

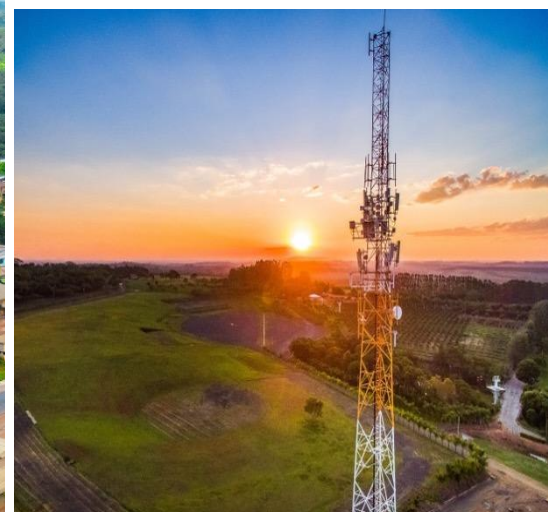


ITU WORKSHOP

Telecommunication QoS,
QoE & Future Networks

IHS Zambia Limited

Towers of Strength.



AGENDA

01. About IHS Zambia

Company overview, African footprint and tower leadership

02. Zambia Telecom Landscape

Market overview, infrastructure gaps and growth trends

03. QoS & QoE Perspective

IHS Zambia's role in enabling quality network services

04. Future Networks

5G-ready towers, energy innovation and smart infrastructure

05. Key Challenges

Power, access, cost and climate resilience

06. Way Forward

Collaboration, investment and shared infrastructure solutions

ABOUT IHS ZAMBIA LIMITED

Global footprint

IHS Towers is one of the worlds largest independent tower companies by tower count

Pan-African Operations

Operating across 5 countries with over 27,000 towers on the continent

Zambia Footprint

Over 2,000 towers across Zambia's key urban and peri-urban corridors

Core Services

Co-location and lease amendments, New small cell, In-building solutions, rural telephony etc.

Our Mission

To be the leading provider of communications infrastructure to mobile networks operators enabling the widest, most efficient and reliable networks throughout the emerging markets.

About IHS Zambia Limited

Tower Infrastructure | In-building Solutions | Co-location and lease amendments | Rural telephony

IHS Zambia Limited

is part of IHS Towers — one of the world's largest independent tower companies, operating across multiple countries with over 37,000 towers globally. IHS provides critical passive infrastructure that enables mobile network operators to deliver reliable telecommunications services to millions of people worldwide.

Our role in Zambia's digital growth:

IHS Zambia provides passive tower infrastructure — the masts, shelters, power systems and ancillary equipment — that MNOs mount their active equipment on. By enabling tower sharing, we reduce the cost of network deployment, accelerate coverage rollout, and allow operators to focus on delivering quality services to consumers.

37,000+

Towers

7

Countries of operation

99.5%+

Site availability SLA

4+

MNOs served in Zambia

ZAMBIA'S TELECOMMUNICATION LANDSCAPE

20M+ Population

Zambia's growing population creates significant demand for mobile services

~90% Mobile Penetration

Well over half the population are mobile subscribers — growing annually

4 Licensed MNO Operators

Airtel, MTN, Zamtel and Beeline Telecom serve the market

~34% Internet Penetration

Internet usage growing rapidly, driven by affordable smartphones

IHS Zambia Enabling Growth

- Our tower infrastructure is the backbone enabling all MNO coverage expansion.
- Build towers with sustainable energy platform to meet network growth (BTS)

Zambia's Telecommunication Landscape

Market Overview | Infrastructure | Connectivity | Growth

20M+

Population

2024 estimate

90%

Mobile Penetration

Subscribers per capita

4

MNO Operators

Licensed networks

34%

Internet Penetration

Active users (2024)

Zambia has a population of over 20 million, with mobile penetration reaching ~90% and internet penetration at ~34% (2024). Four licensed MNO operators serve the market, with 2G coverage at 95%, 3G at 74% and 4G at 52%. Mobile subscriber numbers have grown from 10.2M to over 19M, while internet users have expanded from 4.1M to over 7M over the same period.

Significant infrastructure investment is needed to bridge the urban-rural digital divide, with fibre backhaul currently reaching only 31% of the country. IHS Zambia plays a critical role in enabling this growth by providing the passive tower infrastructure on which all operators depend.

