of communicable and non-communicable diseases. mHealth offers innovative solutions to these challenges by providing a cost-effective and scalable method to deliver healthcare services.

Expanding Access to Healthcare: One of the most significant advantages of mHealth is its ability to extend healthcare services to remote and underserved areas. Through mobile technology, patients can consult healthcare providers via telemedicine platforms, receive medical advice, and even obtain prescriptions without the need to travel long distances to clinics or hospitals. This capability is especially valuable in regions where healthcare facilities are sparse and difficult to access.

Enhancing Disease Surveillance and Control: mHealth has proven to be an invaluable tool in disease surveillance and control efforts across Africa. Mobile technology enables real-time data collection and reporting, which is critical for tracking disease outbreaks and responding swiftly. For instance, during the Ebola outbreak in West Africa, mobile phones were used to collect data on new cases, monitor patients, and communicate crucial information to the public and healthcare workers. This approach played a pivotal role in containing the spread of the virus and saving lives.

Improving Maternal and Child Health: Maternal and child health is another area where mHealth has made a profound impact. Mobile technology is being used to provide prenatal and postnatal care to women in rural areas, where access to healthcare services is often limited. Through SMS-based programs, expectant mothers receive regular reminders about antenatal visits, vaccination schedules, and essential health tips. These initiatives have contributed to reducing maternal and infant mortality rates in several African countries.

Supporting Chronic Disease

Management: Chronic diseases such as diabetes, hypertension, and HIV/AIDS are increasingly prevalent in Africa, placing a significant burden on healthcare systems. mHealth interventions are aiding patients in managing these conditions more effectively by providing tools for self-monitoring, medication adherence, and lifestyle modifications. For example, mobile apps can remind patients to take their medications, track their blood pressure, and record blood sugar levels, enabling healthcare providers to offer personalized care and support.

Challenges and Opportunities

While mHealth presents numerous opportunities to improve healthcare in Africa, it is not without its challenges. A major obstacle is the digital divide, with some rural areas still lacking reliable mobile network coverage and access to affordable mobile devices. Additionally, concerns related to data privacy and security must be addressed to protect sensitive health information.

Despite these challenges, the potential of mHealth to transform healthcare in Africa is immense. Governments, healthcare providers, and technology companies are increasingly recognizing the value of mHealth and are investing in the development and implementation of mobile health solutions. Public-private partnerships are also playing a crucial role in scaling up mHealth initiatives and ensuring their sustainability.

The Future of mHealth in Africa

As Africa continues to embrace mobile technology, the future of mHealth appears promising. With ongoing advancements in mobile networks, including the rollout of 4G and 5G, the reach and effectiveness of mHealth solutions are expected to expand even further. Moreover, the integration of artificial intelligence (AI) and machine learning into mHealth applications holds the potential to enhance diagnostic accuracy, predict disease outbreaks, and personalize patient care.

In conclusion, mHealth is fundamentally transforming healthcare in Africa by breaking down barriers to access, improving disease surveillance, and supporting chronic disease management. While challenges remain, the opportunities for mHealth to revolutionize healthcare on the continent are vast. As mobile technology continues to evolve, mHealth will play an increasingly vital role in achieving universal health coverage and enhancing the health and well-being of millions of Africans. TR

How Ethiopia's Telecom Privatization is Shaping Competition and Consumer Choices

Ethiopia is entering a new chapter in its telecommunications industry, moving away from a state-controlled monopoly to embrace a liberalized, competitive market. For years, Ethio Telecom, the state-owned operator, dominated the landscape, limiting consumer choices and stagnating industry growth. The government's decision to privatize the sector has unlocked unprecedented opportunities for competition, transforming consumer experiences and significantly broadening the range of telecom services available. This shift is not only reshaping the industry but also fueling innovation, driving down prices, and improving service quality across the board.

The Rise of Competition in Ethiopia's Telecom Market

The Ethiopian government embarked on its journey toward telecom privatization in 2019, aiming to attract foreign investment and modernize the sector. Historically, Ethio Telecom was the sole provider, with little incentive to innovate or improve service quality. By opening the market to competition, Ethiopia has set the stage for a transformative shift in how telecom services are delivered and consumed.

A pivotal moment in this transformation came with the entry of Safaricom Telecommunications Ethiopia in October 2022. Safaricom, a Kenyan telecom giant, leads a consortium that includes global players like Vodafone and Sumitomo Corporation. This move ended Ethio Telecom's decades-long monopoly and introduced much-needed competition. Safaricom's arrival marked a turning point, forcing Ethio Telecom to reevaluate its strategies, improve offerings, and lower prices to remain competitive in a newly dynamic market.

As competition intensifies, Ethiopia's telecom sector is being energized like never before. The introduction of a second operator has led to better pricing models, more innovative services, and heightened consumer expectations, all of which are pushing the industry forward.

Expanded Consumer Choices and Affordable Services

One of the most immediate and visible impacts of privatization is the dramatic expansion of consumer choices. Under Ethio Telecom's monopoly, Ethiopian consumers had few options when it came to telecom services. Prices were high, internet speeds were slow, and network coverage was often inadequate. Now, with multiple operators vying for market share, consumers can choose from a variety of service packages tailored to different needs and budgets.

Safaricom's market entry has been instrumental in shaking up pricing models, particularly in mobile and internet services. To retain customers, Ethio Telecom has had to lower its prices, making services more affordable for a larger segment of the population. Today, Ethiopians can choose from a range of competitively priced options, including budget-friendly plans with basic services and premium packages offering faster internet speeds and wider coverage.

Moreover, this new competitive landscape has driven innovation. Both Safaricom and Ethio Telecom have expanded their mobile money services, allowing consumers greater flexibility in managing their finances. Safaricom's M-PESA, renowned for its success in Kenya, is expected to play a transformative role in Ethiopia, where mobile financial services can greatly enhance financial inclusion, particularly for the unbanked population. Ethio Telecom has responded with its own mobile money platform, Telebirr, creating more options and convenience for consumers.

Improved Connectivity and Infrastructure Expansion

Privatization is not only affecting pricing and service offerings; it is also driving significant improvements in network coverage and infrastructure development. Historically, Ethio Telecom struggled to provide adequate coverage in rural areas due to limited resources and a lack of competition. Many parts of the country remained underserved, with slow internet speeds and unreliable mobile networks.

The arrival of Safaricom has introduced new infrastructure investments aimed at expanding coverage across the country. Safaricom's rollout of 4G and 5G networks, along with the construction of new cell towers, is expected to dramatically improve connectivity in urban and rural areas alike. Ethio Telecom, in response, has accelerated its own network expansion efforts, aiming to improve service delivery in regions that previously saw little investment. As a result, more Ethiopians are gaining access to reliable and faster internet services, bridging the digital divide and fostering economic development.

Improved connectivity is essential not just for individuals but also for businesses and public services. Fast, reliable internet access can spur the growth of e-commerce, support educational and healthcare initiatives, and drive overall economic growth by connecting remote communities to the global economy.

Technology and Innovation: A New Frontier

As competition takes hold, Ethiopia's telecom sector is becoming a hub for technological advancement and innovation. The introduction of modern telecom technologies, such as 4G and 5G, is transforming the digital landscape, offering faster internet speeds and more reliable connections. This is enabling the rise of new digital services and industries that were previously unattainable due to Ethiopia's limited telecom infrastructure.

