



Telecommunications Sector

High Level Overview

ENABLING MOBILE NETWORKS EVERYWHERE

WIA.ORG

Rolling Back The Years

Remember When.....

- An apple was a fruit
- A cloud was something in the sky
- Fibre was part of your breakfast cereal

Roll It Forward...

- The telecoms sector has, and will continue to progress rapidly
- A combination of evolution and revolution
- Creating increased investment, economic development and job creation



ENABLING
MOBILE NETWORKS
EVERYWHERE

WIA.ORG

An Industry That Is Not Short of Activity and Terminology



FWA

MNO

FttB

Open Access

FttH

Spectrum

Hyperscaler

The Cloud

OTT

ISP

Convergence

FNO



ENABLING
MOBILE NETWORKS
EVERYWHERE

WIA.ORG

A 30,000 Foot View on the Sector

Infrastructure Companies



Service Companies



Industry, Regulatory and Government Bodies



ENABLING
MOBILE NETWORKS
EVERYWHERE

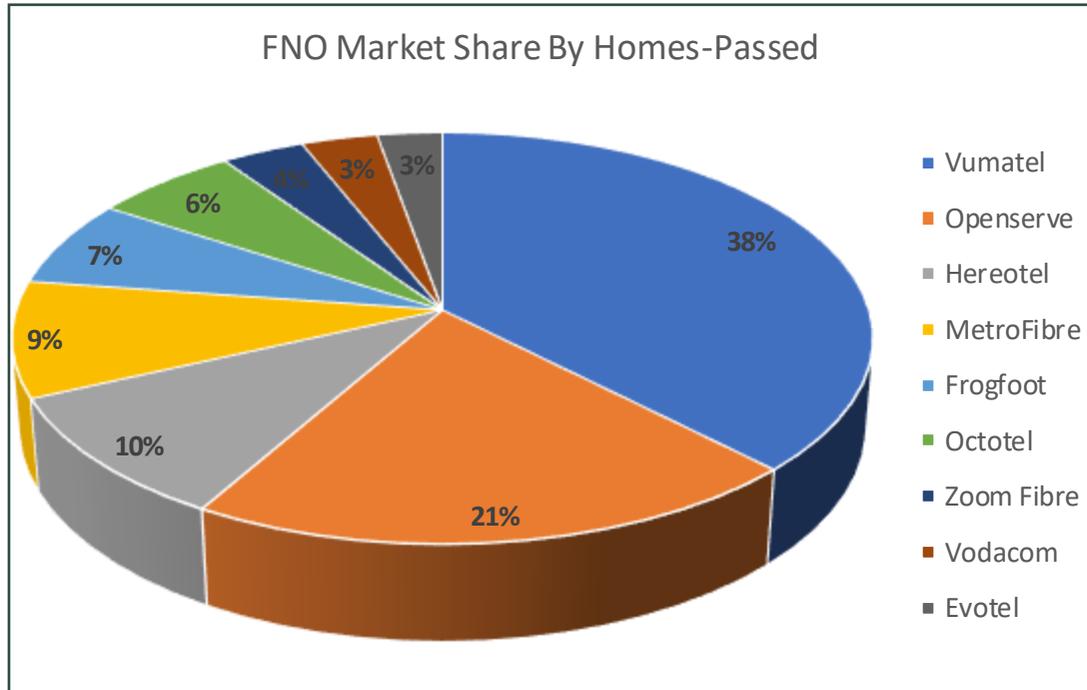
Vibrant Telecommunications Market in SA That Is Ripe With Opportunity