Network Coverage



QUALITY OF SERVICE & QUALITY OF EXPERIENCE

99.5%+ Tower Uptime SLA

High-availability infrastructure with continuous remote monitoring

Hybrid Energy Systems

- Solar, Battery and Grid energy systems with focus on Net-Zero delivery

Shared Passive Infrastructure

Multiple MNOs co-located on single towers, reducing CAPEX

Dense Coverage Networks

Tower density enabling stronger signal quality and lower latency

Supporting MNO QoE

Enabling MNOs to meet ITU-T QoE benchmarks for Zambian consumers

QoS & QoE — IHS Zambia's Enabling Role

High-Uptime Tower Sites

- 99.5%+ availability SLA with 24/7 monitoring
- Rapid fault response & preventive maintenance

Hybrid Energy Systems

- Solar, battery & diesel backup on sites
- Eliminates grid outage impact on network uptime
- IHS is methodically installing solar – grid-Gen hybrid system with battery backup time of more than 14 hours per day.

Shared Passive Infrastructure

- Multiple MNOs co-located on single towers
- Reduces CAPEX enabling faster network rollout

Dense Network Coverage

- Tower density enables stronger signal quality
- Supports carrier aggregation & capacity upgrades

Small Cells & DAS

- Urban hotspot densification for high-demand areas
- Seamless indoor and outdoor coverage solutions

Green Power & Sustainability

- Renewable energy implementation to reduce fossil fuel energy sources
- Intelligent solar + backup system to minimize carbon emissions
- Supporting MNO ESG commitments & community trust.

FUTURE NETWORKS & DIGITAL TRANSFORMATION

5G Readiness (2023-)

- Tower structural assessments to handle increased equipment weight and wind load from MIMO antennas
- Tower height optimization for small cell and macro cell deployments
- Upgraded power systems to handle additional load due to 5G

Infrastructure Upgrades (2025-26)

- Tower structural certifications in preparation for 5G deployments
- Enable MNO access for Fiber & Backhaul connectivity enhancements
- Energy efficiency power solutions incorporating intelligent solar-battery systems

Network Densification (2027-28)

- Solidify small cell deployment strategy (Lamp post, Bus Shelters, Buildings)
- Indoor DAS (Distributed Antennae Systems) for venues and enterprises
- Edge compute colocation at tower sites for MEC (Multi-access Edge Computing)

Digital Infrastructure Hub (2029+)

- Tower Management Systems (TMS) with real-time monitoring and AI analytics
- Predictive Maintenance capabilities
- Digital twin modeling of tower portfolios
- Automated site audits and lease management platforms

