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**SCIT GROUP
CHAIRMAN
"Investing in
the Future
of Global Connectivity"**

**Le président
du groupe SCIT
« Investir dans l'avenir
de la connectivité
mondiale »**

Mr. Saad bin Solib bin Mutlaq Al-Otaibi
Member of the Kingdom of Saudi Arabia's
Shura Council, Founder and Chairman of SBS
and Ansab Group

- **Guardians of Progress: AI Shielding Africa's Critical Infrastructure**
- **Connecting Togo: A Fast-Growing Technological Adventure**
- **IoT in Africa: A Promising Future!**
- **L'IA assure la protection des infrastructures critiques de l'Afrique**
- **Le Togo connecté : une aventure technologique en pleine croissance**
- **L'IoT en Afrique : un avenir prometteur !**

The background of the poster features a cityscape at night, with numerous buildings illuminated by warm, golden lights. Overlaid on this scene is a network of thin, white lines connecting various points, resembling a digital or communication network. The sky is a mix of blue and orange, suggesting a sunset or sunrise. The text is positioned in the upper left and center of the image.

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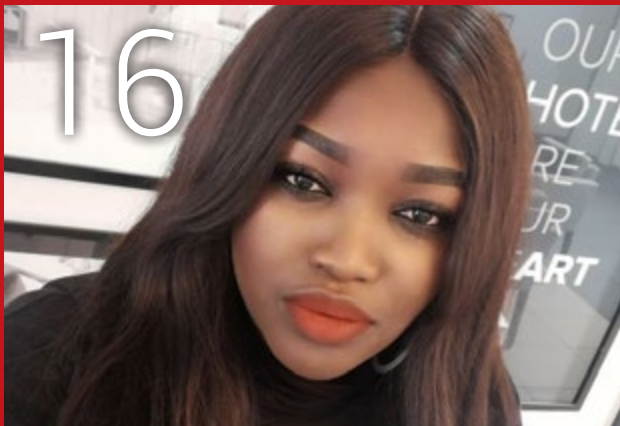
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- Year 14 - Issue 98 -

A portrait of Mr. Saad bin Solib bin Mutlaq Al-Otaibi, a man with a friendly expression, wearing a white thobe and a white ghutra with a black agal. He is looking directly at the camera.

Mr. Saad bin Solib bin Mutlaq Al-Otaibi, Member of the Kingdom of Saudi Arabia's Shura Council, Founder and Chairman of SBS and Ansab Group

SCIT Group Chairman “Investing in the Future of Global Connectivity”

SCIT, a Saudi-based investment venture fund, focuses on investing in highly disruptive deep technologies. It initially targets the Avionics and inflight connectivity sector but plans to broaden its investment portfolio to encompass global connectivity across various sectors, as well as other domains of deep technology. Mr. Saad bin Solib bin Mutlaq Al-Otaibi is a member of the Kingdom of Saudi Arabia's Shura Council, and the founder of SBS as well as the Ansab Group, whereby he acts as the chairman of the board. In this interview, Mr. Al-Otaibi discussed his insights on investing in the future of global connectivity and outlined the investment directions of the SCIT Group.

The space economy is a catalyst for technological innovation, economic growth, and national development.

Nations that invest in space activities can strategically reap the benefits of advancements in technology, improved infrastructure, and enhanced global standing. While we are heading towards a more connected and intelligent world, the evolving role of global connectivity is transformative, influencing various aspects of society, the economy, and technology. Global connectivity is foundational in the realm of digital transformation, enabling seamless communication, data exchange, and access to information across the globe. Connectivity fosters international trade and economic growth by providing businesses with access to global markets. E-commerce, cross-border transactions, and supply chain integration are fueled by robust global connectivity.

In an exclusive interview with Telecom Review, Al-Otaibi expressed his views on SCIT Group's targeted investments and its focus on the domain of global connectivity.

In the rapid evolution of technology, how does SCIT Group position itself strategically to take advantage of emerging trends and stay ahead of technological advancements?

Advanced technologies and emerging trends in telecommunications play a pivotal role in shaping global connectivity. These developments have a profound impact on how people, businesses, and nations communicate and collaborate.

Advancements in satellite technology contribute to global connectivity, especially in remote and underserved areas. High-throughput satellites and low Earth orbit (LEO) satellite constellations provide improved broadband internet access, enabling more people to connect globally. As global connectivity increases, the importance of cybersecurity becomes paramount, resulting in the need

for implementing robust security measures, including encryption, threat detection, and secure communication protocols.

SCIT Group aims to invest in building a robust regional high-speed broadband service covering not only the Middle East, Africa, and Turkey but also India. We have commenced our strategic investment in SkyFive in the domain of offering Air-to-Ground (A2G) internet broadband services to the aviation sector, catering to both commercial airlines and business/private jets. We are actively assessing strategic investments in satellite

communication, especially given the remarkable advancement in LEO satellites. Launching constellations of such satellites can complement the regional coverage of our A2G service, enabling us to provide solid high-speed, low-latency broadband internet services not only in aviation sectors but also in other sectors like government, military, and maritime, offering connectivity services to rural areas.

Can you explain more about how SCIT Group is creating an innovation ecosystem within the space economy and how it is driving technology





We are primely investing
in inflight connectivity
technologies with an ambition
to reach a very competitive and
innovative commercial global
service



advancements that have a wider impact beyond its direct investments?

The space economy has been growing rapidly, driven by advancements in technology, increased private sector involvement, and a growing interest in space exploration and utilization. Governments, private companies, and international collaborations contribute to the development of this economic sector, with the potential for new opportunities and challenges in the future. At SCIT Group, we have been very focused on global connectivity as a pivotal application for our investments, focusing on defined markets and focused sectors. Our investment strategy focuses on acquiring significant shares in startups with significant scalability and growth potential with IPRs in the emerging technologies that serve our group investments' purpose. We do aim to serve our shareholders' promised financial returns.

We are primely investing in inflight connectivity technologies with an ambition to reach a very competitive and innovative commercial global service to create a global connectivity ecosystem that can serve not only

aviation or advanced air mobility sectors, but gradually expand horizontally in other sectors as well. Considering a wider investment outlook, we would like to take the current frontier investments in different domains related to the space sector. Such as communications satellites constellation (especially LEO satellites), remote sensing domains, and satellite launchers that not only have a high return on investment but also contribute to the transformation of the Kingdom of Saudi Arabia's economy into a dynamic and diversified economy. In general, we do look for deep cutting-edge technology investments and mega high-tech investment projects that can contribute to economic growth and competitiveness on a global scale and can bring high shareholders' financial returns.

Which specific disruptive technologies in the aviation, aerospace, and space communication sectors does SCIT Group consider as key pillars of its investment portfolio? What unique value do these technologies bring to the market?

The aviation sector is witnessing disruptive technologies in communications that are transforming how aircrafts communicate internally and externally. These technologies contribute to improved safety, efficiency, and connectivity. The witnessed advancements in satellite communication technologies are improving connectivity and data transmission capabilities for aircrafts that is foreseen to enhance inflight connectivity, support real-time data transfer, and improve communication between the aircraft and ground systems.

Enabling global connectivity is one of our key investment pillars at SCIT Group that focuses on providing High-Bandwidth Connectivity (HBC) for passengers to enable real-time communication and support the growing demand for connectivity during flights. Our investment in SkyFive and Air-to-Ground technology aims to extend the implementation of 4G/5G technologies on the ground to aviation, providing high-speed, low-

latency connectivity for air-to-ground and ground-to-air communication. We also assess other investments and build strategic partnerships with other technologies like low Earth orbit (LEO) satellite constellations to complement our SkyFive solution— especially in the geographies that are hard to cover with A2G technology.

Another investment pillar is our investment in advanced cybersecurity solutions, which are critical for protecting inflight connectivity systems from potential cyber threats. Artificial Intelligence is another pillar that aims to analyze data from aircraft systems to predict and prevent maintenance issues, ensuring that connectivity systems remain operational. This should have an impact on reducing downtime, improving system reliability, and enhancing the overall inflight connectivity experience.

Taking the changing landscape of space-based communication technologies into consideration, how does SCIT Group form strategic alliances to ensure global coverage that is robust and scalable?

Spectrum acquisition and regulations play a crucial role in the evolution of space communications and inflight connectivity. The radio frequency spectrum is a finite and valuable resource that needs to be carefully managed to ensure efficient and interference-free operation of communication systems. Efficient spectrum acquisition and management are fundamental for fostering innovation, enabling new space-based services, and ensuring the continued growth of the space economy.

SCIT Group works to build a solid regional alliance, especially in the Middle East and Africa, with local regulators and local strategic partners, to get the right spectrum acquired for operating non-terrestrial network services seamlessly across borders, supporting global space-based services and applications. We focus on building deep, solid, strategic partnerships with all regulatory bodies in the region to assess the growing demand for inflight connectivity and allocate sufficient spectrum to meet

the capacity needs of airlines and passengers.

Additionally, we have a strategic cooperation with Thales, which supplies us with the key strategic equipment needed for our solution. AMS Aero works with us to help us attain the certification required for the different aircraft types that we are strategically targeting. Shortly, we will announce other strategic partnerships in the satellite domain.

How does SCIT Group's commitment to global connectivity and disruptive technologies contribute towards achieving the milestones outlined in Saudi Vision 2030?

The comprehensive and ambitious Saudi Vision 2030 announced by Saudi Arabia's Crown Prince, Mohammed bin Salman, outlined the roadmap for transforming the country's economy and society, aiming to reduce its dependence on oil, diversify its economic base, and position Saudi Arabia as a dynamic and globally competitive nation by the year 2030.

According to PwC, the global space sector is predicted to exceed USD 1 trillion by 2030, reflecting a growth of 186% from 2020's market size. The growth in the Middle East will be driven by concerted investment between the public sector, global original equipment manufacturers (OEMs), and the local industry. Specifically, the areas of earth observations, space tourism, satellite communication, space mining, space research and development, space exploration, space debris, and manufacturing will be the key drivers of growth in terms of subsectors— with satellites alone projected to constitute 50% of the growth of the global space sector.

In the Middle East, there is ample opportunity to strengthen the foundations of the emerging space sector and build capabilities and infrastructure to thrive in the future. To do so, there is a need to bridge the gap between the ambitions of the government and emerging private sector players on the one hand, and world-class capabilities in manufacturing, science, and

aeronautics on the other— all while involving regional talent and supporting localization agendas. The forecasted growth in the global space sector offers a range of opportunities for Middle-Eastern governments to advance across different strategic areas like economic diversification, R&D superiority (where having a footprint in space will increase market participation and reduce future uncertainties) and military interoperability (that is foreseen to increase military effectiveness and operational advantages and increase geospatial capabilities of governments).

Global connectivity is foundational to a futuristic economy characterized by innovation, collaboration, and inclusivity. As technological advancements continue to shape the world, a well-connected global network contributes to economic resilience, competitiveness, and sustainable development. According to the latest research study by Zion Market Research, the global wireless connectivity market size was valued at around USD 71.60 billion in 2022. The market is expected to grow at a CAGR of 15.06% and is anticipated to reach USD 219.86 billion by 2030. On the other side, the global satellite connectivity market was valued at USD 11.12 billion in 2021 and is projected to reach USD 22.12 billion by 2031, growing at a CAGR of 7.3% from 2022 to 2031.

Our key investment pillar in SCIT Group is to build our frontier connectivity technology to enable the transformation toward an intelligent, connected world. We aim to transform air travel by providing passengers with internet access, communication services, and entertainment options while in the air at continuously improved speeds and bandwidth through our SkyFive Air-to-Ground technology. We assess strategic investments before launching a constellation of LEO satellites for communication purposes under R&D consortium from regional and global lead institutions to support in expediting critical R&D capabilities in the Middle East and Africa region.



As technological advancements continue to shape the world, a well-connected global network contributes to economic resilience, competitiveness, and sustainable development

How do you perceive the current evolution of AI? What do you anticipate regarding its impact on the potency of technology?

Artificial intelligence (AI) can transform the productivity and GDP potential of the global economy. Recent developments in robotics, artificial intelligence, and machine learning (ML) have put us on the cusp of a new automation age that will bring substantial benefits to businesses and economies worldwide. We are transforming towards a more intelligent real-time world where the generative ability to exchange data and make informed decisions through advanced deep learning techniques is pervasive across everything, everywhere, at any time. In our new intelligent world, the aim is to dissolve our current daily routines of waiting, delays, queues, and paperwork— and rather have an instantaneous provision of goods and services available where and when we need them most.

The roles of AI in the space economy and inflight connectivity are dynamic, and ongoing advancements in technology will likely lead to further innovations and applications in these sectors. AI is being utilized to enhance

the autonomy of satellites. Autonomous operations include tasks such as orbit adjustments, collision avoidance, and adaptive reconfigurations, allowing satellites to respond to changing conditions without constant human intervention. AI is applied to process and analyze vast amounts of Earth observation data collected by satellites. Machine learning algorithms help in identifying patterns, anomalies, and trends in data related to weather, climate, agriculture, and environmental changes.

Also, AI is used to optimize satellite communication systems. Machine learning algorithms can predict and mitigate signal interference, enhance data transmission efficiency, and dynamically allocate resources for better overall performance. AI is used for predictive maintenance in the aviation industry. Machine learning algorithms analyze data from aircraft sensors to predict equipment failures and recommend maintenance actions. This helps airlines optimize maintenance schedules and reduce downtime. AI algorithms optimize flight routes and planning based on real-time weather data, air traffic conditions, and fuel efficiency considerations. This helps reduce fuel consumption, improve on-time performance, and enhance overall operational efficiency. AI contributes to cockpit automation, providing decision support for pilots. Enhanced autopilot systems, intelligent navigation aids, and predictive analytics assist in navigation, weather avoidance, and fuel optimization. Inflight communication systems benefit from AI, leading to improved voice recognition, natural language processing, and automated responses. This enhances the interaction between crew members and the aircraft's communication systems. AI is utilized to analyze passenger behavior, preferences, and trends. This information can be used by airlines to optimize services, improve customer experience, and tailor offerings based on individual or group patterns.

