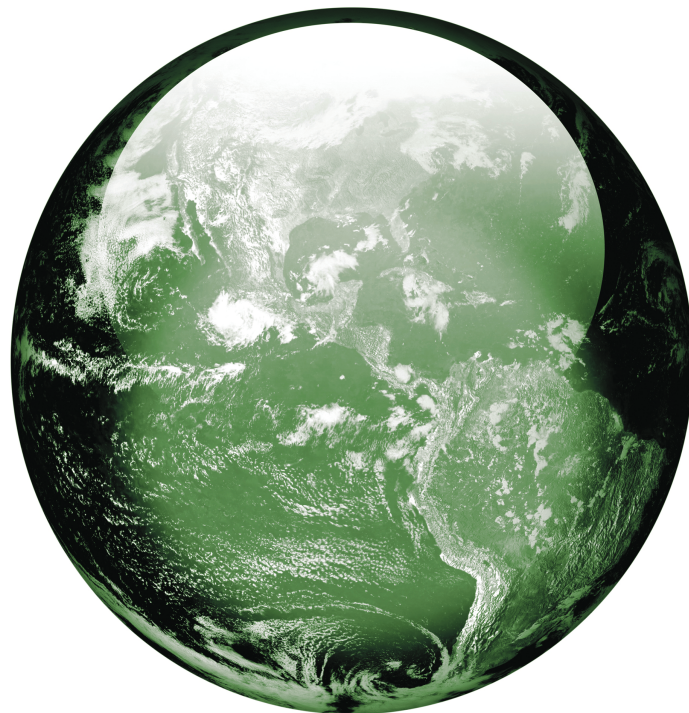


GOOD PRACTICE IN THE REGULATION OF INFRASTRUCTURE SHARING



Accra, 5th July 2016

AGENDA

1. GENERAL NOTES ON INFRASTRUCTURE SHARING
 - Concepts
 - Infrastructure sharing:
 - Advantages/ Disadvantages
 - Possible Models
2. INFRASTRUCTURE SHARING IN SOME COUNTRIES
 - Angola
 - Botswana
 - European Union / Portugal
 - Mozambique
 - Nigeria
 - South Africa
 - Tanzania
 - Zambia
3. GOOD PRACTICE / General Overview
4. Q & A

GENERAL NOTES ON
INFRASTRUCTURE SHARING

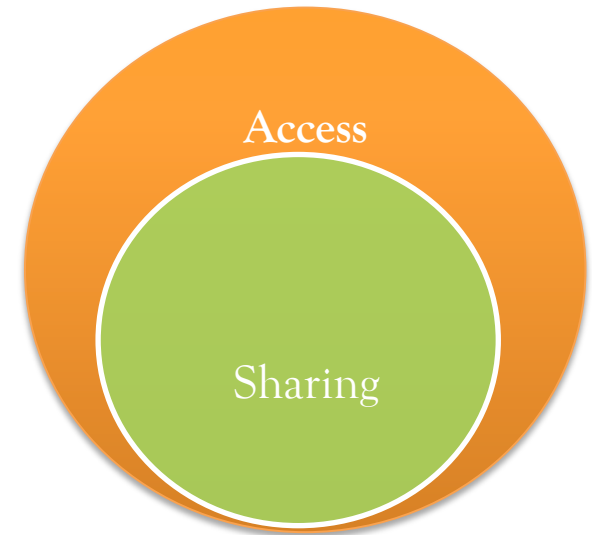


THE CONCEPT

There is no single legal definition of **Infrastructure Sharing**



- Shared use, by two or more operators, of infrastructure, telecommunications network elements or resources, for the purpose of ensuring the provision of service to the final user
- Similar to the broader concept of access, which refers to the neutral provision of access to network elements and connected resources (on an exclusive basis or not), including namely access to physical infrastructures, such as buildings, ducts, poles, fixed and mobile networks and access to virtual network services. The concept of access, which has gained momentum, tends to be mandatory in EU jurisdictions, unlike infrastructure sharing
- Infrastructure sharing has an impact on the various market stakeholders:



**Government /
Regulators**

New Operators

**Historic Operators / Entities
subject to sharing obligation**

THE CONCEPT

Active Infrastructure Elements	Passive Infrastructure Elements
<ul style="list-style-type: none">• Radio base stations• Microwave radio links• Network Switches• Transmit / receivers (TRX)• Radio Access Nodes (RAN)• Broadcasting Studios• Multiplexers• Antennae• feeder cables	<ul style="list-style-type: none">• Towers/masts/Pylon• shelter/equipment rooms• trenches• poles• security systems• air conditioning equipments• generators & or power supplies• rights of way• Backup Batteries

Source: *BTA Guidelines on infrastructure sharing*

Active electrical network components or the intelligence in the network

Non-electrical and civil engineering elements of the communication networks

INFRASTRUCTURE SHARING MODELS

SPECTRUM SHARING

UNBUNDLING

INTERCONNECTION

INFRASTRUCTURE SHARING
AND
CO-LOCATION

SHARING MODELS

SPECTRUM SHARING

INTERCONNECTION

UNBUNDLING

INFRASTRUCTURE SHARING
AND CO-LOCATION

- Spectrum sharing aims at ensuring the most efficient allocation of this scarce resource
- Sharing can be aimed at the provision of fixed and mobile services and usually involves use of the same type of spectrum for various services or technologies
- Infrastructure sharing has mostly been accomplished through the lease of spectrum or its transmission by the holder, whether through regulatory licenses or through contracts between operators

SHARING MODELS

SPECTRUM
SHARING

INTERCONNECTION

UNBUNDLING

INFRASTRUCTURE SHARING
AND CO-LOCATION

- Interconnection is mostly seen as a way for operators to connect their networks, but can also work as a form of sharing networks (not physical infrastructure sharing)
- Interconnection facilitates operability between operators' networks, which allows consumers access to different service providers (for example, international phone service and internet access)

SHARING MODELS

SPECTRUM SHARING

INTERCONNECTION

UNBUNDLING

INFRASTRUCTURE SHARING AND
CO-LOCATION

- Generally associated with mandatory obligations for operators to share part of their network with other operators, although it is possible to construe it as an obligation to build network(s) for sharing
- **Example:** unbundling of the local loop in the EU (copper network)
- Unbundling allows for new operators to provide their services while limiting the amount of their initial investment

SHARING MODELS

SPECTRUM SHARING

INTERCONNECTION

UNBUNDLING

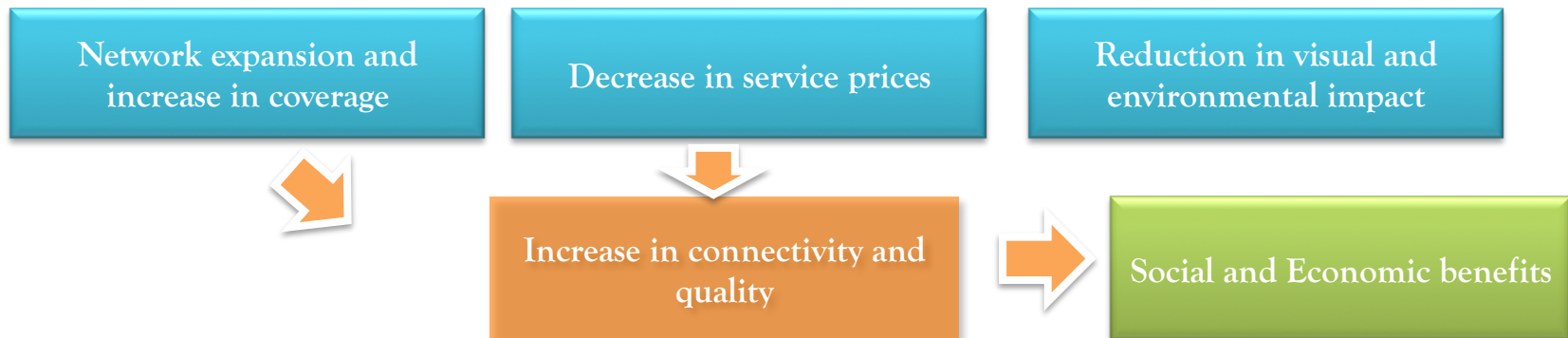
**INFRASTRUCTURE SHARING
AND CO-LOCATION**