One of the most notable innovations brought by Safaricom is its mobile money platform, M-PESA. Widely successful in Kenya, M-PESA allows users to send and receive money, pay bills, and access financial services without needing a traditional bank account. In Ethiopia, where a large portion of the population remains unbanked, mobile money services like M-PESA and Telebirr are providing essential financial tools that are reshaping how people manage money.

Beyond mobile money, the growing availability of smartphones and mobile devices is further enhancing consumer experiences. Telecom operators are increasingly offering affordable smartphone packages, often with installment plans, to make technology accessible to more people. This increase in mobile device ownership is fueling demand for digital content, services, and applications, which in turn is driving innovation across industries.

A Consumer-Focused Future

Ethiopia's telecom privatization is ushering in a more consumer-centric market, where competition and innovation are improving the quality of services and driving down costs. The days of limited choices and high prices are rapidly fading as more players enter the market, and the introduction of next-generation technologies such as 5G is expected to further enhance the digital experience for consumers.

With the ongoing expansion of network coverage, Ethiopia's rural communities—once underserved by the monopoly—are now benefiting from increased access to telecom services. The competition between Ethio Telecom and Safaricom is a win for consumers, resulting in better services, more affordable options, and faster adoption of cutting-edge technologies. As Ethiopia continues to embrace liberalization, the telecom sector is poised for continued growth and transformation, with consumers at the heart of this new era.

In conclusion, Ethiopia's decision to privatize its telecom sector has already yielded substantial benefits for consumers. With increased competition, expanded coverage, and a focus on innovation, the telecom landscape is evolving rapidly, providing Ethiopians with more choices and improved services. The future of Ethiopia's telecom industry looks promising, as it continues to play a pivotal role in driving the country's economic development and digital transformation. TR

Maximizing Shared Towers: Benefits and Cost-Cutting Strategies for Telecom Operators

In the ever-evolving telecommunications industry, the push for broader network coverage, higher capacity, and faster service deployment is relentless. As telecom operators strive to meet these demands, they face the dual challenges of escalating costs and the need for rapid network expansion. One increasingly popular solution is tower sharing—a strategy that involves multiple telecom companies utilizing the same physical infrastructure to house their network equipment. This approach not only significantly reduces costs but also enhances service quality and contributes to sustainable infrastructure development. This detailed exploration delves into the manifold benefits of maximizing shared towers and outlines effective cost-cutting strategies for operators.

The Rise of Tower Sharing

Tower sharing, or infrastructure sharing, has become a global trend as telecom operators seek to optimize their operations. The concept is straightforward: instead of each operator building and maintaining its own towers, they share existing structures. This collaboration can take several forms, including passive sharing, where only the physical infrastructure is shared, and active sharing, where operators also share electronic components like antennas and base stations. The model is particularly appealing in markets where competition is intense, and profit margins are under pressure.

The rapid adoption of 5G and the ongoing expansion of 4G networks have further accelerated the shift towards tower sharing. As these advanced networks require a higher density of towers to function effectively, the financial and logistical burden on operators has increased. In this context, tower sharing offers a pragmatic solution that allows operators to meet their expansion goals without shouldering the full cost of infrastructure development.

Key Benefits of Tower Sharing

1.Significant Cost Savings

The most compelling benefit of tower sharing is the substantial reduction in capital expenditures (CAPEX) and operational expenditures (OPEX). Constructing a new tower is an expensive undertaking, with costs encompassing land acquisition, construction, equipment installation, and ongoing maintenance. By sharing these costs among multiple operators, each party can achieve significant savings. In addition, shared maintenance responsibilities further reduce operational expenses, making this model particularly attractive for smaller operators or those operating in cost-sensitive markets.

The cost savings extend beyond initial construction. Shared towers also mean shared energy costs, which can be a major expense in regions where reliable electricity is scarce, and operators must rely on diesel generators. By pooling resources, operators can reduce these ongoing costs, improving their overall profitability.

2.Accelerated Network Deployment

Speed is critical in the telecom industry, where the ability to quickly deploy new services can be a key competitive advantage. Tower sharing allows operators to bypass the time-consuming process of building new towers, enabling them to rapidly expand their network coverage and roll out new services. This is especially important in the race to deploy 5G, where the need for a dense network of small cells and macro towers is crucial to delivering the promised speeds and capacity.

By leveraging existing infrastructure, operators can significantly reduce the time to market for new services. This not only improves their competitive positioning but also enhances customer satisfaction by providing faster, more reliable coverage.

3.Enhanced Environmental Sustainability

The telecom industry is under increasing scrutiny to reduce its environmental impact, and tower sharing offers a clear path to more sustainable operations. Fewer towers mean less land disruption, reduced energy consumption, and lower emissions. In regions where environmental regulations are tightening, the ability to share towers can help operators meet their sustainability targets and avoid potential fines or restrictions.

Additionally, the reduction in the number of towers can lead to less visual pollution, which is often a concern in urban and rural areas alike. This can improve public perception of telecom companies and reduce opposition to new tower installations.

4.Improved Service Quality and Coverage

Shared towers often lead to better network coverage and service quality. With multiple operators using the same infrastructure, there is typically a higher density of towers, which can reduce dead zones and improve signal strength. Additionally, the collaborative maintenance of these towers ensures they remain in good condition, reducing the likelihood of service disruptions.

In areas where coverage is sparse, tower sharing can be particularly beneficial. By pooling their resources, operators can extend coverage to remote or underserved regions, improving access to mobile services and contributing to digital inclusion.

5.Regulatory Compliance and Market Expansion

In many regions, telecom regulators are actively encouraging or mandating tower sharing to improve network coverage and reduce the environmental impact of infrastructure development. By participating in tower sharing, operators can more easily comply with these regulations, avoiding potential penalties and gaining faster approval for network expansions.

Moreover, tower sharing can facilitate market entry for new operators by lowering the barrier to entry. Without the need to invest heavily in building their own infrastructure, new entrants can focus on customer acquisition and service differentiation, fostering greater competition in the market.

Effective Cost-Cutting Strategies in Tower Sharing

While the benefits of tower sharing are evident, realizing these advantages requires careful planning and strategic execution. Below are several key strategies that telecom operators can employ to maximize cost savings and operational efficiency through tower sharing.

1.Crafting Equitable Sharing Agreements

A well-structured sharing agreement is the foundation of a successful tower-sharing initiative. These agreements should clearly define the terms of cost-

sharing, maintenance responsibilities, and dispute resolution mechanisms. Transparent and equitable agreements help prevent conflicts and ensure that all parties benefit fairly from the shared infrastructure.

Operators should also consider the long-term implications of these agreements, including provisions for future upgrades or expansion. By anticipating potential changes and including flexible terms, operators can avoid costly renegotiations or disputes down the line.

2.Strategic Placement and Equipment Optimization
The physical placement of equipment on shared towers is critical to maximizing efficiency. Operators should collaborate to optimize the placement of antennas and other equipment to minimize interference and maximize coverage. Advanced planning and coordination can lead to more efficient use of tower space, reducing the need for future modifications or expansions.