What milestones from 2023 do you believe had a pivotal impact on SCIT Group's trajectory?

We have managed to successfully to establish our SkyFive Arabia brand



in the Middle East following intense engagements about our high broadband inflight connectivity solution across commercial and business aviation sectors. Worth mentioning is our strategic partnership with stc Group, the digital leader in the region, and Saudi Arabia, that has won the 2100 MHz spectrum auction for non-terrestrial networks, which allows the provision of communications services on aircraft and the provision of mobile satellite services (MSS).

The Group's acquisition of these frequencies is an additional investment that aims to provide innovative mobile communications services that will contribute to the provision of mobile communications services between airspace and Earth— including internet on board aircrafts via A2G technology as well as the provision of mobile satellite services (MSS). We have also celebrated the sign-off of several strategic agreements (aside from the Dubai Airshow 2023), including partnering with a leading FBO in the luxury business jets sector— we will equip its business jet fleet with our innovative solution. We have also signed another agreement with a regional commercial airline where we are preparing to equip its first aircraft. In order to fast-track the rollout of our solution in the region, we have established a strategic agreement with AMS AERO.

What are the primary goals and focus areas for SCIT Group in 2024?

The landscape of inflight connectivity and Advanced Air Mobility (AAM) is dynamic, with numerous companies, startups, and industry players actively exploring opportunities and making strategic investments. The success of these investments often depends on technological innovation, regulatory developments, and market demand for these transformative aviation solutions. Airline Inflight Entertainment and Connectivity services are expected to become more widely accessible over the next decade due to increasing demand.

While there is an interesting question that often arises about the provision of onboard broadband access— one



that usually centers around cost or, more specifically, the potential for airlines to move towards offering the service as a free-of-charge benefit for all passengers— SCIT Group shares the industry's general belief that the market will develop in such a way in time.

In 2024, we will continue our investment commitment to SkyFive and we will continue accelerating the roll out of our aviation ground network covering the Middle East and Turkey (expanding shortly in the coming years to Northern Africa and the rest of Africa). We are also preparing to strategically invest in the satellite communications sector, specifically focusing on LEO satellites (we believe that LEO satellite technology is a very complementary solution to our SkyFive A2G technology)— with the goal to enrich our regional and global service coverage. We are preparing to establish another business unit for eVTOL communications as well as launch our focused R&D ecosystem, in partnership with leading regional and global research institutions, to act as our extended technology labs and advisory unit. **TR**



Airline Inflight Entertainment and Connectivity services are expected to become more widely accessible over the next decade due to increasing demand





Marco Lichtfous, Managing Director, PMP Strategy Benelux & DACH



Vivek Yadav, Managing Director, PMP Strategy MEA

The Evolution and Impact of Mobile Financial Services

In the past decade, mobile financial services (MFS) have transformed the landscape of financial transactions, making it easier, faster, and more accessible for people around the globe to manage their money. This transformation is particularly significant in developing countries, where traditional banking infrastructure is sparse, but mobile phone penetration is high. From mobile banking to mobile wallets to peer-to-peer transfers to microloans, MFS have become a cornerstone of economic activity for individuals and businesses alike.

Mobile financial services refer to any financial service performed via a mobile device, including banking services, payment transfers, and mobile money solutions. The inception of MFS can be traced back to the early 2000s, with the launch of M-Pesa in Kenya in 2007 often cited as a pivotal moment. M-Pesa allowed users to deposit, withdraw, and transfer money, and pay for goods

and services easily through a mobile device, without the need for a bank account. This innovation showcased the potential for mobile technology to revolutionize financial access, especially in regions with limited banking infrastructure.

However, the proliferation of mobile financial services (MFS) not only transforms the financial sector but also offers a myriad of benefits for mobile operators. By building a comprehensive MFS solution, mobile operators can tap into new revenue

streams, enhance customer loyalty, and significantly expand their market influence.

Benefits for Mobile Operators in Developing Mobile Financial Services

The integration of mobile financial services offers mobile operators a transformative opportunity to evolve beyond traditional telecom services. By building an ecosystem that includes MFS, operators can enhance customer loyalty, encourage new revenue streams, and position themselves as indispensable partners

in their customers' financial lives. The strategic development of MFS solutions enables operators to not only face the challenges of a rapidly changing telecom landscape but also thrive within it, leveraging their unique position to become central figures in the digital economy. Below, are the multifaceted benefits that MFS bring to mobile operators in more detail:

• Building an Ecosystem

One of the most significant advantages for mobile operators delving into MFS is the creation of a holistic digital ecosystem. This ecosystem encompasses various services beyond traditional telecom offerings, such as payments, loans, savings, and insurance. By integrating these services, operators can become central to their customers' daily lives, facilitating everything from routine transactions to financial planning. This integration encourages constant engagement, deepening the customer-operator relationship.

• Enhancing Loyalty Programs

MFS enable mobile operators to offer enriched loyalty programs. By integrating rewards directly with financial services, operators can incentivize customer behaviors in more nuanced and compelling ways, such as offering cashback on mobile wallet transactions, discounts on bill payments made through the app, or better interest rates for savings. These programs increase customer loyalty and enhance the perceived value of the operator's offerings.

• Financing Devices Directly

Following the advent of MFS, operators have the opportunity to finance the purchase of mobile devices directly. This approach can significantly boost device sales, as customers can spread the cost over time, making smartphones more accessible to a broader audience. Financing also ties customers to the operator for the duration of the repayment period, reducing churn.

• Creating Additional Revenue Streams

MFS introduces new revenue streams for mobile operators. Transaction fees,

interest on loans, and premiums on insurance products contribute directly to the bottom line. Additionally, by offering a suite of financial services, operators can tap into markets previously dominated by traditional banks and fintech companies.

• Accessing a Larger Share of Wallet

By offering comprehensive financial services, mobile operators can capture a larger share of their customers' wallets. This means that a greater portion of customers' spending and financial activity flows through services controlled by the operator, from daily purchases to savings and investments. This not only increases revenue but also provides valuable data on customer behavior, enabling further customization and cross-selling opportunities.

• Reducing Customer Churn

MFS are a powerful tool for reducing customer churn—a perennial challenge in the telecom sector. By embedding themselves more deeply into customers' financial lives, operators make it more cumbersome for customers to switch providers. The convenience and benefits of using a single platform for both communication and financial transactions create a strong incentive for customer loyalty.

• Leveraging Billing and Distributor Finance

MFS also offer operators the chance to streamline their own billing processes. By encouraging customers to use mobile money for bill payments, operators can reduce the cost and complexity of bill collection. Furthermore, MFS can be used to finance distributors or retail partners, ensuring smoother operations and potentially increasing sales channels' efficiency and reach.

Implementing Mobile Financial Services for Mobile Operators

As demonstrated previously, implementing mobile financial services (MFS) presents telecom operators with a significant opportunity to diversify their offerings and deepen their customer engagement. However, the journey from conceptualization

to the execution of MFS follows various paths, each with its own set of advantages, challenges, and strategic implications. The following are practical approaches telecom operators can take, ranging from building their own greenfield MFS platforms to leveraging white-label solutions.

Own Greenfield Build

A greenfield build refers to the process of creating a new MFS platform from scratch. This approach allows telecom operators to design and develop a customized solution that aligns perfectly with their strategic objectives, brand identity, and customer needs.

Implementation Steps

1. Strategic Planning: Define clear objectives, target market, and the range of financial services to be offered (e.g., payments, savings, loans).
2. Regulatory Compliance: Engage with regulatory bodies to ensure the service complies with all legal and financial regulations.
3. Technology Infrastructure: Develop the necessary technology infrastructure, including secure payment gateways, user-friendly mobile apps, and robust backend systems.
4. Partnerships: Form partnerships with banks, financial institutions, and other service providers to offer a wide range of services.
5. Customer Experience Design: Focus on creating an intuitive and seamless user experience.
6. Marketing and Launch: Develop a comprehensive marketing strategy to promote the new service and onboard customers.

Leveraging White-Label Solutions

White-label solutions involve partnering with a third-party provider to use their pre-existing MFS platform, branded under the telecom operator's name. This approach can significantly reduce development time and cost.

Implementation Steps

1. Market Research: Identify the most suitable white-label platform that aligns with the operator's goals and customer needs.

2. Vendor Selection: Choose a white-label provider with a proven track record, robust security measures, and comprehensive support services.
3. Customization and Branding: Work with the provider to customize the platform's look and feel to match the operator's branding and incorporate any specific features required.
4. Integration: Integrate the white-label solution with the operator's existing systems, such as customer management and billing systems.
5. Regulatory Approval: Ensure the solution meets all regulatory requirements, with the provider's assistance if necessary.
6. Launch and Marketing: Roll out the service to customers, supported by targeted marketing campaigns to drive adoption.

Hybrid Approach

A hybrid approach combines elements of both greenfield development and white-label solutions. For instance, an operator might develop certain components in-house while leveraging third-party solutions for others.

Implementation Steps

1. Strategic Assessment: Determine which MFS components are strategic to build in-house and which can be outsourced.
2. Component Development and Selection: Develop in-house solutions for core components while selecting white-label solutions for non-core elements.
3. Integration: Seamlessly integrate in-house and third-party solutions to offer a cohesive service.
4. Customization and Compliance: Ensure the entire service, though hybrid, meets branding standards and regulatory requirements.
5. Launch and Iteration: Launch the service with an emphasis on continuous improvement based on customer feedback and market trends.

Strategic Partnerships

Engaging in strategic partnerships with existing banks or fintech companies can also be an effective way to enter the MFS market without building a solution from the ground up.

Implementation Steps

1. Partner Identification: Identify potential



partners who already offer MFS and share a mutual interest in collaboration.

2. Co-Creation and Integration: Work together to co-create a service offering that leverages the strengths of both parties, ensuring tight integration with the telecom operator's infrastructure.
3. Joint Marketing: Utilize both parties' customer bases and marketing resources for a powerful, joint go-to-market strategy.

For telecom operators, the decision on how to implement mobile financial services hinges on a variety of factors including time to market, cost, the strategic importance of customization, and regulatory considerations. Whether opting for a greenfield build, leveraging white-label solutions, adopting a hybrid approach, or entering into strategic partnerships, the goal remains the same: to deliver value-added services that enhance customer engagement and offer new revenue streams. Careful planning, execution, and ongoing management are crucial to the success of any MFS initiative.

Challenges and Future Directions

Despite their benefits, mobile financial services face challenges, including regulatory hurdles, security concerns, and the digital divide. As these services continue to evolve, addressing these challenges will be crucial for maximizing their potential.

The future of MFS lies in leveraging technologies like blockchain for greater security and transparency and artificial intelligence (AI) for personalized financial services; all while continuing to innovate

to reach underserved populations. As these technologies mature, mobile financial services are set to become even more integral to global economic systems, further transforming how we think about and manage money in the digital age. **TR**

By Marco Lichtfous, Managing Director, PMP Strategy Benelux & DACH and Vivek Yadav, Managing Director, PMP Strategy MEA



By building an ecosystem that includes MFS, operators can enhance customer loyalty, encourage new revenue streams, and position themselves as indispensable partners in their customers' financial lives



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Ghana Plans to Boost Rural Connectivity



The Ghanaian government is planning to construct and implement 1,006 telecom sites this year to enhance mobile service coverage in the country, particularly in rural areas.

These telecom sites are part of the "Ghana Rural Telephony and Digital Inclusion" project unveiled in November 2020 by the Ghana Investment Fund for Electronic

Communications (GIFEC) to address the digital divide by strengthening basic telephony services in rural areas.

The project receives technical support from the Chinese company Huawei and financial backing from the China Exim Bank, which provided \$155 million in financing to the government in 2020.

Out of the planned 2,016 telecom sites, 1,010 have already been constructed, and 618 are operational. This development allows citizens in approximately 1,620 rural communities to make calls and use data services. Ultimately, the project aims to benefit around 4 million people.

Nigeria Teams Up with World Bank for Broadband Boost



The federal government of Nigeria has partnered with the World Bank to raise \$3 billion to achieve nationwide fiber optic coverage. Bosun Tijani, the minister of communications, innovations and digital economy, disclosed during a stakeholders' engagement themed "broadband for all," organized by his ministry in collaboration with the World Bank.

In December 2023, Tijani emphasized the necessity of investing in the expansion of the national fiber optic network. He expressed a need for about 65,000 km of fiber optic at a cost ranging between \$1.5 and \$2 billion. He also committed to seeking partners to enhance internet connectivity in the country.

Furthermore, the Nigerian Communications Commission (NCC) is advocating for a reduction in right-of-way fees from Nigerian states to facilitate the deployment of fiber optics across the country. States such as Katsina, Nassarawa, Anambra, Ekiti, and the Federal Capital Territory have already taken measures in this regard. The current right-of-way fees in Nigeria stand at 145 nairas (\$0.09) per linear meter.

These various initiatives are expected not only to improve the quality and reduce the costs of telecom and internet services in Nigeria but also to expand the reach of these services to millions of additional people.

According to the latest statistics from the NCC, Nigeria has 223.2 million mobile phone subscribers and 162.06 million internet service subscribers, with 90.7 million using broadband.

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Doreen Mokoena, CEO of Cybersecurity Clinique

Keeping Ahead: Doreen Mokoena's Governance for Cybersecurity Resilience

Telecom Review Africa conducted an exclusive interview with Doreen Mokoena, CEO of Cybersecurity Clinique. During the interview, she discussed CISO strategies for consistently assessing and improving organizational cybersecurity posture. Mokoena also addressed the adaptation of cybersecurity strategies to bridge the digital divide. Furthermore, as a woman actively involved in the cybersecurity field, she discussed the value and role of women in this domain, and shared her upcoming goals and plans for the future.

As a CISO, what strategies do you employ to continually assess and enhance the overall cybersecurity posture of the organizations?

I have the privilege of working across multiple domains within the organization to develop and drive our cybersecurity strategy and framework. My responsibilities include establishing security governance practices and building resilience by bolstering our cybersecurity operations. To achieve this, I stay up-to-date with the latest trends and developments and ensure that appropriate security measures are implemented and conducted regularly.