- **Infrastructure sharing** concerns the possible joint use of active and/or passive infrastructure by two operators
- **Co-location** specifically concerns the sharing of spaces in locations used for transmission, while each operator's equipment is completely independent and differentiated from other operator(s)' equipment

ADVANTAGES AND DISADVANTAGES



- **Cut-down on capital costs**, which may translate in an additional investment on product and service development
- **Cut-down in *time-to-market***
- **Reduction in operational expenses** (through sharing maintenance costs, security and energy expenses)
- **Possible reduction in the prices applicable to services** (as was the case in Ghana and Nigeria, where the entry in the market of service providers dedicated only to the construction of infrastructure resulted in a reduction of prices, in 45% and 82%)
- **Less duplication of infrastructures**
- **Reduction in environmental impact**
- **Possible new market dedicated to infrastructure construction**



ADVANTAGES AND DISADVANTAGES



Disadvantages

- Less **differentiation potential**
- Increased **potential for market splitting agreements** between operators (with possible exclusion of small operators)
- Risk of **abusing dominant position**
- **Decreased investment** in quality infrastructures
- Possible **litigation** between operators
- Risk of **breach in confidentiality**

HOW CAN OPERATORS SHARE INFRASTRUCTURE?

COMMERCIAL MODELS

Joint Venture



TowerCo



Fibre companies

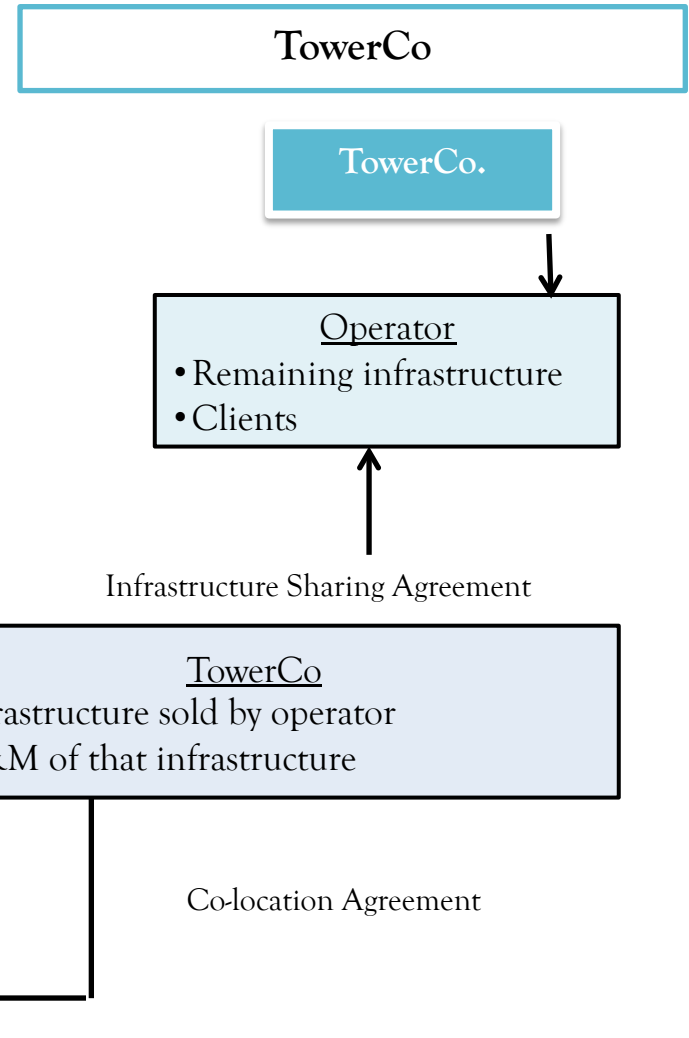
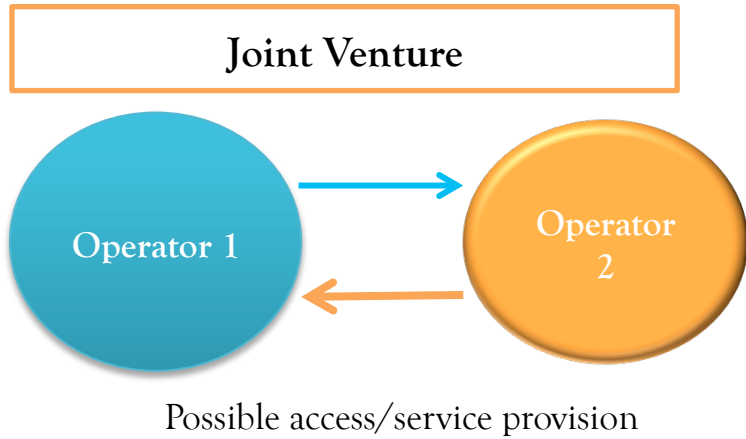