Additionally, operators should invest in technology that allows for more efficient use of shared infrastructure, such as multi-band antennas or software-defined networking (SDN) solutions. These technologies can improve network performance while reducing the physical footprint of equipment on shared towers.

3.Investing in Future-Proof Infrastructure
As telecom technology continues to evolve, it is essential that shared towers are equipped to handle future demands. Operators should invest in towers that are capable of supporting new technologies, such as 5G, as well as additional frequency bands and increased data traffic. Future-proofing infrastructure not only ensures long-term cost savings but also allows operators to quickly adapt to market changes and technological advancements.

This may involve upgrading existing towers or selecting new tower locations that are strategically positioned to support future network expansions. By thinking ahead, operators can avoid the high costs associated with retrofitting or replacing outdated infrastructure.

4.Collaborative Maintenance and Upgrades
Ongoing maintenance and upgrades are necessary to keep shared towers in optimal condition. By collaborating on these tasks, operators can share the costs and responsibilities, ensuring that towers are consistently well-maintained. Jointly funded maintenance programs can lead to higher quality upkeep, reducing the risk of service disruptions and prolonging the life of the infrastructure.

Operators should also consider establishing joint committees or working groups to oversee maintenance and upgrades, ensuring that all parties are aligned on priorities and standards. This collaborative approach can improve efficiency and reduce the administrative burden on individual operators.

5.Engaging Neutral Host Providers
In some cases, operators may choose to work with neutral host providers—third-party companies that build, maintain, and lease towers to multiple operators. This model can further reduce costs by outsourcing the management of the towers, allowing operators to focus on their core business of delivering telecom services. Neutral host providers can also bring specialized expertise and economies of scale to the table, further enhancing the cost-effectiveness of tower sharing.

Operators should carefully evaluate potential neutral host partners, considering factors such as their track record, financial stability, and the quality of their infrastructure. By selecting the right partner, operators can ensure that they receive high-quality service at a competitive price.

The Future of Tower Sharing

As the telecom industry continues to evolve, tower sharing will likely become even more critical. The rollout of 5G networks in particular will require a dense network of towers to provide the necessary coverage and capacity. By maximizing the use of shared towers, operators can meet these demands while keeping costs under control.

Furthermore, the increasing emphasis on environmental sustainability and digital inclusion will continue to drive the adoption of tower sharing. As consumers demand better coverage and more reliable services, operators who embrace tower sharing will be better positioned to meet these expectations and succeed in a competitive market.

Maximizing shared towers is not just a cost-saving measure; it is a strategic approach that delivers a wide range of benefits to telecom operators. From reducing expenses and accelerating network rollouts to improving service quality and supporting environmental sustainability, tower sharing is a win-win solution for operators and consumers alike. As the telecom landscape continues to evolve, those who fully leverage tower sharing will be well-positioned to lead in this dynamic and fast-paced industry. TR

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Navigating DPI: Comparing Commercial and Open-Source Solutions for IP Network Security

In today's digital world, protecting IP networks is critical for all organizations. As cyberattacks grow more complex, advanced security measures are necessary to monitor, detect, and prevent malicious activity. One such measure is Deep Packet Inspection (DPI), a tool that examines the content of data packets as they move through a network. DPI enables organizations to identify protocols, detect threats, and enforce security policies in real time.

Organizations looking to adopt DPI must choose between commercial and open-source solutions, each offering distinct benefits and drawbacks. This article compares both options, helping you select the best approach for securing your network.

The Importance of DPI in Network Security

DPI operates at a deeper layer of the network stack compared to traditional security tools. While basic firewalls inspect only packet headers, DPI analyzes the full packet, providing detailed insights into traffic. This visibility allows organizations to identify applications, block malicious data, and enforce policies that prevent data breaches.

With the increasing need for network security, organizations have a wide array of DPI solutions to choose from. Understanding the differences between commercial and open-source options is key to selecting the right tool for your business.

Commercial DPI Solutions: Strengths and Weaknesses

Commercial DPI solutions, provided by established security vendors, are commonly used by enterprises. Key benefits include:

1. **Advanced Features:** Commercial solutions come equipped with features like real-time threat detection, traffic management, encryption, and detailed analytics. Vendors frequently update these systems to combat new threats.

2. **Vendor Support:** One major advantage of commercial DPI is dedicated customer support. Companies benefit from 24/7 assistance and guaranteed service-level agreements (SLAs), reducing downtime during security incidents.

3. **Compliance:** Commercial solutions often meet regulatory standards required by industries like healthcare and finance. These certifications ensure organizations meet data protection laws.

4. **Easy Integration:** Commercial DPI integrates easily with other security infrastructure, such as firewalls, IDS/IPS, and security event management tools.

However, commercial solutions come with challenges:

- **High Costs:** Licensing, support, and maintenance fees can make commercial DPI expensive, especially for smaller organizations.

- **Limited Flexibility:** Customization is often restricted to the vendor's offerings. Organizations with specialized needs may find this limiting.

Open-Source DPI Solutions: Pros and Cons

Open-source DPI solutions are an attractive option for organizations seeking cost-effective and customizable security tools. Major benefits include:

1. **Cost Savings:** Open-source DPI is free to use, making it a budget-friendly option. Costs are typically limited to implementation and upkeep.

2. **Customizability:** With full access to source code, open-source solutions offer greater flexibility. Organizations can tailor the tool to fit their specific security requirements and modify features as needed.

3. **Community Support:** Open-source DPI benefits from active user communities. Users often collaborate to provide troubleshooting tips, share patches, and improve the software.

4. **Transparency:** The open-source nature allows organizations to scrutinize the code, offering full transparency and eliminating concerns about hidden vulnerabilities.

Despite its appeal, open-source DPI has limitations:

- **Limited Support:** Unlike commercial options, open-source software lacks formal vendor support. When issues arise, organizations must rely on community forums or in-house expertise, which can delay resolutions.

- **Complex Implementation:** Deploying and managing open-source DPI requires advanced technical knowledge. Without an experienced IT team, organizations may struggle with setup and ongoing maintenance.

- **Fewer Features:** While open-source DPI can provide solid security, it may lack advanced functionalities like real-time updates or sophisticated analytics. This could leave organizations vulnerable to emerging threats that are addressed more quickly by commercial products.

Making the Right Choice for Your Network

When deciding between commercial and open-source DPI, consider your organization's specific needs. Larger enterprises, or those operating in heavily regulated industries, might benefit from the reliable support and compliance assurances that commercial solutions offer. However, smaller organizations with tighter budgets and technical expertise may find open-source DPI more cost-effective and flexible.

A hybrid approach is also an option. Some organizations use open-source DPI for core functions, supplementing it with commercial tools for added support or specific features.

Ultimately, both commercial and open-source DPI solutions provide valuable tools for securing IP networks. The right choice depends on your organization's budget, security requirements, and available resources. By carefully assessing these factors, you can implement a DPI solution that enhances your network security and keeps your data safe from emerging threats. TR

Huawei and Vodacom Tanzania Launched DigiTruck to Provide Digital Skills in Tanzania

The launch of DigiTruck by Huawei and Vodacom will complement the government of Tanzania's vision of fostering innovation, inclusion, and sustainable development through digital technologies.