As the person responsible for validating that our organization remains compliant with cybersecurity standards, regulatory frameworks, regulations, and best practices, I understand that even with advanced defense mechanisms, employees remain the weakest link. That is why I prioritize employee training programs to mitigate risks and detect threats early. Over and above the cost-saving element, organizations can quickly reinforce a cybersecurity culture.

Every member of our team must understand the importance of cybersecurity culture. Not only does it help us to protect against cyber threats, but it also reinforces our security posture. By prioritizing cybersecurity, we not only save costs but also build a culture of safety and trust. My role cuts across multiple domains within the organizations and is instrumental in developing and driving the organization's cybersecurity strategy and framework.

This is achieved through establishing security governance practices and building resilience by bolstering cybersecurity operations; this is heavily dependent on keeping abreast of the latest trends and developments and ensuring that appropriate security measures are implemented and conducted regularly.

How do you adapt cybersecurity strategies to bridge the digital divide and ensure comprehensive protection for individuals, regardless of their technological resources?

Despite technological and socioeconomic changes, the digital divide must be bridged through a "people-centered" approach. The digital divide affects those who have access to internet infrastructure but lack cybersecurity knowledge, as well as those who are digitally marginalized and lack digital literacy. Both groups illustrate cyber insecurity, highlighting the vital link between digital literacy and cybersecurity.

Addressing the cybersecurity digital divide requires a multistakeholder approach. Governments, research communities, private organizations, and academics must collaborate to democratize access to robust cybersecurity measures. CyberSec Clinique has initiatives like free training resources, running workshops on understanding personally identifiable data and debugging the 'consent' myth, and ensuring that individuals, children, and older people have a comprehension of the CIA Triage. These strategies seek to promote digital literacy and create pathways to providing affordable cybersecurity solutions that can empower individuals and small businesses to navigate the digital landscape securely.

In your opinion, how does the evolution of AI closely intertwine with the future of cybersecurity?

The intersection between AI and cybersecurity is massive as organizations use AI to enhance cybersecurity measures. As we embrace emerging technologies, we also need to acknowledge that the evolution of technology has introduced new threats and vulnerabilities that require advanced solutions for protection. Artificial Intelligence (AI) has become more prevalent in the fight against cyber threats. Cyber threat landscapes have become increasingly complex, which makes AI-powered incident response tools vital for analyzing attack

characteristics. Most organizations use machine learning algorithms to analyze the characteristics of an attack. However, computing power and AI algorithm complexity issues still exist.

Before discussing the adoption of AI in cybersecurity, it is essential to consider ethical concerns. It is critical to use responsible AI practices and human oversight to ensure security and privacy. To be precise, AI requires data, and it is essential to understand where that data comes from, how it is processed, and what results from those processes, which will require a sense of identity and security. Understandably, many people are concerned about the security of their data. Moreover, artificial neural networks rely heavily on data, and ethical and regulatory considerations should be the top priority when dealing with sensitive and private data.

Being a woman active in the field of cybersecurity, how would you value the position and role of women in this field?

I was inspired by Penelope Garcia from the CBS hit drama "Criminal Minds." Penny is an eccentric and technologically gifted geek who works as a Technical Analyst; she excelled in a field deemed to accommodate males only and made it easy and fashionable to be in this field. Fortunately, women are making their mark in this exciting industry and breaking down barriers individually, closing the gap in gender disparity. Even though stereotypes and misconceptions persist, most organizations' composition of their cybersecurity staff is distinctive.

I look up to Doreen Bogdan-Martin, who is the Secretary-General of the International Telecommunication Union, as well as Confidence Staveley, who is the founder of the Cyber Safe Foundation. I value both of them because of the work they're doing in the retention and advancement of women in cybersecurity, further proving that cybersecurity and tech have become more diverse, and the impact is shown in communities on a global scale.

What are your upcoming goals and plans for the future?

I have an unwavering vision of owning a massive Cybersecurity Operations Centre catering to underprivileged municipalities, hospitals, and schools across South Africa. Protecting these institutions' personal and sensitive information is paramount to me, and I am committed to ensuring that it happens.

I am currently part of several Non-Profit Organizations (NPOs) that are dedicated to code clinics, threat intelligence, regulations, and compliance. These NPOs will serve as a training ground for the next generation of Cybersecurity experts who will join me in the fight against cyber warfare.

I am in the process of creating a visually compelling security storybook for children, which will educate them about sexual grooming and the dangers of inappropriate content online. I have already begun drafting free guidelines for developing secure systems that adhere to industry-specific regulations, best practices, and policies specific to the system being developed. As a strong advocate for women in cybersecurity, I believe that we need more women in this sector. I am keenly interested in serving on the ICANN's Board of Directors as a policy advocate, where I can bring my unique perspective to the table and make a meaningful impact. ■



It is critical to use responsible AI practices and human oversight to ensure security and privacy





Christine Thembo, Cybersecurity Consultant, Traverse Security

Christine Thembo, a cybersecurity consultant at Traverse Security, granted Telecom Review Africa an exclusive interview. The discussion revolved around the evolving threat landscape, emphasizing that cybersecurity has become a paramount concern for African governments and the private sector in 2024. Thembo explored the significance of implementing a National Cyber Strategy for countries and highlighted the valuable contributions of women in cybersecurity based on her experience in the field.

Christine Thembo: 'Cybersecurity Should Be a Top Priority for Many Countries This Year'

In what ways has the threat landscape evolved to make cybersecurity a paramount concern for African governments and the private sector in 2024?

'We must first analyze the numbers from the year 2000 at the start of the millennium to the present day. The statistics are very clear and tell that cybersecurity should be at the top of the agenda for many countries in the year 2024.

Today, there are over 15 billion connected IoT devices worldwide, and that number is expected to

double by 2030. According to the World Economic Forum, AI-generated misinformation/disinformation is listed as the 2nd top risk of 2024, together with cyberattacks coming in at number 5 right under the cost of living. This is a clear indicator that as technology capabilities grow around the world, so does the threat landscape.

The 2019 KnowBe4 African Report, with over 800 respondents, indicates that people living on the continent are not prepared for cyber threats. 65% of respondents across all eight countries are concerned about cybercrime, but the main challenge with African governments has always been the risk of not knowing what they don't know and not investing enough resources to measure the risk, independent of other regions and influences. When it comes to cybercrime, most have assumed that because of the slow technology penetration, this also means that cybersecurity is a farfetched risk, which isn't the case.

The unemployment rate in Africa is expected to reach 7% in 2024 according to Statista, and this means that as Africa, we face the challenge of creating meaningful jobs for the continent with the youngest population worldwide, because as of 2022, around 40% of the population was aged 15 years and younger. If not well managed over the next decade, we may find ourselves with the highest number of cyber criminals worldwide.'

What's the importance of implementing a National Cyber Strategy for countries, taking into account the role of geopolitical factors in cyberwarfare?

'National cybersecurity strategies (NCSS) are the main documents of nation states to set strategic principles, guidelines, and objectives, and in some cases specific measures, in order to mitigate risk associated with cybersecurity, while Cyber Warfare is defined as actions where a nation-state penetrates another nation's networks or systems to cause damage or disruption.

A National Cyber Strategy in summary is a compass that guides a nation on how to set the right policies, systems, and processes in place to deal with the ever-evolving threat landscape in cybersecurity. However, it is key to emphasize that policies are not enough; most countries have defined very good policies but have not effectively implemented them.

An effective NCSS should address how to defend critical infrastructure, how to disrupt and dismantle threat actors, how to shape market forces to drive security and resilience, how to invest in a resilient future, and finally, how to forge international partnerships to pursue a shared goal.

Geo-politics has always been a factor in world peace, and today that fact rings truer with tensions rising in different regions of the world. That is why cyber warfare has been used as a tool to disrupt supply chains, shut down critical infrastructure, spread false propaganda and so much more.'

What foundational steps can governments take to establish cyber-aware systems and processes, ensuring robust cybersecurity measures are in place to protect sensitive data and critical infrastructure?

'Cybersecurity is a collective effort, and because of the nature of the risk it presents, most governments are learning on the job because no one (country) has been here before. So, for governments to successfully establish cyber-aware systems and processes, first they must benchmark against countries that are doing fairly better than the rest. According to Cyber Express, Singapore, Netherlands, Sweden, Ireland, the US, UK, Denmark, Canada and Japan are the top 10 world nations that are constantly on top of the cyber preparedness chart, with a combination of responsible governments, consistently updated mitigation techniques, and state-of-the-art cyber hygiene practices. [Note: it says top 10, but there are only 9 countries mentioned]



Once the benchmarking is completed, then a top-down system can be built. Governments have the sole responsibility to protect their citizens from ongoing cyber-attacks and crimes, meaning the country's policies, infrastructure, and trained personnel need to be established by the government first, then these policies can trickle down into the private sector corridors, NGOs, and finally to the individual level.'

How important do you believe women's contributions are in cybersecurity, based on your experience in the field?

'The field of cybersecurity dictates that one can pay attention to the fine details. Fortunately, this is a skill most women carry naturally.

In my experience, women should not just be trained in the formulation of cyber policies and c-suite management positions but should also be empowered to take on the technical roles that entail defense and offense activities in any computer environment.

As much as there still is bias towards women in the field, I am also a strong believer that you can't dismiss a knowledgeable person, male or female. So women should commit and invest time in simply being the best they can be in whichever area of cybersecurity they choose to specialize in in order to build confidence for them to take up more roles in the field.' **TR**

Etisalat Egypt Teams up with AWS to Speed up Cloud Technology Adoption



Etisalat by e& - Egypt announced a collaboration with AWS during the Mobile World Congress 2024 in Barcelona, Spain. The partnership aligns with Etisalat Egypt's strategy to offer cloud services using cutting-edge technologies, aiming to enhance data transfer speeds, storage capacity, and operational

efficiency for businesses and individuals across various sectors.

This collaboration focuses on leveraging the AWS cloud platform to update Etisalat Egypt's IT infrastructure through a hybrid cloud solution, AWS Outposts, which brings AWS infrastructure and services closer to customers. This partnership represents a significant step in embracing cloud technology and digital transformation within the region.

Eng. Amr Fathy, Chief Technology and Information Officer at Etisalat Egypt, emphasized that this partnership reaffirms the company's

commitment to delivering high-quality services to its customers. By integrating AWS Outposts solutions, Etisalat Egypt is preparing to update its IT infrastructure, enhance flexibility and speed in its operations, and stay ahead in a rapidly evolving digital landscape.

This alliance is expected to contribute significantly to the development of communication infrastructure, service quality, and the adoption of advanced cloud technologies. It aims to simplify operations, foster innovation, and enhance customer experiences in the telecommunications and IT sectors.

Telecom Egypt and Huawei Revolutionize Telecommunications Infrastructure Across Africa



In a significant stride towards enhancing telecommunications infrastructure across Africa, Telecom Egypt, a prominent telecommunications firm, has partnered with Huawei to lead the way in innovative technologies. These initiatives include pioneering Africa's inaugural DWDM 1.2Tbps single-channel lab test, preparing for 5G implementation, and successfully concluding the continent's first 50G PON trial.

DWDM 1.2Tbps Single-Channel Lab Test
Telecom Egypt and Huawei have achieved a significant milestone in African

telecommunications by successfully completing the trial of Africa's first DWDM 1.2Tbps single-channel lab test technology. This cutting-edge innovation leverages concentrated wavelength division optical fiber technology to exponentially enhance existing fiber networks' bandwidth capacity. With features like a state-of-the-art non-linear compensation algorithm and an intelligent neuron function module, the DWDM 1.2Tbps solution optimizes network transmission performance in real time, laying a solid foundation for Egypt's digital transformation.

Eng. Mohamed Nasr, Managing Director and CEO of Telecom Egypt, emphasized the company's dedication to integrating next-generation technologies to enhance digital capabilities. He highlighted how introducing DWDM 1.2T per channel technology aligns with the company's commitment to delivering smart connectivity and next-generation technologies to boost the digital capabilities of Telecom Egypt's customers and partners.

Telecom Egypt's infrastructure development includes highly reliable optical networks equipped with cutting-edge 400G/800G, Super C band, and Automatically Switched Optical Network (ASON) solutions. The 1.2Tbps coherent solution achieved in this trial meets commercial deployment requirements for transmission reach, spectral efficiency, latency, and system energy consumption, facilitating multiple applications such as Metro, short-haul, and Data Center Interconnect (DCI) over a single wavelength.

Vodafone M-PESA Mozambique and IFC Collaborate on Digitalization



The International Finance Corporation (IFC) signed a new cooperation agreement with Vodafone M-PESA Mozambique. The agreement aims to explore opportunities for expanding Vodafone's mobile payment services into rural areas, benefiting small-scale farmers.

The telecommunications operator aims to venture into the agricultural sector, which is predominantly composed of small-scale farmers (representing 95% of the country's total agricultural production) and relies heavily on cash payments. Through this partnership, Vodafone will extend its mobile payment activities to Mozambique, where

approximately 40% of adults have a mobile money account.

In this East African country, the plan is to digitize agricultural value chains, starting with payments received for produce and gradually introducing more sophisticated products such as agricultural insurance.

Beyond the agricultural sector, the advisory services provided by the IFC will help the telecommunications operator reorganize and strengthen its network of agents, as well as train its commercial team and mobile money agents. The international financial institution will also assist in expanding Vodafone's strategy for acquiring and managing merchants in various regions of Mozambique.

It's worth noting that this agreement follows a previous collaboration between the IFC and Vodafone M-PESA Mozambique in 2018.

Telecom Namibia Upgrades BSS With Qvantel's Digital Platform



Qvantel, a leader in Digital BSS, announced that it has been awarded a contract by multinational technology company SATEC Group to provide Qvantel Flex BSS to Telecom

Namibia to support its digital transformation strategy.

Telecom Namibia is providing the foundation to digitally transform

Namibia and increase digital inclusion. By providing fixed-mobile convergence, Telecom Namibia can offer a combination of fixed broadband and local access wireless technologies to allow for a superior broadband experience for customers.