Public entities



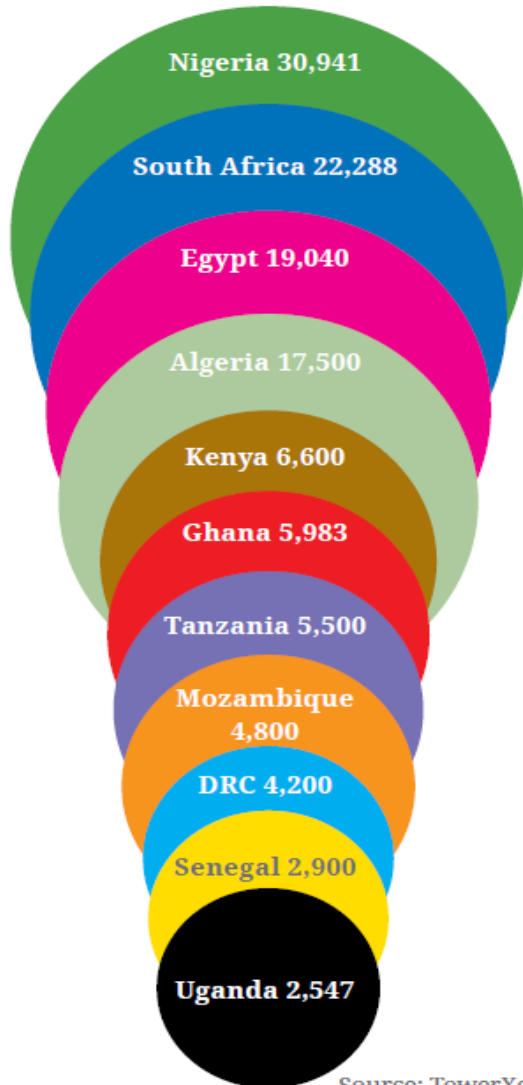
Consortiums and PPPs

COMMERCIAL MODELS



COMMERCIAL MODELS

TowerCo



Source: TowerXchange

The “Big Four”

IHS
(22.000 towers)

American Towers
(9.936 towers)

Helios Towers Africa
(between 7.800 and 8.300 towers)

Eaton Towers
(approximately 5.000 torres)

COMMERCIAL MODELS

Fibre Companies

- Independent companies provide backbone services on a wholesale basis or without operating networks, by selling dark fibre
- Typically applies in the context of the national backbone and in densely populated areas, where fibre optic services are more commercially attractive

Public Entities

- The State and the financing banks assume most of the risk – model used in the National Optic Fibre Backbone Infrastructure (NOFBI) (Kenya) and National ICT Broadband Backbone (Tanzania)
- Model used in less commercially attractive areas (remote areas or others where network roll-out is too risky)

PPP/Consortium

Burundi


















PPP between Burundi Government and Burundi Backbone System (BBS) (consortium between 4 major operators and 1 ISP)