WIA.ORG

A Deeper Dive – FttH Market



FNO Market Share By Homes-Passed



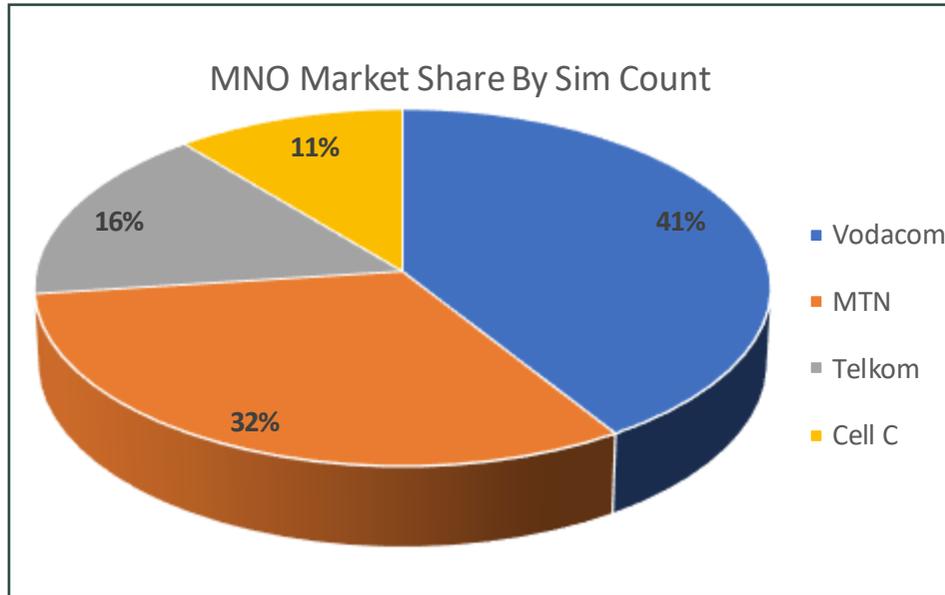
- c.5M homes passed with fibre
- Based on G-PON technology
- Leverages metro, National Long Distance and Undersea cable networks to deliver end-user service
- Open access platforms

ENABLING
MOBILE NETWORKS
EVERYWHERE

A Deeper Dive - Mobile Network Operators



ENABLING
MOBILE NETWORKS
EVERYWHERE



- Unique situation in SA with multiple mobile operators (many other markets have 2-3 operators at a maximum)
- Key focus on power resilience due to load shedding and its impact on customer service and revenue
- Recent spectrum auction has been structured to balance competition
- Recent restacking of TV spectrum has availed important spectrum in the 700/800MHz band
- Some operators evolving from Telco to TechCo, with focus on additional services such as mobile money

No data available for Rain

<https://mybroadband.co.za/news/cellular/473539-vodacom-vs-mtn-vs-telkom-vs-cell-c-biggest-mobile-network-battle.html>

Annual reports for publicly traded companies

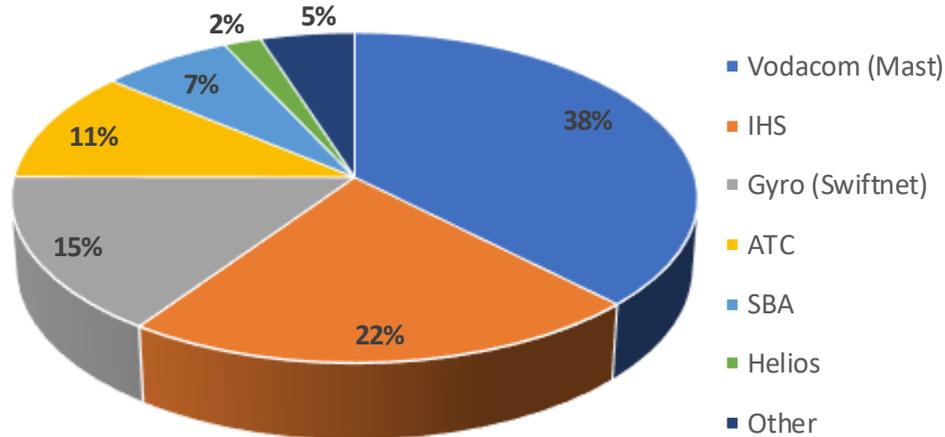
A Deeper Dive – Tower Companies



ENABLING
MOBILE NETWORKS
EVERYWHERE

WIA.ORG

TowerCo Market Share by Tower Count



- TowerCos are largely independent which is positive for the industry
- Results in a highly competitive environment with multiple providers
- Bolt-on services available (security, power as examples) to drive differentiation
- Business model is driven by lease-up (adding the maximum tenants to a single site)
- Inherently drives CAPEX efficiency

Tower Companies (TowerCos)

TowerCo Business Model

TowerCos are specialized companies that develop, own and manage wireless infrastructure, such as towers and small cell sites.

There are 4 main types of TowerCos

Independent TowerCos

Other TowerCos are independent companies that are not affiliated with any MNOs. These companies typically acquire towers from MNOs through sale-and-leaseback agreements.

Joint ventures between MNOs

Some TowerCos are formed as joint ventures between MNOs. This is a common way for MNOs to reduce their capital expenditure and operational costs.