The launch was officiated by Hon. Doto Mashaka Biteko, Deputy Prime Minister of the United Republic of Tanzania, who was joined by Hon. Jerry William Silaa, Minister of Information Communication and Information Technology; H.E. Amb. Chen Mingjian, Ambassador of the People's Republic of China to Tanzania, and other distinguished guests from both the public and private sectors.

"I am honored to be here representing the President of the United Republic of Tanzania on this monumental occasion. I congratulate Huawei and Vodacom for this profound initiative that will greatly complement the government's digitization efforts. Data clearly indicates that as a nation, we have work to do in bridging the digital divide and improving digital literacy levels. It is evident that both the government and private sector players have to come together to address this challenge. Ours is a big country, therefore I invite Huawei and its partners to consider adding more DigiTrucks to reach more people and expedite the digital revolution in Tanzania," said Hon. Doto Mashaka Biteko, Deputy Prime Minister and Minister of Energy in Tanzania.

The Hon. Jerry William Silaa, Minister of Information Communication and Information Technology, reiterated the urgent need for digital and financial literacy in Tanzania to allow the nation to catch up with the ongoing digital revolution.

"The Government of the United Republic of Tanzania has placed significant emphasis on the use of ICT, including digital skills, as the foundation for the nation's development. We believe that the future of Tanzania lies in the hands of our youth, and providing them with the necessary digital skills is our top priority. In line with this, the government has initiated various programs, including policy interventions such as the 5 years National Digital Economy Strategy of 2024, aimed at enhancing digital skills across the country. The launch of this DigiTruck project, funded by Huawei and Vodacom, will help boost our national digital capacity and enable Tanzania to rise in global rankings," said Hon. Silaa.

The Tanzania DigiTruck program is designed to extend digital skills training to Tanzania's remote regions, especially youth and women. The initiative is part of Huawei's commitment to digital inclusion through the TECH4ALL program, which aims to drive equity and quality in education to benefit Tanzania's remote communities and underserved groups.

"Huawei and Vodacom's DigiTruck Project is not only a key initiative to continuously deepen the friendship and trust between the peoples of the two countries but is also a practical cooperation of promoting digital inclusion and sustainable development cooperation in the digital technologies domain, to realize the vision of Tanzania's digital transformation," said H.E. Amb. Chen Mingjian, Ambassador of the People's Republic of China to Tanzania.

Nokia and iSAT Africa Partner to Boost Rural Connectivity in Liberia

Nokia announced a strategic partnership with iSAT Africa to enhance rural connectivity in Liberia, aiming to bridge the digital divide and bring reliable and affordable network access to underserved communities. This deployment will span over three years and cover approximately 200 sites across rural areas in Liberia.

The Nokia Rural Connect solution includes Nokia's industry-leading AirScale radio portfolio, featuring Massive MIMO radios, remote radio heads, and base stations. iSAT Africa will also benefit from Nokia's MantaRay Network Management solutions which will deliver a unified, automated view of the network, enhancing both monitoring and management capabilities, addressing critical challenges such as limited coverage and the wide digital divide in rural regions. By extending network coverage beyond major cities, this partnership aims to drive socio-economic development in Liberia's remote areas. The 200-site deployment will expand iSAT Africa's network reach, offering mobile network operators a cutting-edge solution that is both cost-effective and highly efficient. This expansion will help rural communities access critical services, thus driving social and economic progress in the region.

ZTE and Orange Liberia Partner to Finalize Rural Network Expansion in Liberia

Orange Liberia, in collaboration with its strategic partner ZTE Corporation, a global leading provider of integrated information and communication technology solutions, has announced the successful completion of a project to build new communication sites, called RuralPilot EcoSites, across the country, significantly enhancing network coverage in rural areas.

The project, encompassing 128 communication sites, was completed in just three months. These sites employ low-power-consumption, wide-coverage wireless base station equipment supporting the 800MHz and 900MHz bands.

The network offers 2G voice services for users in remote areas and supports 4G data services. Each site integrates solar energy and smart lithium batteries, enhanced with PowerPilot AI energy-saving software, to achieve energy-efficient network construction. Additionally, transmission challenges are flexibly addressed through the adaptable use of microwave, satellite, and 4G relay technology.

This new infrastructure marks a significant improvement in communication services for Liberia's rural regions, providing high-quality network access to previously underserved areas. Over 580,000 subscribers in rural areas will benefit from enhanced digital, financial, and energy inclusion.

Jean Marius YAO, CEO of Orange Liberia, stated, "This project demonstrates our commitment to providing better communication services to the people of Liberia. We will continue to work with partners like ZTE to advance Liberia's telecommunications sector."

"The newly built communication sites will provide strong support for the economic and social development of Liberia's rural areas. Orange Liberia remains dedicated to offering convenient and high-quality communication services to its customers," added Jean Marius YAO.

Zhang Guanzhen, CEO, ZTE Orange MEA Account, expressed honor in their collaboration on this project. "This project marks the first implementation of our rural network solution with the Orange Group, representing a significant breakthrough in our collaboration," added Zhang Guanzhen. "Despite facing challenging conditions, including underdeveloped infrastructure and harsh climates, the delivery teams from both companies overcame numerous unforeseen obstacles to ensure the project's successful completion. This accomplishment stands as a key strategic milestone in the ongoing cooperation between Orange Group and ZTE Corporation."

The new rural network infrastructure promises to bolster Liberia's rural communities, facilitating enhanced economic and social integration. Orange Liberia and ZTE are committed to advancing the telecommunications landscape in Liberia further.

Ericsson Joins MSSA to Boost Mobile Coverage via Satellite

Ericsson has joined the Mobile Satellite Services Association (MSSA), an initiative aimed at enhancing Direct-to-Device (D2D) and IoT services via space-based networks. This membership connects a network of Non-Terrestrial Network (NTN) providers to broaden global mobile coverage.

Launched in February, the MSSA seeks to establish a global ecosystem utilizing L- and S-band spectrum specifically for mobile satellite services (MSS). Ericsson recognizes the growing interest in 5G NTNs, as mobile networks currently cover less than 40% of the Earth's land area and under 12% of the planet.

With 3GPP standards, 5G NTN can extend coverage via satellites, enabling standard 5G devices to remain connected while transitioning between covered and uncovered regions.

Freddie Södergren, head of strategy at Ericsson Business Area Networks, stated, "Through MSSA, we aim to promote ubiquitous connectivity by integrating terrestrial and space-based networks, enhancing global mobile coverage and reliability."

MSSA board chairman Mark Dankberg added, "We're excited to welcome Ericsson to our membership, which strengthens our collaborative efforts in developing technical standards and best practices to support the growing D2D ecosystem."

Adjustments in 5G UE Testing and OTA Priorities Due to mmWave Advancements

As the telecommunications industry embraces 5G technology, the inclusion of millimeter-wave (mmWave) frequencies has revolutionized how we think about mobile communication. Operating at frequencies between 24 GHz and 52 GHz, mmWave offers remarkable bandwidth and data speeds, but it also presents challenges, especially in terms of testing and over-the-air (OTA) evaluations for user equipment (UE). These advancements in mmWave are driving significant adjustments in testing methodologies and priorities, reshaping how manufacturers and network operators ensure reliable 5G performance.