SATEC Group is leading the transformation project, and they will work with Qvantel to implement Qvantel Flex BSS for all services (mobile, fixed, and value-added services) for all consumers and business customers. The solution enables the addition of many new services, such as content and ICT offers, and helps Telecom Namibia to achieve its goal of providing innovative services to its customers and supporting the growth of its market share.



Iris De Brito, Senior Researcher with the West African Digital Governance Forum, UNU EGOV

Personalized Learning with Digital Tools: Beyond Traditional Education

Iris De Brito, Senior Researcher with the West African Digital Governance Forum, UNU EGOV, gave an exclusive interview with Telecom Review Africa, focusing on exploring the key challenges that developing countries face in making ICTs accessible in remote rural areas. She detailed the role of ICT in empowering disadvantaged individuals and communities and contributing to their social and economic inclusion. Also, she gave her perspective on the impact of digital technologies on socioeconomic development, particularly for women and girls in remote rural areas of developing countries.

use between social groups that any society faces. The debate has taken on a regional focus that highlights the increase in these disparities between communities in different geographical regions, specifically the rural communities in developing countries given the myriad of challenges they face in terms of "access".

These challenges range from the lack of infrastructure, which is the entry barrier for the potential widespread use of the Internet, to the limited purchasing power that prevents its use even when it is available. More specifically, these challenges are centered on three main issues: 1) the availability of technology, which is simply providing the necessary and adequate hardware, software, and support to use this technology in rural areas; 2) connectivity; and 3) the need for a strong and suitable digital skilling policy to ensure the availability of expertise and human capacity or, at least, a sustainable plan to provide such training and knowledge.

This situation creates a vicious cycle of missed opportunities in the face of the potential of digital technology to improve the livelihoods of disadvantaged communities and to contribute to the attainment of the Sustainable Development Goals. However, maximizing this potential means not only making technology available but, more importantly, promoting its use in a way that can translate into effective social and economic inclusion. More than availability, "accessibility" is related to digital inclusion. It is digital inclusion that will allow bridging the digital divide.'

How do you perceive the role of ICT in empowering disadvantaged individuals and communities, and contributing to their social and economic inclusion?

'This can be achieved through the adoption of digital transformation strategies that go beyond the availability of digital technologies, and beyond a focus on digital literacy. This can only be done through the implementation of initiatives that are designed considering the complex settings of developing countries and the specificities of the environment surrounding these disadvantaged populations.

What are the key challenges that developing countries face in making ICTs accessible in remote rural areas, and how can these challenges be addressed to bridge the digital divide?

'The "digital divide" came to attention when referred to in the 1999 study Falling Through the Net: Defining the Digital Divide, carried out by the United States Department of Commerce and, since then, it has been used to characterize the differentiated "access" to information and communication technologies, tools and services, and to describe the disparities in their

While a sine qua non prerequisite, accessibility to digital technology per se does not lead to inclusive digital societies. However, as a support to the implementation of development strategies, its use must result in the empowerment of the most vulnerable communities by facilitating access to and promoting quality education, capacity building, increasing participation and decision-making in public life, and access to basic public services such as healthcare. In such a case, by resulting in the empowerment of communities, particularly of the most vulnerable, it becomes a real factor for social and economic inclusion and development, especially when associated with a solid component of awareness and education activities to reduce negative perceptions and enhance the benefits related to digitalization and innovation.

The disadvantaged individuals can and should be empowered by making sure that online services are specially implemented to accommodate specific needs (visual impairment, deaf or hard of hearing persons, and those with difficulty with finger and hand movements), and at the same time providing the training needed for these individuals to use such services, browse the internet, use social media and, above all, be able to leave their comments and participate in public life.

I stress an important issue that is not often addressed in such an empowerment process: to achieve full and effective inclusion of the disadvantaged, this process (i.e. providing resources and training) should not be focused solely on enabling them to use technology, but also on helping beneficiaries realize that technology is not a luxury, but rather a way of living that cannot be avoided. Provide them with knowledge and confidence to take control of the use of technology and not only raise their level to be able to use it. Once they reach this level of empowerment, they will be fully contributing to their own social and economic inclusion.'

What strategies would you suggest for maximizing the impact of digital

technologies on socioeconomic development, particularly for women and girls in remote rural areas of developing countries?

'In July 2023, the International Telecommunication Union (ITU) published a Technical Paper (to which I had the opportunity to contribute) that describes the architecture and use cases of the Interactive Mobile Digital Unit (IMDU), which is to be used for overcoming the barriers that are a common denominator in developing countries, such as lack of infrastructures, connectivity and electricity. Such a unit is expected to provide inclusion of persons with disabilities, with auditory processing disorder and visual impairment, while promoting faster comprehension of the content delivered.

The IMDU provides a comprehensive solution to address digital inclusion challenges and the pressing issue of public services delivery, while addressing the needs of persons with disabilities and with other specific needs in remote areas, including in the hard to reach. This solution is based on the Universal Design and the Universal Design for Learning approach to the teaching-learning process of development initiatives that also facilitate public services delivery. It offers a multidimensional approach to digital inclusion, ensuring the use of such tools to enhance the effectiveness of development initiatives in key areas such as education, health, governance, and/or climate change.'

How can the integration of the constructivist approach in instructional technology facilitate lifelong learning and behavior change?

'Information can be imposed but understanding cannot. Understanding, and thus knowledge, is formed by the individual and must come from within. Knowledge is "situated," and existing knowledge and experience influence the learner's understanding of the world in the sense that, because learning is a constructive process in which learners build an internal representation of knowledge and a personal interpretation of experience, meaning is developed based on experience.

The central belief in constructivism is that learning is an active process, and this approach supports the construction of a positive attitude towards learning and activity-based learning. It also supports the educational environment in terms of activating prior learning, sensitivity to individual differences, forming experiences, supporting individual learning, supporting collaborative learning, and ensuring active learning while enabling interaction. It offers an important advantage: since technology is developing at a fast pace, agility and smartness of new technologies require continuous learning, and hence constructivism.

All individuals would quickly realize that once they stop learning new ways of using digital technology in all new ways, they will fall behind. As such, they will find themselves eager to continue learning (i.e., sustained learning) to avoid falling back or being left behind. In other words, if the digital divide does not decrease, it will increase. It will never be constant. Lifelong learning, adaptation and change management become not only necessary but natural and embedded in the community's individuals.

Digital technologies and tools provide a rich basis to move past prescriptive instructions to designing teaching material that draws on the learner's prior knowledge and experience when developing instruction.

While "accessibility" challenges are a common denominator in developing countries, cultural diversity offers the opportunity for a reformulated and transformative approach to the technology of instruction in implementing development initiatives. It is an opportunity that should be capitalized on to harness the digital era's potential and create new opportunities while building towards an inclusive information society. Emancipation is not limited to overcoming economic injustices; it encompasses transforming ways of thinking and communicating to allow us to come together and to work as a global society to create inclusive and just solutions to global problems.' ■■



Empowering Minds: Catching the e-Learning Wave in Africa

The global education landscape has witnessed a significant shift towards digital learning platforms, with e-Learning becoming a cornerstone for educational advancement. However, in Africa, the journey towards widespread eLearning adoption has been riddled with challenges.

Overview
From 2018 to 2022, Seychelles boasted the highest adult literacy rate in Africa, reaching about 96%. São Tomé and Príncipe and Namibia came next. The overall

average literacy rate across the continent was approximately 67%. Additionally, Southern Africa emerged as the region with the highest literacy levels among all African regions, according to Statista.

E-learning, as well as open and distance education are experiencing

significant global growth, with diverse regional experiences proving valuable for enhancing proposals. Market research reports indicate a burgeoning demand for e-learning products and services in Africa, Asia, and Latin America, fueled by the rapid adoption of mobile devices and smartphones.



However, the success of e-learning is contingent on expanding broadband internet coverage and technology infrastructure, a task partly reliant on effective public policies. Furthermore, the advantages of e-learning are evident in academic institutions, companies, and even traditional educational establishments in Africa facing challenges in meeting the rising demand for higher education.

Notably, the research emphasizes the potential of open, distance, and e-learning to contribute to economic growth, address societal injustices, and eradicate inter-generational poverty in Africa. Events like the international eLearning Africa conference underscore the growing interest in leveraging technology for education. Furthermore, initiatives such as the African Virtual University, boasting over 310,000 students and a diverse array of online courses, mark significant strides in advancing e-learning in the continent.

The Challenges

In recent times, the integration of e-learning into the global education framework has encountered tough challenges in Africa. One significant hurdle lies in the limited technological infrastructure across various regions. Inconsistent internet connectivity, erratic power supply, and a scarcity of electronic devices contribute to a pronounced digital divide, impeding the seamless adoption of e-learning platforms.

Another significant obstacle is digital illiteracy, particularly prevalent among older generations and in rural communities. The lack of familiarity

with technology hampers effective engagement with e-learning tools, hindering its widespread acceptance.

High costs associated with internet access, electronic devices, and data bundles pose a significant barrier to the expansion of e-learning. This economic constraint exacerbates educational inequalities, limiting access for many families and hindering the democratization of online education.

A critical challenge involves the relevance of e-learning content. The absence of locally tailored and culturally sensitive materials impedes the effectiveness of digital education initiatives. Adapting curriculum materials to reflect the diverse cultural and linguistic backgrounds of African learners is imperative for creating meaningful and engaging e-learning experiences.

Overcoming the Challenges

Overcoming e-learning challenges in Africa demands a comprehensive approach that tackles various impediments to effective online education. Strategies encompass infrastructure improvement, including investing in and expanding reliable internet infrastructure to remote areas, and enhancing electricity supply for consistent online resource access. Initiatives to ensure access to devices, through affordability or subsidies, along with the promotion of low-bandwidth platforms for basic smartphones, are crucial. Digital literacy programs, collaborative efforts with tech companies for tailored educational solutions, and content localization

initiatives contribute to creating a conducive e-learning environment.

In addition, government support, as well as involving local communities, providing offline solutions, offering teacher training programs, implementing flexible learning models, and establishing robust monitoring and evaluation systems are integral components. Lastly, fostering public-private partnerships and leveraging resources from the private sector contribute significantly to addressing e-learning challenges in Africa. Collectively addressing these aspects can pave the way for a more inclusive and effective e-learning landscape.

According to Statista, the online African learning platforms market is poised to achieve a revenue milestone, reaching US\$429.50M by 2024, with an anticipated annual growth rate (CAGR 2024-2028) of 13.46%, projecting a market volume of US\$711.80M by 2028. The user base in this market is expected to surge to 25.5M users by 2028, with a projected increase in user penetration rate from 1.5% in 2024 to 1.8% by 2028.

The average revenue per user (ARPU) is predicted to be US\$22.09. In a global context, China is forecasted to lead in revenue generation, reaching US\$40.60BN in 2024, and is expected to have the highest user penetration rate at 21.0%. This data highlights the substantial growth of online learning platforms in Africa, driven by the increasing demand for accessible and flexible education options among students.

In summary, Africa finds itself at the intersection of a rapidly expanding e-learning landscape, where despite facing significant challenges, the continent's potential for transformative growth in online education is unmistakable. Implementing comprehensive strategies is imperative to surmount these obstacles. Africa has the opportunity to leverage e-learning as a potent instrument for inclusive and flexible education, underscoring the necessity for collaborative endeavors to secure a digitally empowered future for all and to foster national development. **TR**

Navigating Trust and Innovation in South Africa's Automotive Technology



With the electric vehicle (EV) market in South Africa expected to grow at a rate of 16.3% annually until 2028, with a projected value of ZAR 615 million by 2024, it's evident that the automotive landscape is headed towards a future defined by innovation. However, the shift to electric vehicles represents just the tip of the iceberg for the automotive sector. By 2030, an estimated 95% of new vehicles sold globally will be interconnected,

heralding an era dominated by software, customization, and automation.

Instilling Public Confidence

The significance of trust in this transition is highlighted, especially concerning technology-driven, in-car experiences, which hold the promise of revolutionizing our interactions with vehicles. Automakers are confronted with the task of instilling public confidence in these advancements.

Similarly, vehicles are aligning with other aspects of our lives, which are becoming increasingly governed by software. The past decade has witnessed a surge in the utilization of vehicle, driver, and sensor data, giving rise to concerns regarding data security, privacy, and the reliability of features like autonomous driving.

Recent events, such as the recall of millions of Tesla vehicles in the US due to issues with their autonomous features, underscore these concerns. In response, the advocacy for collaboration as a strategy is pivotal in 2024. It contends that automakers must collaborate to cultivate consumer trust in new vehicle enhancements, while the tech industry must equip them with robust IoT and cybersecurity systems, ensuring regulators and the public are kept informed.

Transforming Telecoms: Huawei ICT Services & Software Enable Digital Intelligence Acceleration



Driven by AI technologies, telecom companies are embarking on an accelerated transformation journey. Recognizing that advancing digital intelligence transformation hinges on the integration of vast carrier knowledge, experience, and data with cutting-edge AI technologies, Huawei, the leading global provider of information and

communications technology (ICT) infrastructure and smart devices has identified the critical need for this fusion.

Bruce Xun, President of Global Technical Service Department, indicated the cognition entails a shift from single-domain data to converged data and digital twin. Moreover, the effective

management of documents, knowledge library, vector database, and corpuses are essential for cognitive enhancement. Leveraging these foundational elements, Huawei applies AI technologies to cultivate intelligent innovations, thereby elevating existing digital solutions to achieve tangible business value in high-value scenarios.

Delving into IT integration, Bruce explained that the intelligent IT Integration aims to build diversified computing centers in the AI era. "In general DC scenarios, the innovative prefabricated Fusion Block data center shortens the TTM by 29%, improves the space usage effectiveness by 10%, and reduces the initial CAPEX by 30% compared to traditional solutions. In addition, the solution supports flexible horizontal and vertical expansion, and has been deployed in more than 25,000 cabinets worldwide."