Joint ventures between MNOs and Independent TowerCos

In some cases, MNOs and independent TowerCos form joint ventures to create a TowerCo. This is a way for MNOs to benefit from the expertise of independent TowerCos while still maintaining some ownership of the tower infrastructure.

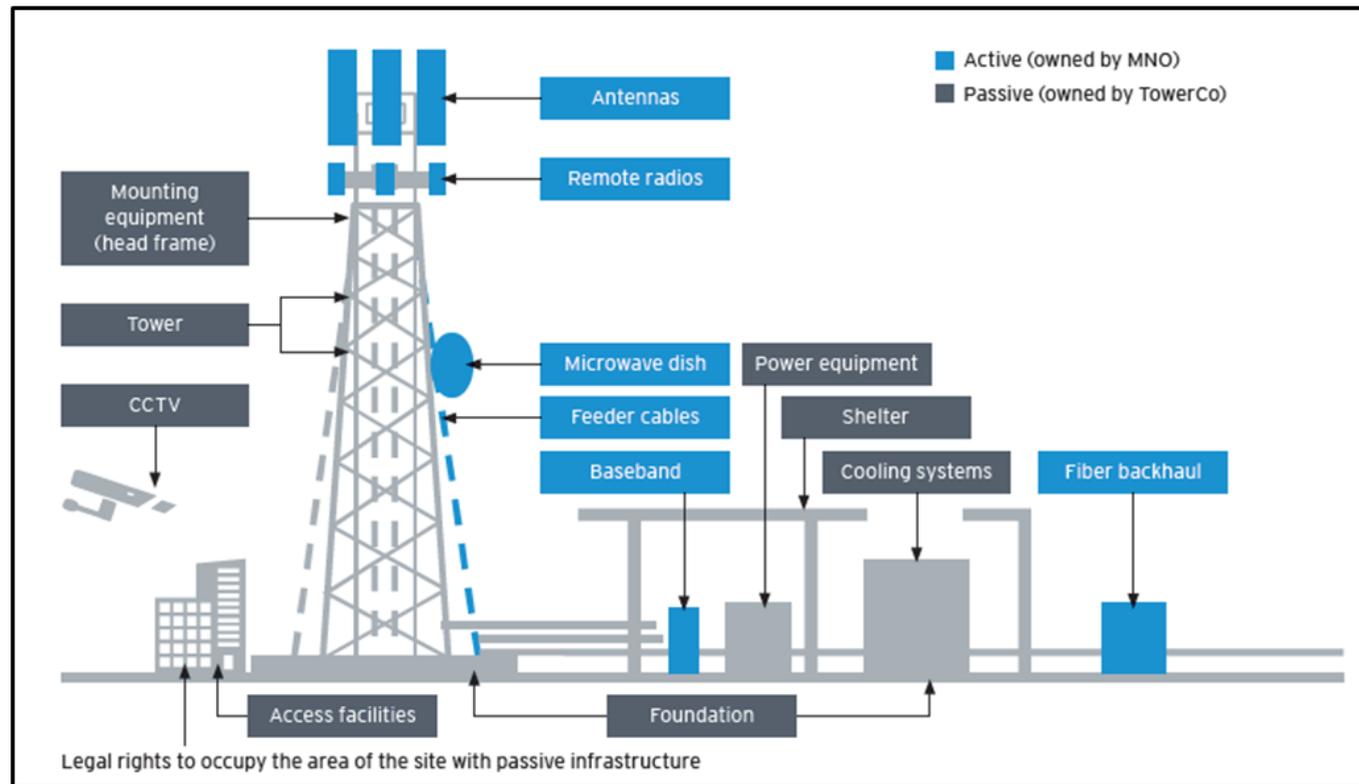
MNO owned TowerCos



Regardless of their origin, all TowerCos operate on a similar **business model**. They acquire or build mobile network infrastructure and then lease space to MNOs and other wireless operators on an open-access basis. This means that operators can share towers, which can lead to significant cost savings.