The Role of mmWave in 5G Networks

mmWave is a key enabler of the high-speed, low-latency communication that 5G networks promise. It provides access to large portions of the radio spectrum that are largely unused in current mobile networks. This increased spectrum capacity allows for faster data transfer, making it a critical element in achieving the ultra-fast speeds expected from 5G.

However, despite its benefits, mmWave has its limitations, particularly in propagation. Signals in this frequency band tend to experience significant path loss, reduced range, and vulnerability to obstacles like buildings and trees. These challenges necessitate new testing strategies to ensure devices can handle real-world conditions and deliver on the promises of 5G performance.

Challenges in 5G UE Testing Due to mmWave

The introduction of mmWave frequencies has altered how manufacturers and regulators approach UE testing. Devices using mmWave have different behaviors compared to those operating in sub-6 GHz bands, prompting adjustments in several areas:

1. **Signal Propagation and Path Loss:** Due to higher propagation losses, mmWave signals struggle to penetrate buildings and can be easily obstructed by physical objects. In UE testing, this means that more rigorous evaluations of signal strength, range, and performance in various environments are essential. Testing needs to account for diverse conditions, including urban environments with dense infrastructure, as well as indoor settings.
2. **Antenna Design and Integration:** mmWave devices often rely on advanced antenna designs, including phased array antennas and beamforming technology, to compensate for signal attenuation. Unlike traditional mobile devices, mmWave equipment lacks physical antenna connectors, making conducted tests less relevant. Instead, testing must focus on radiated performance, shifting the emphasis toward OTA testing to evaluate the device's ability to transmit and receive signals effectively.
3. **Heat and Power Consumption:** Operating at higher frequencies tends to generate more heat and increases power consumption. UE testing now has to account for thermal performance and ensure that devices can handle prolonged use without overheating or significant battery drain. mmWave technology also places more demand on the battery due to higher processing requirements, so energy efficiency testing is becoming more critical.

Evolving OTA Testing Methods for mmWave

The specific challenges posed by mmWave in 5G have driven the need for enhanced OTA testing methodologies. Unlike lower-frequency 5G bands, which can still rely on some traditional testing methods, mmWave frequencies require more sophisticated approaches to evaluate UE performance accurately.

1. **Direct Far Field (DFF) Testing:** In traditional antenna testing, measurements are taken in the far field, where the distance between the transmitter and receiver allows for accurate assessment of radiation patterns. DFF testing is effective for smaller devices with limited radiating apertures, typically less than 5 cm. For mmWave devices, DFF remains a reliable method for testing signal transmission, though it requires advanced equipment to measure accurately at higher frequencies.
2. **Compact Antenna Test Ranges (CATRs):** When testing larger devices, such as smartphones or base stations, creating a far-field testing environment in a compact indoor setting can be challenging. CATRs offer a solution by simulating the far field in a controlled, compact space. CATRs use reflectors to create an ideal testing environment that replicates real-world conditions, enabling accurate measurements without requiring a large testing facility. This method is becoming increasingly popular for mmWave OTA testing due to its ability to simulate complex environments effectively.
3. **Multiple Input, Multiple Output (MIMO) Testing:** mmWave devices often employ MIMO technology, which allows multiple antennas to transmit and receive signals simultaneously, improving overall network capacity and efficiency. OTA testing for MIMO involves assessing how well the device manages multiple data streams under different conditions. This type of testing is essential for ensuring that 5G devices can handle high data rates while maintaining signal integrity.

New Priorities in mmWave Testing

As mmWave technology advances, the priorities in 5G UE and OTA testing have shifted to accommodate the unique characteristics of this frequency band. These priorities focus on ensuring the performance, reliability, and safety of mmWave-enabled devices.

1. **Beamforming Accuracy:** Beamforming is a technique that focuses signal transmission in specific directions rather than broadcasting signals in all directions. It's crucial for overcoming the challenges of mmWave's limited range. In OTA testing, evaluating beamforming accuracy is essential for ensuring that devices can establish and maintain strong connections even in challenging environments.
2. **Environmental Factors:** Since mmWave signals are more susceptible to interference from physical obstructions and weather conditions, environmental testing has become a top priority. Testing must simulate various scenarios, including heavy rain, high winds, and urban environments with high building density, to ensure that 5G devices maintain connectivity and performance in the real world.
3. **Thermal Performance:** With mmWave generating more heat, there is an increased emphasis on testing how devices handle temperature fluctuations. Prolonged use of mmWave connections can lead to overheating, impacting device performance and longevity. As a result, thermal management and heat dissipation have become key areas of focus during testing.

The rapid advancement of mmWave technology in 5G networks has forced significant adjustments in how UE testing and OTA evaluations are conducted. While mmWave enables unprecedented data speeds and network capacity, it also introduces unique challenges, including signal propagation issues, antenna design complexity, and thermal concerns. To address these challenges, testing methodologies have evolved, placing greater emphasis on OTA testing, environmental simulations, and performance under real-world conditions.

As 5G continues to expand, and as mmWave becomes more widely adopted, testing protocols will need to continue evolving. Ensuring that user equipment can handle the complexities of mmWave technology is essential for delivering the full potential of 5G, from ultra-fast downloads to the seamless connectivity needed for future innovations like autonomous vehicles and smart cities. TR

Satellites in the Spotlight: Terrestrial Operators Face New Competition in Africa's Rural Markets

The telecommunications landscape in Africa has undergone significant transformation over the past two decades. With the rapid rise of mobile networks, the continent has made strides in improving connectivity in urban centers. However, vast rural regions remain underserved, creating a digital divide that has long hindered economic growth and development in these areas. Recently, satellite operators have emerged as formidable players in addressing this gap, posing a new competitive threat to terrestrial telecom operators.

In this feature, we explore how satellite technology is shaking up Africa's rural telecom market, how terrestrial operators are responding to this growing competition, and what the future holds for connectivity on the continent.

The Growing Importance of Rural Connectivity

Rural Africa presents one of the most challenging markets for telecommunications operators due to sparse populations, difficult terrain, and underdeveloped infrastructure. Yet, the potential benefits of improved connectivity are immense, ranging from better access to education and healthcare to fostering

entrepreneurship and supporting agricultural advancements. For years, terrestrial operators have struggled to justify the financial investments required to build infrastructure in these areas, as the return on investment (ROI) remains low compared to urban regions.

Governments and international organizations have tried to push for greater connectivity through various public-private partnerships and incentives, but large gaps remain. Today, less than 30% of Africa's rural population has access to reliable mobile or internet services, leaving millions of people without the digital resources they need to thrive in the modern world.

This scenario has paved the way for satellite companies to enter the market, offering an alternative to the traditional fiber-optic or tower-based networks used by terrestrial operators.

Satellites Step In: The Rise of Starlink, OneWeb, and Eutelsat

In recent years, satellite operators like Starlink, OneWeb, and Eutelsat have made significant inroads into Africa's rural markets, where terrestrial operators have long struggled. Offering low-Earth orbit (LEO) satellite services, these companies promise high-speed internet to even the most remote corners of the continent. Unlike geostationary satellites, which orbit at a higher altitude and have limitations in terms of coverage and speed, LEO satellites provide faster, more reliable internet with lower latency, making them a game-changer for rural areas.