Ugandan Government Aims to Decrease Internet Bandwidth Costs



The Ugandan government aims to significantly reduce the monthly cost of internet bandwidth provided through its fiber optic national backbone infrastructure. Within a year, the plan is to lower the cost from \$35 to \$5, marking an 86% reduction. This announcement came during the signing of a memorandum of understanding with MasterCard by Godfrey Kabbyanga, the Minister of State for ICT.

Building upon a prior 50% reduction in August 2023, where the cost was initially \$70 per megabit per second per month, the government is striving for further reductions. Despite the previous cut stabilizing costs and expanding access, the government deems it necessary to achieve more substantial reductions. Kabbyanga emphasized the importance of this initiative, especially in enhancing the information management systems of the parish model being implemented in over 10,000 parishes nationwide.

The broader context involves the Ugandan government's commitment to accelerating digital transformation, supporting economic recovery, creating opportunities

for the youth, and realizing "Vision 2040." In March 2023, the government received 1.8 trillion Ugandan shillings (\$464.2 million) from the World Bank to expand internet access. Additionally, negotiations are underway for a \$150 million loan from China Eximbank to further develop the country's internet infrastructure.

By reducing the cost of public internet, the Ugandan government aims to not only facilitate greater internet adoption but also hopes to incentivize private players to lower their prices. This ripple effect is anticipated to contribute to an overall reduction in the cost of internet in the country, addressing the growing demand for connectivity.

African Businesses to Use AI for Streamlined Search Advertising



In a digital era defined by rapid technological advancements, African businesses are poised to embark on a transformative journey fueled by the power of artificial intelligence (AI). With the introduction of AI-driven solutions, particularly in the realm of search advertising, businesses across the continent are set to experience unprecedented levels of efficiency, effectiveness, and success.

The landscape of business in Africa is evolving, spurred by the increasing

accessibility of the internet and the growing prevalence of digital platforms. However, amidst this burgeoning digital landscape, businesses often face challenges in effectively reaching their target audience and maximizing their online visibility. Traditional methods of advertising, while still relevant, can be time-consuming and resource-intensive, particularly for smaller enterprises with limited budgets and manpower.

Enter artificial intelligence—a game-changer in the realm of digital

marketing. By harnessing the power of AI, African businesses now have the opportunity to streamline their search advertising efforts, optimizing their campaigns for maximum impact and return on investment. AI-driven solutions offer a range of benefits, from automated ad creation to real-time optimization, allowing businesses to reach the right audience with the right message at the right time.

One of the key advantages of AI-driven search advertising is its ability to analyze vast amounts of data and derive actionable insights. By leveraging machine learning algorithms, AI-powered platforms can identify patterns, trends, and preferences among target audiences, enabling businesses to tailor their advertising strategies accordingly. This level of precision and personalization not only increases the effectiveness of advertising campaigns but also enhances the overall customer experience.



Guardians of Progress: AI Shielding Africa's Critical Infrastructure

In an era where technological advancements are reshaping the global landscape, the role of artificial intelligence (AI) in safeguarding critical infrastructure in Africa is gaining prominence. As nations strive for economic development and technological integration, securing vital assets such as energy grids, transportation networks, and communication systems becomes paramount.

Protecting Against Cyber Threats
AI serves as a potent weapon in the ongoing battle against cyber threats to critical infrastructure. Machine learning

algorithms, adept at navigating vast datasets, play a pivotal role in identifying patterns indicative of potential attacks. Predictive analytics, a product of AI, enables proactive measures to prevent or mitigate damage, fortifying the overall cybersecurity posture. This proactive

approach is essential for staying one step ahead of evolving cyber threats targeting essential systems.

In parallel, the integration of AI-powered surveillance systems revolutionizes monitoring capabilities. Also, advanced image



and video analytics, fueled by AI, swiftly identify unusual activities, unauthorized access, or potential security breaches. Drones equipped with AI add another layer to real-time monitoring, providing crucial oversight over expansive areas. This fusion of technology enhances situational awareness and response capabilities, significantly bolstering the security infrastructure.

Furthermore, AI contributes to the resilience and maintenance of critical infrastructure. Proactive maintenance, facilitated by AI, predicts and addresses issues before they lead to failures. Smart sensors and IoT devices, interconnected with AI systems, continually monitor the health and performance of infrastructure components. This continuous monitoring and predictive maintenance contribute to the overall resilience of critical systems, ensuring a robust and reliable foundation.

The Promise and Perils of AI in Africa

In various African nations, the integration of AI is becoming increasingly evident, signaling what advocates believe is a promising future for the continent. South Africa

uses drones to monitor weeds, Mauritius employs computers for health data analysis, and Nairobi utilizes surveillance systems for traffic management. With a burgeoning population of 1.4 billion, 70% of whom are under 30, coupled with substantial AI investments, the continent holds vast potential. Ghana's vice-president, Mahamudu Bawumia, emphasized the need for Africa to harness its resources and not wait for the world to reap the rewards. Despite ongoing AI initiatives in agriculture, healthcare, and energy, research places African countries lower globally, indicating a lag in AI development.

The imperative for AI solutions has intensified due to challenges like weak infrastructure, political instability, and the impact of the COVID-19 pandemic. AI has been pivotal in modeling disease spread, optimizing water reserves, and predicting natural disasters. However, the continent faces a dual challenge: a pressing need for AI solutions hindered by insufficient skills, digital infrastructure, and data quality. Concerns about human rights abuses, disinformation, and potential misuse of AI-generated content further complicate the ethical landscape.

Capacity Building and Skill Development

Capacity building and skill development are paramount in unlocking the full potential of artificial intelligence (AI) in Africa. To successfully integrate AI technologies into critical infrastructure, there must be a strategic emphasis on investing in education and skill development programs. This involves not only fostering a deep understanding of AI concepts but also nurturing a workforce equipped to harness its power effectively.

Initiatives that specifically target STEM (Science, Technology, Engineering, and Mathematics) education and vocational training play a crucial role in bridging the existing skills gap in AI-related fields. By prioritizing these educational avenues, African nations can cultivate a pool of talent adept at navigating the complexities of AI, ensuring a sustainable and proficient workforce capable of driving innovation and addressing the evolving demands of safeguarding critical infrastructure in the digital age.

Despite potential benefits, like predicting conflicts and preserving peace, the responsible and ethical use of AI in Africa remains a critical consideration, dependent on human decisions and actions.

Looking Ahead

Despite the potential benefits, responsible and ethical use of AI in Africa remains a critical consideration. Africa has a distinctive chance to propel itself into the Fourth Industrial Revolution (4IR) by addressing challenges, creating incentives for technology adoption, and enhancing education in mathematics and informatics. Awareness of technological drawbacks is imperative for successful integration into the 4IR.

In conclusion, AI presents Africa with opportunities for economic growth and innovation, but addressing challenges and ensuring ethical use are vital for a successful transformation. **TR**



Watts Next?

Unveiling the Electric Car Revolution in Africa

While discussions often center around the growing popularity of electric cars in the US, Europe, and China, the spotlight is turning toward Africa. The continent is experiencing a heightened awareness of environmental issues, leading to the implementation of new policies and initiatives aimed at environmental protection. This increased focus on sustainability is driving a growing interest in electric vehicles (EVs) among the people of Africa.

As the world collectively shifts towards sustainable and eco-friendly solutions, Africa is emerging as a dynamic participant in the global transition to electric vehicles. Known for its abundant natural resources and diverse landscapes, the continent is embracing a new era of transportation that aligns with the imperative for environmental stewardship. At the forefront of this transformative movement is the increasing adoption of electric cars, not only addressing the challenges posed by traditional

fossil-fuel-driven vehicles but also propelling Africa towards a cleaner and more sustainable future.

The decision to leverage Africa's minerals for manufacturing batteries for electric vehicles and assembling them locally carries profound implications, not only for the involved countries but for the entire continent. This strategic move signifies a shift towards a new industrial era, emphasizing the importance of transitioning to cleaner energy and battery-powered technologies as catalysts for Africa's industrialization. Unlike previous scenarios where Africa provided resources without

reaping adequate benefits, there is a determined effort to add value locally, with some countries, like Zimbabwe, even restricting the export of important components like lithium.

Overview

The electric vehicles market in Africa is expected to achieve a revenue of US\$85.6 million by 2024, with a projected annual growth rate (CAGR 2024-2028) of 17.33%, leading to an estimated market volume of US\$162.2 million by 2028, and 4.19-thousand-unit sales of electric vehicles.

The volume-weighted average price for electric vehicles in Africa is



anticipated to be US\$39.5 thousand in 2024. This growing adoption of EVs can be attributed to government incentives and the increasing demand for sustainable transportation solutions. As of 2022, South Africa, the most advanced market in Africa, had approximately 1,000 electric vehicles out of a total fleet of 12 million automobiles, while Kenya had an estimated 350 EVs among approximately 2.2 million registered vehicles in use. Electric mobility is still in the developmental stage in Africa, with increasing sales but remaining comparatively low globally.

Leading the Way

Between 10-12% of Africa's greenhouse gas emissions stem from transportation, a figure likely to increase with a growing population and higher average income. About 70% of vehicle sales in sub-Saharan Africa occur in South Africa, Kenya, Rwanda, Uganda, Ethiopia, and Nigeria. The aim is to transition as many of these vehicles to electric. Progress towards this goal is notable in the public transit sector, where electric two- and three-wheelers, particularly electric motorcycles, are gaining popularity. Electric motorcycle taxis, known as "bodaboda," are already making waves, with Uber introducing a fleet of electric motorcycle taxis in Nairobi.

Moreover, the next wave of electrification is expected to impact minibuses, buses, and vans. Public transport in Africa, often lagging in on-demand services, is poised for the introduction of electric buses.

Initiatives like China's BYD partnering with Golden Arrow Bus Services in South Africa and the retrofitting of the first internal combustion engine minibus taxi to electric showcase the growing interest in electric public transport.

Rwanda and Tanzania are also making strides in the EV industry. Rwanda provides tax breaks, lower electricity tariffs, and incentives like green license plates, while Tanzania has a growing number of EV startups and a focus on retrofitting safari vehicles for electric use.

Furthermore, Uganda, with 90% of its electricity from renewable sources, is well-positioned for the EV revolution. Kiira Motors Corporation aims to develop and produce EVs using solar or electric charging. Notable startups like Zembo and Modjo Energies are importing and selling new e-motorcycles and retrofitting internal combustion engine motorcycles to electric ones, respectively. These East African countries are just a few examples of the growing EV presence across the continent, from Togo and Benin to Morocco and Tunisia.

Challenges

Several challenges impede the widespread adoption of e-cars in Africa. A significant obstacle is the insufficient charging infrastructure, with many African countries lacking an extensive network of charging stations, complicating the convenient charging of electric vehicles. Additionally, regions experiencing unreliable and inconsistent electricity

supply, marked by frequent power outages and inadequate access to electricity, pose challenges for regular e-car charging.

The initial cost of electric cars presents another hurdle, often surpassing that of traditional internal combustion engine vehicles. This higher cost acts as a substantial barrier for many consumers in Africa, where average income levels are comparatively lower. Import duties and taxes on electric vehicles contribute to their elevated cost, and the reduction or waiver of these charges could incentivize more widespread adoption.

Limited model availability further hampers adoption, as there is a restricted selection of electric car models in the African market. The lack of variety may discourage potential buyers seeking options that align with their preferences and needs. Concerns surrounding battery technology and "range anxiety" — the fear of being stranded due to limited battery range and charging station availability — also play a role in inhibiting adoption.

Public awareness and education about the benefits of electric vehicles remain low in Africa, contributing to a lack of understanding regarding the technology, its environmental advantages, and potential cost savings. The absence of clear and supportive policies and regulations poses a significant challenge, as governments can play an important role in promoting EVs through incentives, subsidies, and regulations that support market growth.

Overall, economic challenges may take precedence over environmental concerns, making it difficult for individuals to prioritize the adoption of electric vehicles. Addressing these challenges necessitates a coordinated effort from governments, businesses, and communities to create an environment conducive to EV adoption. Developing a robust charging infrastructure, implementing supportive policies, and increasing public awareness are essential steps towards overcoming these obstacles in the African context. **TR**



As Africa embarks on its transformative journey towards digitalization, the pivotal year of 2024 emerges as a crucial juncture where strategic policy interventions hold the power to profoundly expedite progress. Amidst the rapidly evolving global digital landscape, Africa finds itself at a pivotal moment, poised to leverage digitalization as a catalyst for economic expansion, social advancement, and enhanced livelihoods. In this comprehensive analysis, we explore three paramount policy imperatives that have the potential to ignite accelerated digitalization across the continent: Digital finance, digital skills development, and digital infrastructure.

Accelerating Africa's Digital Transformation: Three Essential Policy Priorities for 2024

D**igital Finance**
Digital finance has emerged as a cornerstone of inclusive economic development, offering opportunities to expand financial inclusion and unlock economic potential. In Africa, where millions remain unbanked or underbanked, leveraging digital financial services can bridge the gap and empower individuals and businesses alike. Policy initiatives aimed at promoting digital finance must prioritize regulatory frameworks that foster innovation while ensuring consumer protection and data privacy. Furthermore, investments in digital payment infrastructure, such as mobile money platforms and digital banking solutions, can facilitate seamless transactions and improve access to financial services, even in remote areas.

Moreover, fostering partnerships between governments, financial institutions, and fintech startups can drive the adoption of digital finance solutions. By leveraging technology and collaboration, Africa can overcome traditional barriers to financial inclusion and pave the way for a more inclusive and resilient economy.

Digital Skills Development

A skilled workforce is essential for leveraging digital technologies effectively and driving innovation in the digital age. However, the digital skills gap remains a significant challenge across



Africa, hindering the continent's ability to fully capitalize on the opportunities presented by digitalization. Addressing this gap requires a concerted effort from governments, educational institutions, and the private sector to prioritize digital skills development as a fundamental component of the education system and workforce training programs.