TowerCo vs MNO / Active vs Passive Infrastructure

- **Passive Infrastructure** means infrastructure that is not part of the active layer of a Telecommunications Network, including but not limited to, sites, buildings, shelters, towers, masts, poles, ducts, trenches, electric power supply, and air conditioning.
- **TowerCos:** Develop, own, manage, and provide Passive Infrastructure to MNOs and other wireless service providers. TowerCos do not license spectrum, nor do they engage in activities associated with utilizing spectrum.
- **Active Infrastructure** means the elements or components on the active layer of a Telecommunications Network, including, but not limited to, antennas, switches, servers, databases, radio access nodes, and transmission equipment.
- **MNOs:** Own and manage active radio services and are licensed to broadcast radio spectrum for the purposes of voice and data communications



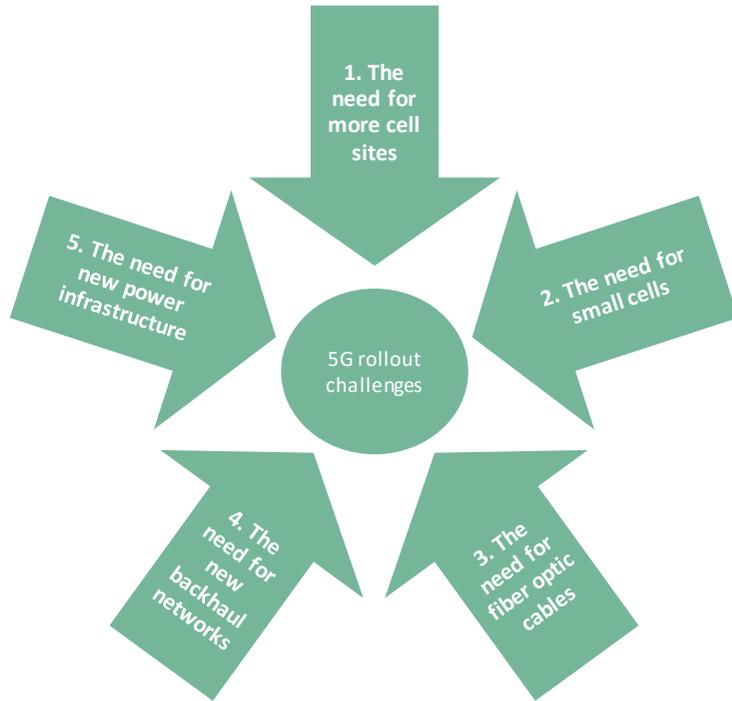
Source: The economic contribution of the European tower Sector. A report for the European Wireless Infrastructure Association. EY Parthenon report – November 2020

TowerCos and 5G Infrastructure Rollout

- 5G is the fifth generation of cellular network technology. It offers a number of improvements over previous generations, including:
 - **Faster speeds:** 5G can offer peak speeds of up to 100 Gbps, which is 100 times faster than 4G.
 - **Lower latency:** 5G has a latency of less than 1 millisecond, which is important for real-time applications such as self-driving cars and virtual reality.
 - **Greater capacity:** 5G can support more devices per cell site than previous generations, which is important for densely populated areas.
- The rollout of 5G is expected to be more expensive than existing 3G/4G deployments. The average Total Cost of Ownership (TCO) is expected to be 86% higher, largely driven by requirements for small cells and additional macro sites.
- Ericsson Mobility Report – June 2023 Forecasts
 - By **2028 Sub-Saharan Africa** will have **1 Billion mobile network subscribers** (CAGR 3%)
 - 5G subscribers in Sub-Saharan Africa: **2022 = 3 million, 2028 = 140 million**
 - Smartphone subscriptions in Sub-Saharan Africa: **2022 = 410 million, 2028 = 690 million**
 - Data traffic in Sub-Saharan Africa: **2022 = 4.7GB, 2028 = 19GB** (per person per month)



TowerCos and 5G Infrastructure Rollout (cont.)



5G Rollout Challenges

- **The need for more cell sites:** 5G will require more towers and other infrastructure than previous generations of cellular networks. This is because 5G uses higher frequencies, which have shorter ranges. The additional cell sites will need to be built in both urban and rural areas.
- **The need for small cells:** Small cells are small, low-power sites that can be deployed in densely populated areas. They are a key part of the 5G rollout because they can provide more capacity and coverage in areas where it is difficult to build traditional macro cell sites.
- **The need for fiber optic cables:** 5G requires a lot of bandwidth, which can only be delivered by fiber optic cables. The rollout of 5G will require a significant investment in fiber optic cables.
- **The need for new backhaul networks:** The backhaul network is the network that carries traffic between cell sites and the core network. The 5G backhaul network will need to be upgraded to support the increased traffic demand.
- **The need for new power infrastructure:** 5G cell sites will require more power than 4G cell sites. This is because 5G uses more power-intensive technologies. The 5G rollout will require an investment in new power infrastructure.