Starlink, operated by SpaceX, is among the most high-profile entrants in Africa. With a constellation of thousands of LEO satellites, Starlink has already begun delivering affordable internet to rural communities in countries like Kenya, Nigeria, and South Africa. Starlink's low-latency, high-speed internet solutions are particularly attractive to rural populations where traditional infrastructure is either non-existent or unreliable.

OneWeb, another major player in the LEO satellite arena, has also been expanding its presence across Africa. OneWeb's mission is to connect the unconnected, particularly in underserved and remote areas. The company's strategy revolves around offering scalable, high-quality broadband services that can be rapidly deployed to bridge the digital divide. Like Starlink, OneWeb's network of satellites targets the vast areas where terrestrial coverage is either limited or too expensive to roll out.

Eutelsat, a European satellite operator, has taken a slightly different approach through its Konnect Africa initiative. Using both geostationary and LEO satellites, Eutelsat has been able to offer a range of solutions tailored to rural African markets. The company has struck partnerships with local telecom operators to distribute its services, further expanding its footprint across the continent.

These satellite operators are addressing a long-standing gap in Africa's telecommunications infrastructure, offering a viable alternative to traditional terrestrial networks. However, their arrival has not been welcomed by all parties.

Terrestrial Operators See Satellite Companies as a Threat

For years, terrestrial operators such as MTN, Airtel, and Safaricom have been the dominant players in Africa's telecom market. These companies have invested heavily in building cellular towers, fiber-optic networks, and other infrastructure to serve both urban and semi-urban populations. However, their efforts to expand into rural areas have been slow and limited due to the high costs involved and the relatively low potential returns from sparsely populated regions.

Now, with satellite operators stepping in to fill this gap, terrestrial operators are beginning to see them as a serious threat to their market share, especially in rural areas. Satellite companies like Starlink, OneWeb, and Eutelsat

offer lower-cost internet solutions that can reach remote areas without the need for expensive infrastructure. This has created a sense of unease among terrestrial operators, who argue that the competition from satellite providers is unfair.

The Issue of Pricing: An Uneven Playing Field

One of the key complaints from terrestrial operators is that satellite companies can offer much lower prices for their services, making it difficult for traditional operators to compete. The reason for this pricing disparity is rooted in the cost structures of the two types of providers.

Terrestrial operators typically invest millions of dollars into building and maintaining physical infrastructure such as cell towers, base stations, and fiber-optic networks. These costs are particularly high in rural areas, where challenging terrain, low population density, and lack of reliable power supply drive up operational expenses. As a result, terrestrial operators have struggled to provide affordable services in rural areas, where demand is relatively low, and ROI remains uncertain.

In contrast, satellite companies rely on their existing networks of satellites to deliver internet services directly from space, bypassing the need for ground infrastructure. While the initial investment in launching satellites is high, the marginal cost of delivering services to new areas is significantly lower. This allows satellite providers to offer competitive pricing, often undercutting traditional telecom operators in rural markets.

The pricing issue is particularly concerning for terrestrial operators because satellite companies are increasingly entering markets where they have had a monopoly for years. Satellite providers are not just targeting unconnected rural areas but also seeking to compete in regions where terrestrial networks are present, threatening to erode the market share of traditional telecom companies.

A Missed Opportunity for Terrestrial Operators

One of the most striking aspects of the current competition between satellite and terrestrial operators is that terrestrial companies had ample opportunity to invest in rural areas in the past but chose not to. For years, terrestrial operators have been reluctant to expand their networks into remote regions, citing high costs and limited profitability. Instead, they focused their resources on urban and peri-urban areas, where the population density and demand for services justified the investment.

Now, satellite operators are filling the gap, providing the connectivity that terrestrial operators neglected. This has led to frustration among traditional providers, who now see satellite companies as encroaching on their territory. However, it is important to note that terrestrial operators had the chance to invest in these areas and chose not to. As a result, their complaints about unfair competition ring somewhat hollow.

Regulatory Concerns: Leveling the Playing Field

Terrestrial operators are now calling for regulatory intervention to address what they see as an uneven playing field. They argue that satellite providers should be subject to the same regulatory requirements as terrestrial operators, including paying licensing fees, contributing to universal service funds, and adhering to local content regulations.

Some terrestrial companies are also pushing for infrastructure-sharing agreements with satellite operators. By sharing resources, both types of providers could reduce costs and improve coverage, creating a win-win situation for the industry. However, such collaborations have been slow to materialize, as terrestrial operators remain wary of working with their new competitors.

What Lies Ahead: Collaboration or Competition?

The future of Africa's telecom landscape will likely involve a mix of competition and collaboration between terrestrial and satellite operators. As satellite companies continue to expand their reach, terrestrial providers will need to adapt by either finding ways to compete more effectively or seeking partnerships with satellite operators to enhance their rural offerings.

One possible solution lies in infrastructure sharing. By working together, terrestrial and satellite providers could reduce costs and expand coverage more efficiently. For instance, terrestrial operators could provide satellite companies with access to existing cellular towers and fiber networks, while satellite companies could help terrestrial providers extend their coverage in hard-to-reach areas.

At the same time, regulatory frameworks will play a crucial role in determining the outcome of this competition. African governments will need to strike a balance between encouraging investment from both satellite and terrestrial operators while ensuring that rural populations receive affordable, high-quality connectivity.

A New Era for Rural Connectivity in Africa

As satellite technology advances and competition intensifies, Africa's rural telecom market is undergoing a major transformation. Satellite operators have seized the spotlight with their innovative solutions and wide-ranging coverage, challenging the dominance of terrestrial providers. While traditional telecom companies see satellite operators as a threat, their entry into the market is ultimately beneficial for the millions of people living in Africa's rural areas, who will now have access to improved connectivity and digital resources.

Whether through collaboration or competition, the future of rural connectivity in Africa looks promising as both satellite and terrestrial operators strive to bridge the digital divide. TR