Policy initiatives aimed at promoting digital skills development should focus on curriculum reform to integrate digital literacy and technical training from an early age. Additionally, initiatives such as vocational training programs, coding boot camps, and online learning platforms can provide avenues for upskilling and reskilling workers to meet the demands of the digital economy. By investing in human capital and empowering individuals with relevant digital skills, Africa can unlock new employment opportunities, drive entrepreneurship, and foster innovation-led growth.

Digital Infrastructure

Robust digital infrastructure is the backbone of any successful digital transformation strategy, enabling connectivity, data transmission, and access to online services. In Africa, the expansion of digital infrastructure remains a priority to overcome challenges

related to limited internet penetration, inadequate network coverage, and high data costs. Policy interventions must prioritize investments in broadband infrastructure, including fiber optic networks, satellite technology, and 5G rollout, to expand access to high-speed internet connectivity across urban and rural areas.

Furthermore, initiatives aimed at reducing the digital divide should prioritize underserved communities and rural areas, where access to reliable internet connectivity remains limited. Public-private partnerships can play a crucial role in accelerating the deployment of digital infrastructure by leveraging private sector expertise and investment capital. Moreover, regulatory reforms to promote competition, reduce licensing barriers, and streamline bureaucratic processes can create a conducive environment for infrastructure development and investment.

In conclusion, the year 2024 presents a pivotal moment for accelerating digital transformation in Africa, with digital finance, digital skills development, and digital infrastructure emerging as three critical policy priorities. By prioritizing these areas and implementing targeted policy interventions, African governments

can unlock the continent's digital potential, drive inclusive growth, and position Africa as a global leader in the digital economy. However, achieving these objectives will require sustained political will, strategic investments, and collaboration between government, industry stakeholders, and civil society. As Africa embarks on this digital journey, the time to act is now to harness the power of technology for the benefit of all its citizens. **TR**



The background is a dark blue gradient with vibrant, glowing light trails in shades of purple, magenta, and cyan. These trails curve and swirl across the frame, creating a sense of motion and energy. On the right side, a large, stylized number '5' is prominently displayed, rendered in a bright magenta color with a subtle glow. The overall aesthetic is futuristic and high-tech.

5

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Researches indicate that 5G subscriptions in Sub-Saharan Africa are projected to reach 180 million by 2029

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Les recherches indiquent
que les abonnements à la
5G en Afrique subsaharienne
devraient atteindre 180
millions d'ici 2029

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L'internet mobile « provisoirement suspendu » au Sénégal



Le ministère de la communication, des télécommunications et du numérique a demandé aux opérateurs télécoms de mettre temporairement fin à l'accès à l'internet mobile au Sénégal. Cette mesure vise à restreindre la propagation de contenus haineux et subversifs circulant sur les réseaux sociaux.

Selon l'*Autorité de régulation des télécommunications et des postes (ARTP)*, cette perturbation impacte les 18,59 millions d'internautes mobiles que comptait le pays au troisième trimestre 2023.

Cette initiative gouvernementale survient dans un contexte de menace

potentielle de troubles à l'ordre public du report indéfini de l'élection présidentielle.

Il convient de noter que ce n'est pas la première fois que le gouvernement sénégalais recourt à la suspension de l'accès à internet en période de crise politique. Cette pratique de restreindre l'accès à internet en cas de troubles sociopolitiques n'est pas unique au Sénégal. D'autres pays d'Afrique subsaharienne, tels que les Comores, ont également adopté cette approche.

Par ailleurs, l'organisation britannique Top10VPN estime qu'en 2023, les coupures de réseau ont touché 84,8 millions d'internautes en Afrique subsaharienne, entraînant des pertes économiques estimées à 1,74 milliard de dollars sur une durée cumulée de 30 785 heures.

Afrique connectée : une hausse significative des ventes de smartphones



Les expéditions de smartphones en Afrique ont atteint 68,7 millions d'unités en 2023, enregistrant une augmentation de 6 % par rapport à l'année précédente.

Cette croissance est principalement attribuée au renforcement de la

confiance des consommateurs au cours du deuxième semestre 2023, durant lequel 37,1 millions de smartphones ont été vendus sur le continent. La demande croissante de services numériques, le développement des réseaux sociaux et la popularité croissante des options « Acheter

maintenant, payer plus tard » ont également contribué à cette hausse.

La demande de smartphones dans les pays africains devrait continuer de croître en raison des changements de paradigme technologique. Compte tenu des revenus limités dans plusieurs pays, les fournisseurs, gouvernements et opérateurs télécoms chercheront activement à rendre les smartphones plus abordables et à réduire les coûts d'Internet grâce à des solutions innovantes.

Par ailleurs, selon la GSMA, l'Afrique subsaharienne devrait compter environ 1,2 milliard de connexions sur smartphones d'ici 2030, représentant 88 % du nombre total de connexions mobiles dans la région, par rapport à 51 % en 2022.

NOKIA



Mounir El Aichaoui, directeur des réseaux mobiles pour l'Afrique du Nord et de l'Ouest, Nokia

Exploration des innovations technologiques et des initiatives durables

Dans cette interview exclusive, Mounir El Aichaoui, directeur des réseaux mobiles pour l'Afrique du Nord et de l'Ouest chez Nokia, a mis l'accent sur les dernières avancées technologiques et stratégies de l'entreprise dans la région, ainsi que son engagement en matière de responsabilité sociale et environnementale.

Quels sont les derniers services lancés par Nokia et qui profitent au continent africain ?

De nombreuses innovations et solutions ont été introduites récemment. Premièrement, nous avons le *NICE* un outil qui permet aux opérateurs de prédire la demande sur le réseau et d'y répondre manière proactive. Il a été développé par notre équipe de planification et d'optimisation des réseaux mobiles, et utilise des données extraites de l'OSS et les informations de *crowdsourcing* telles que *Tutela* dont les données sont exploitées à l'aide d'algorithmes de *machine learning*.

C'est un atout précieux pour nos opérateurs, surtout dans les régions confrontées à des revenus moyens par utilisateur (*ARPU*) faibles et à des contraintes budgétaires. En effet, il les guide dans l'allocation efficace de leurs ressources, en identifiant les zones nécessitant des améliorations en termes de compétitivité et en fournissant une vision précise de la réalité sur le terrain, notamment là où la demande des utilisateurs n'est pas satisfaite. Ces informations permettent à nos clients de diriger leurs investissements vers les zones et les technologies les plus appropriées. Cette solution est la première que nous avons déployée dans toute la région du Moyen-Orient et de l'Afrique, y compris en Afrique du Nord-Ouest.

La deuxième innovation dont je souhaite parler, est notre solution pour les zones rurales, appelée *RuralConnect*. Basée sur notre infrastructure *RAN* de Nokia, elle a été développée comme son nom l'indique pour les zones rurales. Elle utilise l'énergie solaire, les solutions de transmission, que ce soit micro-ondes, relais *UE* de Nokia, ou satellite, ainsi que des solutions de travaux civils sans béton pour les mâts pouvant mesurer entre 10 et 20 mètres de haut, c'est-à-dire qu'ils peuvent être déployés très rapidement, mais aussi être redéployés en cas de besoin. Ainsi, dans une zone rurale, cela serait utilisé pour démarrer un service et, au fur et à mesure que ce dernier

se développe, il peut être remplacé par de nouveaux sites. En outre, grâce à cette solution, les tours sans béton peuvent être démantelées et redéployées ailleurs selon les besoins.

Comment Nokia intègre-t-il les initiatives environnementales pour réduire son impact écologique et promouvoir la durabilité dans ses opérations, notamment en Afrique ?

La stratégie ESG -critères environnementaux, sociaux et de gouvernance- de Nokia ne se limite pas à l'Afrique, mais constitue un pilier essentiel de notre stratégie d'entreprise globale. Nous sommes convaincus qu'il n'y a pas de progrès environnemental sans progrès numérique. Cette conviction est au centre de nos efforts de numérisation. En effet, nous considérons que le ESG est un moteur de création de valeur et de diversification des sources de revenus. Maintenant, dans le cas de l'Afrique, objet de votre question, nous articulons notre stratégie sur deux axes principaux.

Tout d'abord, nous nous engageons dans la préservation de l'environnement et dans la réduction de la consommation énergétique grâce à des initiatives telles que notre nouvelle solution *AirScale*. Cette solution est équipée d'un système sur puce permettant d'économiser entre 20 et 40% d'énergie.

Le deuxième axe de notre approche est le réseau cognitif d'*auto-optimisation* communément appelé *CSON*. Cet outil intègre un modèle d'économie d'énergie qui analyse le comportement du site par rapport au trafic, puis ajuste l'utilisation de l'énergie en conséquence, permettant ainsi des économies significatives. Nous avons récemment déployé cette solution pour notre client *Orange*, afin de fournir des fonctionnalités de veille prolongée visant à améliorer leur efficacité énergétique.

Par ailleurs, nous mettons l'accent sur la circularité, en recyclant et en réutilisant les composants usagés plutôt que de les

jeter. En Égypte, par exemple, nous avons collaboré avec l'*ONUDI*- *Organisation des Nations Unies pour le Développement Industriel*, *Orange Égypte*, *Sofrecom* et d'autres partenaires pour construire un centre de remise à neuf, dans le but de récupérer d'anciens équipements, de les recycler et les remettre à neuf.

En outre, nous travaillons en partenariat avec un important opérateur africain pour promouvoir la réutilisation d'équipements remanufacturés dans le cadre de sa stratégie et de ses programmes d'approvisionnement. Toutes ces innovations montrent à quel point nous sommes sérieux dans nos engagements en matière de ESG.

En quoi les services de Nokia sont-ils uniques par rapport aux autres acteurs du marché ?

La spécificité de Nokia dans la région du Moyen-Orient et de l'Afrique réside dans notre engagement à être le partenaire privilégié de nos clients, une valeur fondamentale que nous défendons avec conviction, aussi bien en interne qu'en externe. Tout d'abord, nous nous engageons à fournir à nos clients le bon équipement, au bon prix, avec une livraison impeccable. Deuxièmement, nous assumons le rôle de conseiller vers lequel les clients se tournent pour des questions stratégiques ou des attentes futures. Troisièmement, nous attachons une grande importance à la protection des intérêts de nos clients en matière de conformité, d'éthique et de sécurité. Chez Nokia, la sécurité et la protection de nos employés, de nos sous-traitants et de nos clients, notamment dans des régions de l'Afrique où les risques sont élevés, sont des priorités absolues. Nous sommes fermement convaincus de l'importance de dialoguer longuement avec nos clients afin de prévenir tout risque potentiel pour leur réputation, leur conformité ou leur sécurité. Nous estimons tout simplement que la valeur de la vie humaine est inestimable.

Quelles tendances futures prévoyez-vous pour les réseaux mobiles en Afrique du Nord-Ouest ?

Lors de mes réunions avec nos clients en Afrique du Nord-Ouest, trois tendances émergent et se reflètent dans leurs stratégies. Tout d'abord, la 5G reste une grande priorité, bien

que sa pleine adoption ne soit pas imminente. Je prévois son déploiement vers 2025 ou 2026, étant donné qu'elle figure sur l'agenda de nombreux CTOs et CEOs. Les défis résident dans un déploiement rentable, des cas d'usages adaptés aux marchés locaux et la gestion des investissements.

En outre, la connectivité des non-connectés demeure un enjeu majeur en Afrique, où le besoin de sites ruraux et de services universels reste crucial pour combler le fossé numérique. Un de mes clients au Sénégal m'a récemment dit que chaque fois qu'ils activent l'un de leurs sites ruraux, il est immédiatement utilisé à pleine capacité. Il existe donc clairement un besoin de connectivité dans les zones rurales. Ce qui est également très important, c'est l'impact que cela a sur ces petites communautés, car en les connectant, nous leur donnons accès à des services tels que les services bancaires, auxquels ces communautés n'ont même pas accès.

Enfin, les opérateurs se tournent de plus en plus vers les entreprises (B2B) pour diversifier leurs sources de revenus, car ils ne peuvent pas augmenter les prix unitaires de communication. L'industrialisation et la croissance du secteur B2B sont donc des priorités pour répondre à ce besoin de diversification des revenus. **TR**



Nous nous engageons dans la préservation de l'environnement et dans la réduction de la consommation énergétique grâce à des initiatives telles que notre nouvelle solution *AirScale*





Le Togo connecté : une aventure technologique en pleine croissance

Au cours de ces dernières années, le Togo a connu une transformation significative dans le domaine des technologies de l'information et de la communication (TIC), illustrant un engagement croissant envers le développement numérique. Cette évolution positionne le pays comme un acteur prometteur sur la scène technologique en Afrique, avec des progrès notables dans plusieurs domaines clés.

L'infrastructure des TIC au Togo a été au cœur des initiatives de développement, avec des investissements majeurs entrepris pour renforcer les réseaux de télécommunications et étendre l'accès à internet à un plus grand nombre de la population. Cette expansion de l'infrastructure a créé un environnement propice à la connectivité, favorisant le développement des TIC et stimulant, par conséquent, l'économie numérique. De plus, l'accessibilité

à Internet s'est considérablement développée, ouvrant de nouvelles opportunités pour les entreprises et la population en général. En effet, cet élargissement de l'accès à internet a été un catalyseur essentiel pour le développement de ce secteur, en favorisant l'innovation et l'adoption de solutions numériques.

En effet, les opérateurs de télécommunications au Togo, *Togocom* et *Moov*, jouent un rôle actif dans l'amélioration de la qualité des services, déployant des efforts considérables à étendre la couverture réseau et à introduire des technologies innovantes

pour répondre aux besoins changeants des consommateurs. Cette dynamique contribue à placer le Togo parmi les acteurs émergents du secteur des télécommunications en Afrique de l'Ouest.

Les géants des télécoms

Le secteur des télécommunications au Togo est dominé par deux grands opérateurs, *Togocom* et *Moov*, qui jouent des rôles importants dans ce domaine.

Togocom, entreprise publique, occupe une position centrale en tant qu'opérateur historique, offrant des

services téléphoniques et Internet à travers le pays. Selon l'ARCEP, Togocom détient 41% du marché de l'Internet fixe et 58% du marché de la téléphonie mobile au Togo.