Governments must create an enabling regulatory environment to ensure that 5G is deployed orderly, efficiently, and cost effectively.



Telecom Infrastructure Regulatory Framework

Telecom Infrastructure Regulatory Framework

The deployment of telecommunications infrastructure in South Africa is governed and affected by a range of legislation and regulations.

The most significant pieces of legislation impacting the deployment of telecommunications infrastructure in South Africa are:

- Electronic Communications Act (ECA), 2005
- The Competition Act 89,1998
- National Environmental Management Act (NEMA), 1998, and the Amended Environmental Impact Assessment regulations, 18 June 2010 (GN543)
- The National Heritage Resources Act (NHRA), 1999
- National Building Regulations and Building Standards Act (NBR), 1977 (as amended)
- Occupational Health and Safety Act (OHSA)
- The South African Civil Aviation Authority (SACAA)
- The Subdivision of Agricultural Land Act No. 70 of 1970
- **Spatial Planning and Land Use Management Act (SPLUMA), 2013**
- **Municipal by-laws and Policies**

Tower Industry Regulatory Support

TowerCos are highly dependent on a conducive regulatory environment to fulfill the pivotal role they play in the telecommunications ecosystem. A future-proof regulatory framework for TowerCos becomes especially important as TowerCos move up the value chain and venture into new business models.

To fully unlock the potential of the future digital infrastructure, the regulatory and policy framework should consider four key dimensions that are relevant to TowerCos:

Strong digital infrastructure mandate: The regulatory framework should clearly define the role of TowerCos in the digital ecosystem and set clear mandates for infrastructure deployment and sharing. This will help to ensure that TowerCos have a clear understanding of their obligations and can plan their investments accordingly.

Infrastructure sharing: The regulatory framework should promote infrastructure sharing to reduce costs and environmental impact.

Infrastructure deployment: The regulatory framework should streamline the process for infrastructure deployment and remove barriers to entry. It should also address the issue of public consultation and participation in infrastructure planning. TowerCos need to have a clear and predictable regulatory framework for infrastructure deployment in order to meet the growing demand for connectivity. The regulatory framework should also provide incentives for TowerCos to deploy infrastructure in rural areas. This will help to bridge the digital divide and improve connectivity for everyone.

Enabling adjacencies and the emergence of new business models: The regulatory framework should be flexible enough to accommodate the emergence of new business models and enable TowerCos to move up the value chain. TowerCos need to have a regulatory framework that allows them to innovate and explore new business opportunities in the digital economy. The regulatory framework should support the development and orderly rollout of new technologies, such as small cells and distributed antenna systems. These technologies can help to improve network capacity and coverage in dense urban areas.

A well-designed regulatory framework can help to create a level playing field for TowerCos, promote competition, and drive investment in digital infrastructure. This can lead to improved connectivity, lower costs, and a more sustainable telecommunications sector.

Best Regulatory Practice

Best Regulatory Practices

Harmonized rules and processes across municipalities

Access to public land for deployment. Long-term leases exceeding 10 years

Infrastructure sharing

Clear definitions & Technical standardization of macro sites and small cells

Reasonable permitting municipal fees

A 60-day deadline for the processing of permits and positive administrative silence

Minimum distances/ Non-proliferation radiuses between sites for orderly deployment

Rights of way by-laws (small cells)

- Regulatory Harmonization & Standardisation of Application Processes
 - Telecommunications infrastructure should be considered as “infrastructure”, not “land use” within the ambit of town planning schemes
- Public Land:
 - Unlock access to public land to deploy telecommunications infrastructure
 - Streamline and shorten the timeframes of applications to deploy on public land.
 - Commercial rental rates and terms should be sustainable and market related
- Township Deployment: Land is largely unpromulgated, hindering telecommunications infrastructure deployment
- Electricity Supply
 - Reliable power supply to telecommunications infrastructure sites
 - Wheeling frameworks and tariffs
 - Procedural timelines should be in place and adhered to when applying for power supply to telecommunications infrastructure sites
- Security of Telecommunications Infrastructure Pre- and Post-Construction
 - Extortion at construction sites, theft and vandalism of infrastructure
 - Communications/Public Education Campaigns



Thank You