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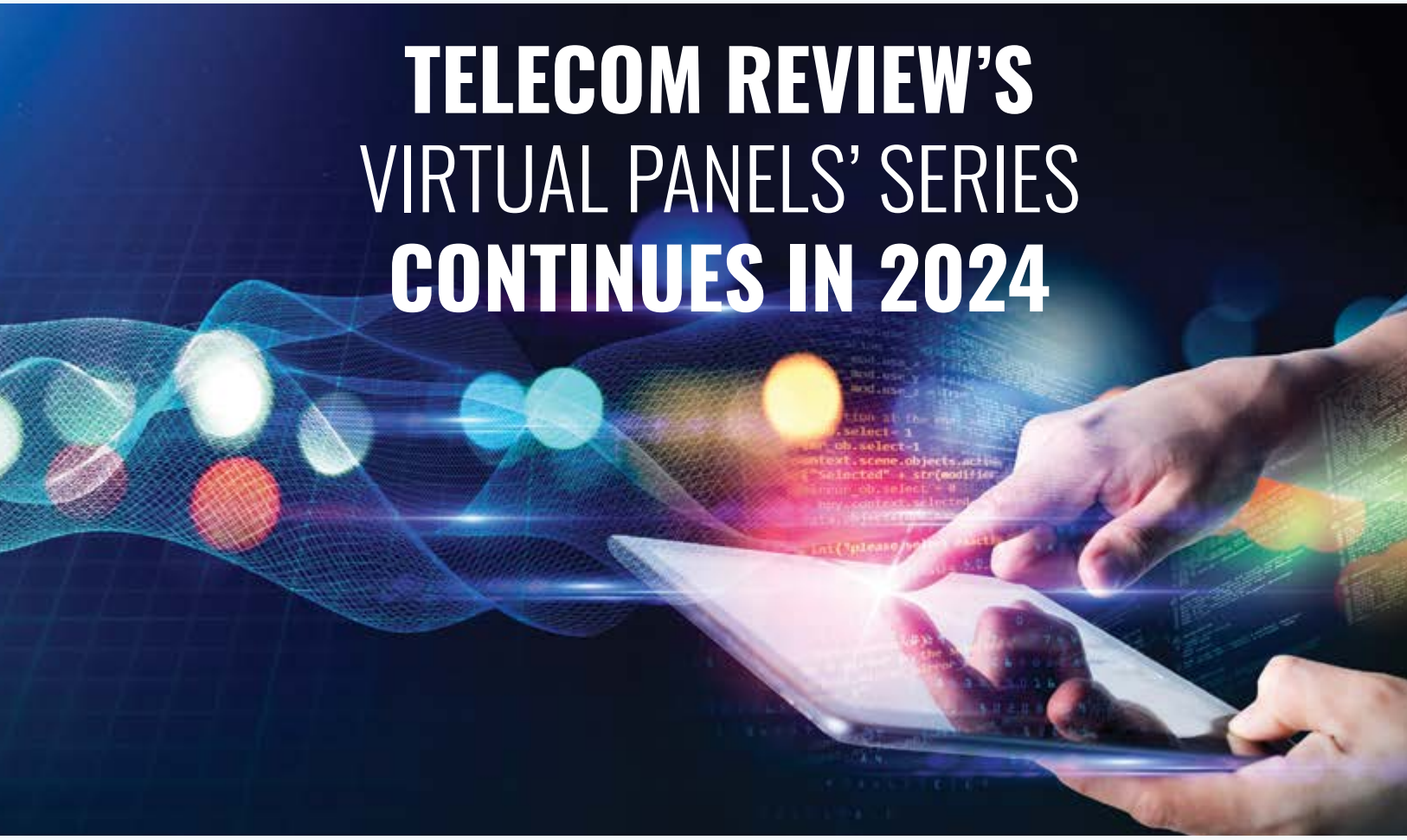

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From Carbon Footprint to Clean Networks: Africa's Telecom Sustainability Revolution

As the global conversation on climate change intensifies, Africa's telecommunications sector is taking bold steps to address its environmental impact. With mounting awareness of the carbon footprint associated with telecom operations, many companies are actively pursuing sustainable practices to minimize emissions and promote cleaner, greener networks. This feature explores Africa's telecom sustainability revolution, spotlighting the key initiatives aimed at reducing carbon emissions, improving energy efficiency, and fostering a future where connectivity and environmental stewardship go hand in hand.

The State of Telecom Sustainability in Africa

Historically, the telecom industry has been a significant contributor to carbon emissions, primarily due to the energy-intensive nature of its vast infrastructure and 24/7 operations. Telecom networks rely on power-hungry data centers, base stations, and transmission towers, all of which traditionally consume large amounts of electricity, often generated from fossil fuels. However, the tide is turning as sustainability has become an urgent priority, not just globally but across Africa.

A growing recognition of the need for environmentally conscious practices is driving a sector-wide transformation throughout the continent. Telecom operators, governments, and regulatory bodies are embracing renewable energy sources like solar, wind, and even hydroelectric power to meet the industry's energy demands. This shift toward green energy is not just a regulatory obligation—it's also motivated by the cost savings associated with renewable energy, especially in rural areas where the electrical grid is unreliable or absent. For many telecom operators, transitioning to renewable energy reduces operational expenses while addressing climate change.

Globally, the telecommunications sector accounts for approximately 2-3% of greenhouse gas emissions, according to the International Telecommunication Union (ITU). Although Africa's share may be smaller due to a less dense telecom infrastructure, its environmental footprint is no less significant. As mobile penetration rates continue to rise—driven by both economic development and a growing demand for digital services—the telecom sector faces an urgent need to balance growth with sustainability. Without proactive measures, the expansion of mobile and internet services could lead to an unsustainable increase in carbon emissions, undermining the continent's environmental goals.

Renewable Energy Adoption

One of the most impactful steps towards sustainability in Africa's telecom sector is the adoption of renewable energy. Major telecom operators are increasingly investing in solar power to reduce their reliance on fossil fuels, particularly in areas with limited access to the electrical grid.

For example, MTN has implemented solar energy solutions across multiple markets, particularly in rural regions. By installing solar-powered base stations, MTN not only cuts operational costs but also significantly reduces its carbon footprint, demonstrating a scalable model for greener telecom operations. Similarly, Vodacom has committed to transitioning its entire network to renewable energy, with an ambitious goal of powering all its base stations using solar energy by 2025. This move is not only in line with their sustainability objectives but also ensures energy security in areas vulnerable to power outages.

The adoption of renewable energy solutions represents a major milestone in Africa's journey toward greener telecom networks. By transitioning away from fossil fuels, operators are positioning themselves as pioneers of clean energy, contributing to the continent's overall sustainability goals.

Energy Efficiency Initiatives

In addition to adopting renewable energy, African telecom companies are increasingly focused on energy efficiency. This includes upgrading outdated equipment, optimizing cooling systems, and employing cutting-edge technologies such as artificial intelligence (AI) to monitor and manage energy consumption.

Airtel, for instance, has taken steps to enhance the energy efficiency of its network infrastructure. By implementing advanced technologies and refining energy management systems, Airtel is achieving significant reductions in the energy consumption of its data centers. These initiatives not only help lower emissions but also result in long-term cost savings, making energy efficiency a smart business decision in addition to an environmental one.

Energy efficiency has emerged as a key area of innovation, with telecom operators leveraging new technologies to reduce their carbon footprint while maintaining high levels of service. By investing in efficient infrastructure, companies are optimizing their energy usage and contributing to the broader push for sustainability.

Collaboration and Innovation

Sustainability in Africa's telecom sector requires collaboration between industry stakeholders, governments, and technology providers. Partnerships are forming across the region to develop and scale innovative solutions that address the environmental impact of telecom networks.

One notable example is the Alliance for Affordable Internet (A4AI), which advocates for policies that promote affordable internet access alongside sustainable practices. By encouraging open access models and shared infrastructure, A4AI is helping reduce the environmental impact of network deployment while ensuring connectivity for underserved populations. These collaborative efforts are critical in driving sustainability while expanding digital access across the continent.

As telecom operators continue to partner with stakeholders on green initiatives, innovation will remain at the heart of Africa's telecom sustainability revolution. Whether through shared infrastructure or the development of new energy-saving technologies, the sector is demonstrating that collaboration is key to achieving both environmental goals and business success.