Forte de son héritage, Togocom a élargi son offre pour inclure des solutions innovantes, contribuant ainsi à la modernisation du secteur. De plus, cet opérateur télécom a sécurisé un prêt de 60,3 millions USD de la Société Financière Internationale (SFI), une branche de la Banque mondiale, pour moderniser les infrastructures télécoms, étendre le réseau mobile 4G et développer la fibre optique à travers le pays. L'objectif de Togocom est d'améliorer la qualité et la vitesse de la connexion, renforçant ainsi sa position sur le marché national. Par ailleurs, grâce à des partenariats stratégiques comme la connexion au câble Equiano de Google, Togocom a renforcé sa capacité totale à 130 Gb/s.

En outre, ces investissements visent à réduire la fracture numérique au Togo, soutenant ainsi les ambitions de transformation numérique du gouvernement.

Moov, un autre grand acteur privé de ce secteur, apporte une dynamique concurrentielle au marché togolais des télécommunications. Avec un accent mis sur l'innovation et la qualité des services, Moov a attiré une part significative de la clientèle, stimulant d'une part, la concurrence et favorisant le développement continu du secteur, d'autre part.

Ces deux opérateurs, l'un public et l'autre privé, contribuent de manière significative à la connectivité nationale, offrant aux citoyens togolais un large éventail d'options pour répondre à leurs besoins de communication et d'accès à Internet.

L'état du numérique au Togo

Fin janvier 2023, le Togo comptait 3,13 millions d'utilisateurs d'internet, avec un taux de pénétration de 35%. Selon l'analyse de Kepios, le nombre d'utilisateurs d'internet au Togo a augmenté de 71 mille personnes (+2,3%) entre 2022 et 2023. Cependant, malgré cette croissance, 5,82 millions

de personnes au Togo ne faisaient pas usage d'internet en début d'année 2023 ; en d'autres termes, 65,0% de la population restait hors ligne au début de l'année.

En ce qui concerne les vitesses de connexion à Internet au Togo en 2023, les données publiées par Ookla révèlent que les utilisateurs pouvaient profiter des vitesses suivantes :

- Vitesse de connexion Internet mobile via les réseaux cellulaires : 25,50 Mbps.
- Vitesse de connexion Internet fixe : 29,63 Mbps.

Les données d'Ookla indiquent également que la vitesse de connexion Internet mobile au Togo a augmenté de 1,30 Mbps (+5,4%), entre 2022 et 2023. Parallèlement, les vitesses de connexion Internet fixe au Togo ont augmenté de 12,80 Mbps (+76,1%) au cours de la même période.

La croissance de la connectivité

Si la connectivité s'est améliorée de manière significative au Togo, c'est grâce à deux câbles marins, ACE et Equiano, dont le rôle a été primordial à cet égard.

ACE : Le câble sous-marin Africa Coast to Europe (ACE) a activement participé à l'amélioration de la connectivité et des services de télécommunications et d'internet au Togo, en reliant le pays à l'infrastructure internet mondiale. Ce câble sous-marin à haute capacité qui s'étend le long de la côte ouest-africaine jusqu'à l'Europe a facilité la transmission de données de façon plus rapide et plus fiable, bénéficiant ainsi à divers secteurs tels que les affaires, l'éducation et la santé. La connectivité développée a soutenu la croissance d'initiatives numériques, du commerce électronique et de la communication en ligne dans le pays. De plus, le câble ACE a contribué à réduire la fracture numérique en élargissant l'accès à Internet à une population plus large, favorisant le développement socio-économique et l'intégration dans le paysage numérique mondial.

Equiano : Opérationnel au Togo depuis août 2023, le câble sous-marin Equiano

de Google est actuellement en cours d'activité et fournit la 5G, permettant déjà aux fournisseurs d'accès et aux opérateurs mobiles de proposer des services Internet aux citoyens togolais. Depuis son arrivée en mars 2022, le câble Equiano a fait du Togo le premier pays africain connecté. Le pays vise maintenant à étendre son utilisation aux pays voisins tels que le Ghana, le Bénin et le Burkina Faso. De plus, le Togo est en train de renforcer également son réseau de fibre optique et de positionner Lomé en tant que « point d'entrée » clé pour la connectivité Internet dans la sous-région.

Connexions mobiles

En termes de chiffres, et selon les données de GSMA Intelligence, il y avait 6,15 millions de connexions mobiles cellulaires au Togo au début de l'année 2023.

Cependant, il est important de noter que de nombreuses personnes dans le monde utilisent plus d'une connexion mobile, une par exemple pour un usage personnel et une autre pour le travail. Par conséquent, il n'est donc pas rare que les chiffres de connexions mobiles dépassent considérablement la population totale.

Toujours selon GSMA Intelligence, les connexions mobiles au Togo représentaient 68,7 % de la population totale en janvier 2023 ; ce nombre a augmenté de 72 000 (+1,2 %) entre 2022 et 2023.

Le secteur des TIC au Togo démontre une croissance prometteuse et une évolution significative, grâce à des investissements majeurs qui ont créé un environnement propice à la connectivité, stimulant ainsi l'économie numérique et favorisant l'innovation. Avec une augmentation notable de l'accès à Internet, le pays se positionne désormais comme un acteur émergent sur la scène technologique africaine.

En somme, la connectivité nationale se trouve renforcée par la dynamique compétitive entre les acteurs publics et privés, combinée à des partenariats stratégiques, offrant ainsi aux citoyens togolais une gamme étendue d'options pour répondre à leurs besoins de communication et d'accès à Internet, et offrant surtout au Togo un avenir numérique prometteur ! 



L'IoT en Afrique : un avenir prometteur !

Le marché de l'Internet des Objets (IoT) en Afrique connaît une telle croissance que l'on prévoit des revenus impressionnants de l'ordre de 138 milliards de dollars américains générés d'ici 2024. Parmi les divers segments de cet important marché, le secteur de l'IoT automobile devrait dominer, avec un volume de marché projeté, de 70,63 milliards de dollars américains en 2024, soulignant ainsi une intégration croissante de la technologie IoT dans l'industrie automobile.

Cette tendance ascendante prévoit également une augmentation constante à l'avenir, avec un taux de croissance annuel moyen (TCAM 2024-2028) de 14,74%. Par conséquent, le volume du marché devrait atteindre 239,20

milliards de dollars américains d'ici 2028, ce qui révèle la demande incessante pour des solutions IoT dans divers secteurs en Afrique et leur adoption continue sur plusieurs plans. En ce qui concerne le marché mondial de l'IoT, les États-Unis devraient générer les revenus les plus élevés. En effet, selon les prévisions 2024, le pays devrait

générer 199 milliards de dollars américains, soulignant ainsi sa position dominante sur le marché de l'IoT et sa contribution significative à l'industrie mondiale.

Alors que le marché de l'IoT continue son expansion et son évolution, l'Afrique, pour sa part, jouit d'un potentiel immense de croissance



et d'innovation. En effet, malgré les défis qui lui sont spécifiques, le continent est prêt à jouer un rôle vital dans le façonnement de l'avenir de l'industrie de l'IoT.

En Afrique, le marché de l'*Internet des Objets* connaît une croissance rapide, avec une forte concentration sur l'agriculture et les solutions intelligentes pour le secteur agricole. Cependant, les défis particuliers auxquels le continent est confronté ont stimulé l'innovation dans le domaine de cette technologie, offrant des solutions spécifiques aux besoins agricoles locaux.

En outre, l'agriculture connectée, ou l'agriculture intelligente, émerge également comme un secteur clé d'application de l'IoT en Afrique. Les capteurs intelligents ainsi que les drones et les dispositifs connectés sont de plus en plus utilisés pour surveiller les conditions météorologiques, la qualité du sol et la santé des cultures. Ces technologies avancées permettent du coup aux agriculteurs d'optimiser leurs pratiques, d'améliorer les rendements et, surtout, de contribuer à la sécurité alimentaire de la région.

L'adoption croissante de l'IoT dans le secteur agricole témoigne de la capacité du continent à transformer les défis en opportunités, ouvrant ainsi la voie à une croissance soutenue dans le domaine de la

technologie connectée en Afrique. Alors que l'IoT continue de se développer, l'Afrique se positionne comme un acteur clé, non seulement en termes de demande de solutions, mais également en tant que centre d'innovation pour l'avenir de cette industrie en pleine expansion.

Impacts positifs importants

L'IoT en Afrique a des impacts positifs significatifs à travers divers secteurs. Par exemple, dans l'agriculture, l'IoT révolutionne les pratiques traditionnelles en permettant aux agriculteurs d'adopter des méthodes plus intelligentes grâce à des capteurs et des drones, améliorant ainsi la productivité, la gestion des ressources, et contribuant ainsi à la sécurité alimentaire. Dans le domaine de la santé, la connectivité accrue grâce à l'IoT permet un suivi à distance des patients, particulièrement bénéfique pour les habitants des régions éloignées, améliorant ainsi l'accès aux soins de santé et renforçant les efforts de prévention des maladies.

Par ailleurs, l'IoT offre des avantages notables dans l'efficacité énergétique, permettant une gestion intelligente de l'électricité et contribuant ainsi à la durabilité environnementale. Dans le secteur automobile, la technologie IoT améliore considérablement la sécurité routière, la gestion des

flottes ainsi que la maintenance préventive des véhicules.

Enfin, en connectant les régions rurales, l'IoT ouvre la voie à une connectivité plus large, favorisant l'accès à l'éducation en ligne, aux opportunités d'emploi et à une amélioration globale de la qualité de vie. Ces transformations démontrent le potentiel catalyseur de l'IoT pour le développement durable et la prospérité en Afrique. **TR**



Alors que le marché de l'IoT continue son expansion et son évolution, l'Afrique, pour sa part, jouit d'un potentiel immense de croissance et d'innovation



Ooredoo Algérie conclut une année pleine de succès



Ooredoo Algérie, filiale algérienne de Ooredoo, a enregistré un chiffre d'affaires de 2,4 millions de riyals qataris (659,2 millions USD) pour l'année financière 2023, représentant une augmentation de 11 % par rapport à l'année précédente. De plus, le bénéfice avant intérêts, impôts, dépréciation et amortissement de la société a augmenté de 26 % en

glissement annuel, atteignant 992 millions de riyals qataris.

Ooredoo attribue cette performance positive de sa filiale algérienne à la croissance des revenus des services de données, stimulée par une utilisation accrue de ces services. L'appréciation de 5 % du dinar algérien par rapport au riyal qatari a également

contribué à cette augmentation des revenus.

Malgré un environnement opérationnel difficile marqué par une concurrence accrue dans le secteur de la téléphonie mobile et des contraintes réglementaires limitant l'offre de téléphones portables sur le marché algérien, Ooredoo a souligné le bon résultat obtenu.

Ooredoo Algérie revendique 13,4 millions d'abonnés et détenait une part de marché de 25,54 % dans le secteur de la téléphonie mobile au troisième trimestre 2023, selon les statistiques de l'Autorité de régulation de la poste et des communications électroniques (ARPCE). La société se positionne derrière ses concurrents publics, Djazzy et Mobilis, qui détenaient respectivement 30,75 % et 43,71 % de parts de marché à la même période.

inwi s'engage dans la cérémonie du « Campus Connecté »



La faculté des Sciences Semailia de Marrakech a accueilli une cérémonie pour présenter le programme « Campus Connecté », présidée par Abdellatif Miraoui, le Ministre de l'Enseignement Supérieur, de la Recherche Scientifique et de l'Innovation. L'événement a également vu la présence de Azdine El Mountassir Billah, le Président Directeur Général

de inwi, ainsi que les présidents de diverses universités marocaines.

Au cours de cette rencontre, l'accent a été mis sur la mise en avant des réalisations du programme « Campus Connecté » et sur la discussion de ses perspectives de développement futur. Le Ministre Miraoui a souligné l'importance de favoriser

l'innovation et la connectivité dans l'enseignement supérieur afin d'améliorer l'expérience académique globale des étudiants.

Les divers présidents d'université présents ont exprimé leur engagement envers le succès du programme et ont discuté de son impact positif sur leurs institutions. L'événement a fourni une plateforme pour partager des expériences, des meilleures pratiques et des idées sur la mise en œuvre de Campus Connecté dans différentes universités au Maroc.

À la fin de la cérémonie, les participants étaient optimistes quant à l'avenir de l'enseignement supérieur au Maroc, le programme « Campus Connecté » jouant un rôle central dans la création d'un environnement d'apprentissage dynamique et axé sur la technologie pour les étudiants à travers le pays.

Sonatel introduit la 5G fixe au Sénégal



Au Sénégal, Sonatel (Orange) a lancé des offres de connectivité 5G fixe destinées aux clients résidentiels et aux entreprises, avec l'intention d'introduire prochainement des

forfaits Internet mobile à très haut débit.

En mettant en avant les avantages de la 5G, Sonatel assure à ses clients

des vitesses de téléchargement et de streaming instantanées, ainsi qu'une réactivité améliorée pour les applications en temps réel, comme les jeux en ligne, la réalité virtuelle, la télémedecine et l'e-éducation. La société invite les utilisateurs à explorer les opportunités illimitées de cette technologie dans son laboratoire dédié au Orange Digital Center (ODC) de Dakar.

Le lancement de la 5G commerciale par Sonatel survient environ sept mois après l'acquisition de la première licence d'exploitation de l'ultra haut débit au Sénégal, pour laquelle la société a déboursé 34,5 milliards de francs CFA auprès de l'Autorité de régulation des télécommunications et des postes (ARTP). La société avait préparé le déploiement de la technologie depuis 2020, confirmant sa capacité en décembre 2021 avec un deuxième test réussi. En juillet 2022, Sonatel a inauguré son laboratoire 5G.

Ooredoo Tunisie célèbre l'arrivée d' Ifriqya à Bizerte



Le câble sous-marin Ifriqya d'Ooredoo, établissant une liaison entre la Tunisie et l'Europe, a atteint Bizerte. Cette étape marquante a été saluée avec enthousiasme,

soulignant l'importance de cette nouvelle infrastructure pour renforcer la connectivité internationale du pays. Avec une capacité impressionnante pouvant atteindre 3 Tb/s dès son

lancement, le câble Ifriqya représente un progrès significatif dans le domaine de la connectivité.