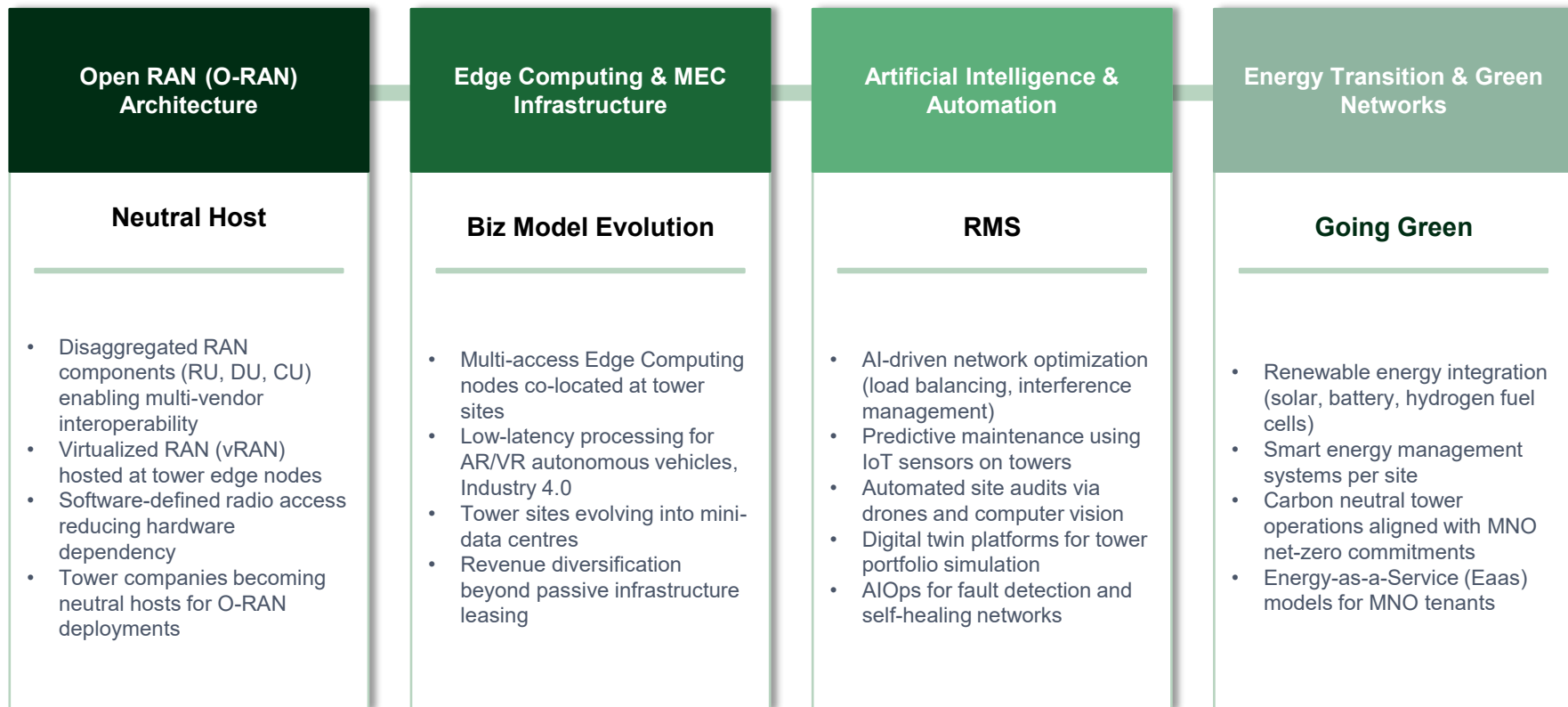
IHS Zambia's Commitment

Aligning our infrastructure roadmap with ITU IMT-2020 and Smart Zambia Master Plan by:

- *Evolution from Passive leasing to Active digital infrastructure platform*
- *Transformation from single-stream tower rent to multi-stream (edge, fiber, IoT)*
- *Manual site operations to AI-automated intelligent operations*
- *Evolution from steel & concrete towers to connected digital nodes*
- *Metamorphose from Tower Landlord to Digital infrastructure partner*

Future Networks & Digital Transformation

5G-Ready Infrastructure Roadmap | 2023 – 2029+



Aligned with: Smart Zambia Master Plan • National Broadband Policy • ITU IMT-2020 Framework

Key Challenges

Power Reliability

- Grid outages due to climate action impacted network power availability
- Significant financing required for scaling solar-hybrid & BESS solutions nationwide
- Vandalism of tower infrastructure

Rural Expansion

- Remote sites carry high CAPEX & logistics costs with limited revenue expectations

Tower Sharing Adoption

- Reluctance of MNOs to adopt tower co-location

Right-of-Way & Permits

- Land access and planning approvals cause delays

Fibre Backhaul Gap

- Limited fibre in rural areas restricts capacity

Way Forward & Recommendations

Mandate Infrastructure Sharing

- Policy frameworks requiring passive tower sharing backed with regulatory incentives

IMPACT:

- Reduces network duplication & accelerates coverage

Invest in Renewable Energy

- Co-fund solar-hybrid rollouts with government

IMPACT:

- Cut diesel dependency & improve site uptime

Streamline Permitting

- Digitise right-of-way & planning approvals

IMPACT:

- Reduce tower deployment timelines significantly

National Tower Registry

- Shared database of all tower assets nationwide

IMPACT:

- Enables gap analysis & investor decision-making

Extend Fibre Backhaul

- Incentivise fibre deployment to rural corridors

IMPACT:

- Unlock 4G/5G capacity beyond major urban centres

Strengthen PPPs

- Structured IHS–MNO–Government partnerships

IMPACT:

- Unlock investment needed for universal connectivity



Towers of strength

ihstowers.com

ITU Workshop on Telecommunication QoS, QoE & Future Networks