The Role of Regulatory Frameworks

Government policies play an essential role in fostering sustainability within Africa's telecom sector. Several African countries

have begun implementing regulatory frameworks that promote renewable energy adoption and energy efficiency.

In Kenya, for example, the Energy and Petroleum Regulatory Authority has set ambitious targets for renewable energy generation. This creates a supportive environment for telecom operators to align their sustainability strategies with national goals. Similarly, South Africa offers incentives for companies investing in renewable energy, further encouraging the telecom industry to adopt sustainable practices. These regulatory measures are helping accelerate the transition to cleaner energy in telecom operations across the continent.

Regulatory frameworks provide the structure and support needed to integrate sustainability into telecom operations. By aligning national policies with global climate goals, African governments are playing a crucial role in driving the green revolution in telecom.

Challenges on the Road to Sustainability

Despite significant progress, several challenges remain in the quest for a sustainable telecom sector in Africa. Financing renewable energy projects can be a major hurdle, particularly for smaller operators. Additionally, consumer awareness around sustainable telecom services is still developing, and infrastructural constraints in remote areas make widespread adoption of green technologies difficult.

The initial investment in renewable energy infrastructure can also be daunting, especially for operators with tight budgets. However, as renewable technologies advance and costs decrease, these barriers are becoming more manageable. In the long term, the savings gained from reduced energy consumption and operational costs are likely to outweigh the upfront investment.

The Path Forward

The path to a sustainable future for Africa's telecom industry requires a multi-pronged strategy that combines renewable energy adoption, energy efficiency improvements, regulatory backing, and industry collaboration. As Africa continues its rapid digital transformation, the telecom sector must prioritize sustainability to mitigate its environmental impact while supporting connectivity growth.

Sustainability is fast becoming acompetitive advantage, as consumers increasingly favor companies that demonstrate environmental responsibility. Telecom companies that embrace sustainability not only align with regulatory expectations but also position themselves as leaders in the green economy. By investing in clean networks, telecom operators can attract eco-conscious customers and gain a long-term edge in the market.

Africa's telecom sustainability revolution represents a pivotal moment in the industry's evolution. By transitioning from carbon-heavy operations to clean, renewable energy sources and energy-efficient practices, African telecom operators can drastically reduce their environmental impact. The industry's embrace of sustainability is a significant step forward in the global effort to combat climate change and build a resilient, prosperous future.

Through innovation, collaboration, and a commitment to cleaner networks, Africa's telecom sector is charting a new path—one that prioritizes both connectivity and environmental stewardship, proving that the two can go hand in hand for a more sustainable future. TR

Analyzing the Effectiveness of Telecom-Facilitated Remote Work Solutions in Nigeria's Tech Sector

Remote work has evolved from a niche concept to a crucial element of the global workforce. Nowhere is this shift more evident than in Nigeria's rapidly expanding tech sector. By leveraging telecom infrastructure, the industry has quickly embraced remote work, driven by the need for flexibility, cost efficiency, and access to a diverse talent pool. However, assessing the effectiveness of these telecom-enabled remote work solutions in Nigeria reveals a landscape filled with both opportunities and challenges.

The Emergence of Remote Work in Nigeria's Tech Industry

To fully grasp the impact of telecom-enabled remote work solutions, it's important to understand the broader context of remote work in Nigeria. The tech sector, one of the fastest growing in Africa, has led this transformation. Both startups and established tech companies have adopted remote work as a strategy to tap into global talent, reduce operational costs, and maintain business continuity during times of disruption.

The Nigerian Communications Commission (NCC) has been instrumental in this shift, ensuring that telecom networks are sufficiently reliable to support remote work across various regions. Mobile internet usage has surged, with over 100 million Nigerians now accessing the internet via mobile devices. This telecom infrastructure has been key to the widespread adoption of remote work within the tech industry.

Assessing the Effectiveness of Telecom-Enabled Remote Work Solutions

While the rise of remote work in Nigeria's tech sector is clear, the effectiveness of telecom-enabled solutions varies across different dimensions.

1. **Connectivity and Infrastructure:** Telecom infrastructure serves as the backbone of remote work solutions, and in Nigeria, it has been both an asset and a challenge. In urban areas, the availability of 4G networks has provided tech workers with the reliable internet connections needed for tasks such as software development and virtual meetings. However, the digital divide remains a significant issue. In rural and underserved areas, inconsistent internet connectivity hinders the ability of tech professionals to fully participate in the remote work economy.

   Despite increased internet penetration, service quality can be inconsistent. Frequent network outages, slow speeds, and high data costs are common issues for remote workers. These disruptions can negatively impact productivity and the overall effectiveness of remote work solutions. While telecom companies in Nigeria are aware of these challenges and are working to improve and expand their networks, progress is uneven.

2. **Flexibility and Cost Savings:** One of the key benefits of remote work is the flexibility it offers. Nigerian tech companies have utilized telecom solutions to allow employees to work from anywhere, eliminating the need for physical office spaces. This flexibility has not only improved work-life balance for employees but has also resulted in cost savings for companies.

> Telecom-enabled remote work solutions have had a profound impact on Nigeria's tech sector.

   However, these cost savings come with certain trade-offs. While companies may save on office-related expenses, they might face additional costs to ensure remote employees have reliable internet access and the necessary tools to perform their jobs efficiently. Moreover, maintaining secure and efficient communication channels can be expensive, especially for smaller companies with limited resources.

3. **Talent Accessibility and Retention:** Telecom-enabled remote work solutions have significantly broadened the talent pool available to Nigerian tech companies. By removing geographic barriers, companies can now hire skilled professionals from across the

country and even from abroad. This has been particularly advantageous for tech startups looking to scale rapidly and compete globally.

However, remote work also poses challenges in terms of talent retention. The global nature of remote work means that Nigerian tech professionals are increasingly being recruited by international companies offering higher salaries and better benefits.

This heightened competition can make it difficult for local companies to retain top talent, potentially slowing the growth of the domestic tech industry.

Prospects and Challenges

While telecom-enabled remote work solutions have created numerous opportunities for Nigeria's tech sector, several challenges persist. The most pressing issue is the digital divide. Bridging this gap is essential to ensure that all regions of Nigeria can benefit from the remote work revolution. This will require ongoing investment in telecom infrastructure, particularly in rural areas, as well as policies aimed at making internet access more affordable and reliable.

Additionally, Nigerian tech companies must adapt to the increasingly competitive remote work environment. This involves not only offering attractive compensation packages but also fostering a strong corporate culture that can thrive in a remote setting. Investing in professional development and providing opportunities for career growth will be crucial to retaining top talent.

Telecom-enabled remote work solutions have had a profound impact on Nigeria's tech sector. They have provided unprecedented flexibility, cost savings, and access to a global talent pool. However, challenges related to connectivity, infrastructure, and talent retention remain significant obstacles.

To fully capitalize on the potential of remote work, Nigeria's telecom companies, tech firms, and policymakers must collaborate to address these challenges. By doing so, they can ensure that remote work continues to be a viable and effective option for the country's rapidly growing tech industry, driving innovation and economic growth in the years ahead. TR

> The Nigerian Communications Commission (NCC) has been instrumental in this shift, ensuring that telecom networks are sufficiently reliable to support remote work across various regions

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