Le câble devrait entrer en service dès le mois prochain, en mars 2024. Cette avancée technologique met en lumière l'engagement continu envers l'innovation de la part d'Ooredoo, promettant une amélioration notable de la diversité et des options de connectivité pour les utilisateurs.

Il convient de rappeler qu'Ooredoo Tunisie a signé un accord en 2022 avec le fournisseur mondial de services de télécommunications, PCCW Global, pour développer une nouvelle solution réseau. Cette collaboration, basée sur le système de câbles sous-marins PEACE reliant la Tunisie à Marseille, ouvre une nouvelle porte d'entrée à l'Europe.



Éthique numérique : l'énigme du chiffrement et l'influence gouvernementale

Dans le paysage complexe de l'éthique numérique, le débat sur le chiffrement des données et son interaction avec les exigences gouvernementales suscite des discussions passionnées. Souvent présenté comme un rempart crucial pour protéger la vie privée des individus et sécuriser les données sensibles, le chiffrement se trouve actuellement confronté à des pressions réglementaires et politiques qui remettent en question tant ses fondements que ses limites.



Plus simplement, le chiffrement consiste à transformer des données en un code indéchiffrable, mais sans la clé de déchiffrement correspondante. Cette technique est utilisée dans de nombreux domaines, allant des communications en ligne aux transactions financières, pour garantir la confidentialité et la sécurité des informations échangées. Pourtant, malgré ses avantages indéniables, le chiffrement suscite des préoccupations chez certains gouvernements et organismes de sécurité.

En effet, ce qui préoccupe principalement les gouvernements

c'est que le chiffrement peut également être utilisé par des individus ou des groupes pour dissimuler des activités illégales, telles que le terrorisme ou la criminalité organisée. Ce paradoxe, entre être un bouclier pour la protection de la vie privée et en même temps un voile pour les activités illicites, pose un défi éthique et juridique complexe.

Certains gouvernements, confrontés à la montée des menaces sécuritaires, ont plaidé en faveur de mesures visant à réduire le chiffrement ou à instaurer des « portes dérobées » permettant aux gouvernements concernés d'avoir un accès aux données chiffrées. Cependant, les défenseurs du chiffrement arguent que toute affaiblissement délibéré du chiffrement compromettrait la sécurité des systèmes informatiques et mettrait en péril la confidentialité des communications privées, ouvrant par conséquent, la voie à d'éventuelles violations des droits fondamentaux.

Le cas emblématique opposant Apple au FBI en 2016 illustre parfaitement les tensions entre la sécurité nationale et la protection de la vie privée. Effectivement, lorsque le FBI a demandé à Apple de créer un logiciel permettant de contourner le chiffrement d'un iPhone utilisé par un terroriste, Apple a refusé invoquant des inquiétudes quant à la sécurité des données de ses utilisateurs et le précédent dangereux que cela pourrait créer en matière de protection de la vie privée.

Cependant, la question dépasse largement le débat entre la sécurité nationale et la vie privée, car elle touche également à des questions plus fondamentales relatives aux droits de l'homme, à la liberté d'expression et au droit à la vie privée. Dans un monde de plus en plus numérisé, où nos données personnelles sont devenues une ressource précieuse, le chiffrement devient un enjeu crucial pour la préservation de nos droits individuels et de notre autonomie numérique.

Dans cette optique, de nombreux experts et défenseurs des droits de l'homme plaident en faveur d'une approche équilibrée qui reconnaîtrait à la fois la nécessité de garantir la sécurité publique et le besoin de protéger la vie privée des individus. Cette approche exige l'exploration de solutions technologiques et législatives innovantes permettant de concilier ces objectifs apparemment contradictoires.

Par exemple, plutôt que de compromettre le chiffrement lui-même, certains proposent le développement de méthodes d'investigation et de surveillance alternatives qui ne dépendent pas de l'affaiblissement du chiffrement. Des solutions telles que l'amélioration des techniques de renseignement ou l'utilisation de données disponibles en clair sur les périphériques des utilisateurs, pourraient offrir des moyens légitimes pour répondre aux menaces sécuritaires sans pour autant compromettre la confidentialité des communications.

De même, au niveau législatif, des efforts sont déployés pour élaborer des cadres réglementaires garantissant un équilibre adéquat entre la sécurité publique et la protection de la vie privée. Effectivement, l'adoption de lois qui encadrent strictement l'utilisation des portes dérobées et qui garantissent une surveillance judiciaire efficace, seraient un excellent bouclier pour éviter tout abus à cet égard.

En fin de compte, la question du chiffrement et de son interaction avec les exigences gouvernementales ne peut être résolue qu'en engageant un dialogue ouvert et inclusif entre les différents acteurs concernés, y compris les gouvernements, les entreprises technologiques, la société civile et les experts en sécurité. Seul un tel dialogue permettra de trouver des solutions éthiques et efficaces qui préservent à la fois la sécurité publique et la vie privée des individus à l'heure de l'ère numérique. **TR**



Afrique connectée : satellites, antennes avancées, beamforming

L'Afrique émerge comme l'un des continents les plus dynamiques dans l'adoption des technologies de communication et de connectivité. Sous-tendue par des avancées remarquables dans le domaine spatial, notamment celles relatives à l'utilisation de satellites et d'antennes avancées, l'Afrique entre dans une ère de connectivité sans précédent. Cette évolution incarnée par le concept d'Afrique Connectée, offre des opportunités de développement économique, social et technologique sans pareil jusqu'à présent pour le continent africain.

Les satellites jouent un rôle crucial dans la connectivité africaine. Effectivement, ils permettent un accès Internet aisé et des communications fiables même dans les régions les plus reculées. De plus en plus sophistiquées, ces technologies spatiales offrent des capacités de communication à large bande et de téléphonie mobile à travers tout le continent, rehaussées par des antennes avancées complétant cette infrastructure et facilitant, par conséquent, la transmission et la réception de signaux avec une efficacité accrue.

Une nouvelle technique de traitement de signal avancée est le *beamforming* qui représente une percée significative dans ce domaine et dont on parlera ci-dessous.

L'émergence de l'Afrique Connectée présente des d'importants avantages pour le développement économique et social du continent. En effet, ces avancées technologiques ouvrent de nouvelles perspectives pour les communautés africaines, favorisant l'inclusion numérique et la croissance économique, grâce à un accès plus facile à l'information, à l'éducation, aux soins de santé, de même qu'aux opportunités économiques,

Satellites : une révolution spatiale

Grâce à ces technologies spatiales, les régions les plus reculées du continent peuvent bénéficier d'un accès fiable à Internet et de communications efficaces. En Afrique, où les infrastructures terrestres sont souvent limitées ou inexistantes, les satellites jouent un rôle crucial dans le développement et la connectivité de l'Afrique offrant une solution viable pour combler le fossé numérique. Leur infrastructure est essentielle pour relier des zones éloignées et peu peuplées aux réseaux de communication mondiaux, favorisant ainsi le développement économique et social pour plusieurs secteurs. De plus, en cas de catastrophes naturelles ou de crises humanitaires,

les satellites fournissent des moyens de communication vitaux palliant les infrastructures terrestres lorsque celles-ci sont endommagées ou détruites.

L'utilisation croissante des satellites en Afrique reflète l'importance croissante de la connectivité numérique dans le développement du continent. Les gouvernements, les entreprises et les organisations internationales reconnaissent leur importance stratégique et investissent dans des initiatives visant à améliorer l'accès à ces technologies. En conséquence, l'Afrique se positionne de plus en plus comme un acteur majeur dans le domaine spatial, contribuant ainsi à façonner l'avenir de la connectivité mondiale.

Les antennes avancées : pilier de la connectivité

Les antennes avancées en Afrique sont des installations cruciales pour améliorer les communications, connectivité et accès à l'information dans diverses régions du continent, en particulier les zones auparavant isolées ou même, peu desservies par les réseaux de communication traditionnels.

Ces antennes sont des infrastructures de télécommunication qui permettent la transmission de signaux radio et de données, essentiels pour les réseaux mobiles, internet, et autres services de communication.

Cette connectivité hautement améliorée favorise indubitablement le développement économique, l'éducation, la santé, et le développement social en général tout en permettant la réduction de la fracture numérique. Résultat, les populations rurales éloignées des centres urbains peuvent maintenant en profiter pleinement et avoir une meilleure accessibilité aux services de communication

Cependant, des défis persistent, notamment en ce qui concerne l'accès à l'électricité et aux

ressources nécessaires pour maintenir ces antennes en bon état de fonctionnement.

Beamforming: une innovation capitale

Le *beamforming* représente sans aucun doute une avancée technologique significative dans le domaine des communications en Afrique. Comment fonctionne cette technologie novatrice ? La spécificité du *beamforming* est de concentrer les signaux radioélectriques vers des points spécifiques, utilisateurs ou zones nécessitant une couverture particulière, améliorant ainsi considérablement la qualité et la stabilité des connexions, même dans des environnements difficiles ou dans des régions reculées.

En Afrique, où les infrastructures de télécommunication sont souvent limitées ou de qualité variable, la technique du *beamforming* décrite offre une solution efficace pour surmonter les obstacles liés à la distance, à une connexion Internet instable et lente, aux interférences et aux conditions géographiques, en optimisant l'utilisation du spectre radioélectrique et en améliorant la connectivité à large bande.

De plus, le *beamforming* est essentiel pour le déploiement des réseaux 5G en Afrique. Grâce à une transmission de données plus rapide et plus fiable, cette technologie soutient l'innovation, le développement économique et la transformation numérique à travers le continent, ouvrant ainsi la voie à un avenir connecté et prospère pour l'Afrique.

En conclusion, avec l'utilisation de satellites, d'antennes avancées et du *beamforming*, l'Afrique Connectée ouvre de nouvelles opportunités pour le développement socio-économique du continent.

Pour assurer la pérennité de ce progrès, des investissements continus et une collaboration étroite et renforcée entre les acteurs locaux et internationaux sont essentiels. L'Afrique Connectée représente un pas important vers un avenir plus connecté et plus prospère pour l'Afrique. 

— 2024 —



Gitex Africa

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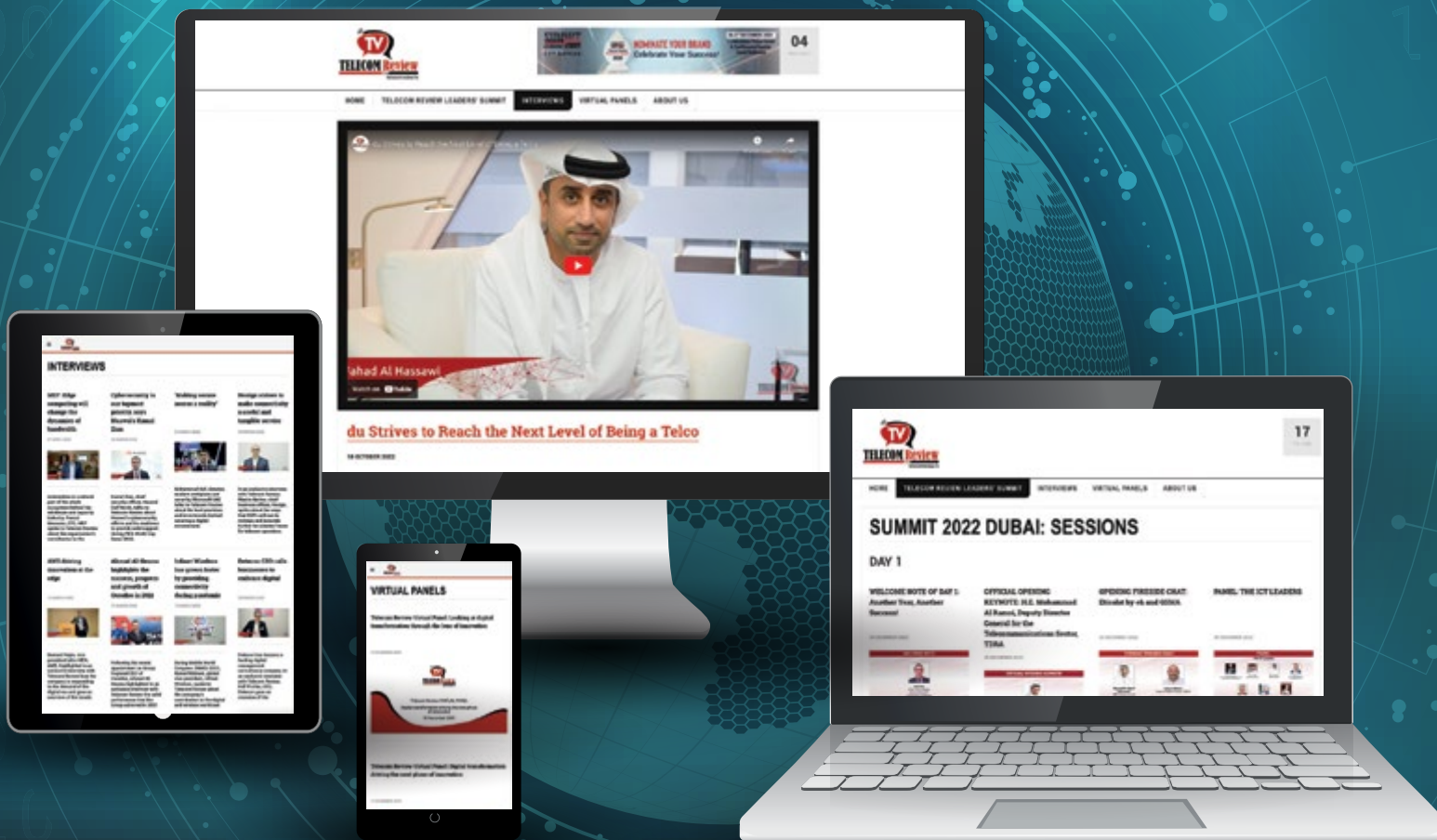
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