Ruanda



Joint venture for 4G roll-out, based on the Government's backbone network

COMMERCIAL MODELS

	Joint Venture	TowerCo	Fibre companies	Government-led	PPP & Consortia
Government involvement					
Risk sharing	Operators	Private investors	Private investors	Public sector	Development banks, governments, investors
Access	Operators of the joint venture	Wholesale basis	Wholesale basis	Open Access	Wholesale basis
Ownership	Operators	Private investors	Private investors, operators	Public	Operators, governments and private investors
Fibre					
Mobile/Wireless					
Funding	Private	Private	Private	Public sector, USO funding, multilateral banks	Development banks, governments, investors
Examples	Three operator fibre network in South Africa	Helios Towers, Eaton Towers, IHS Towers	Phase 3	NOFBI-Kenya Broadband Infraco-South Africa	Burundi Backbone System

Source: "Unlocking Broadband for all – Broadband Infrastructure sharing policies and strategies in emerging markets" (Deloitte)

INFRASTRUCTURE SHARING IN
SOME COUNTRIES

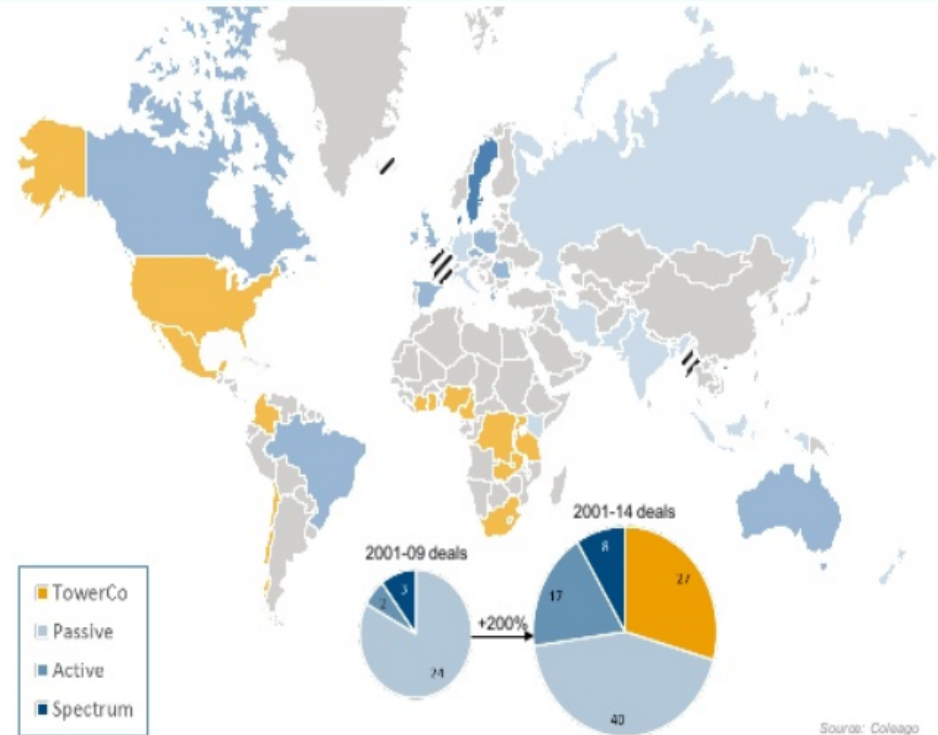
INFRASTRUCTURE SHARING IN SOME COUNTRIES

THE BIG PICTURE

Overall, infrastructure sharing has increased due to:

- Granting of 3G licenses
- Pressure over big operators towards cost reduction
- Possible lack of space for new sites in urban areas
- In emerging economies, due to tower management rights granted to TowerCos.

Network sharing – 200% growth in 4 years



TMT Finance & Investment - Africa 2014 - London
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ANGOLA



Infrastructure sharing Regulation
(Presidential Decree nr. 166/14, dated 10 July)

Applies to **passive** infrastructure sharing

Ensures a general principle of free negotiation between the Parties, although regulator INACOM (<http://www.inacom.gov.ao/>) may intervene:

- In cases of unreasonable refusal to share
- To impose sharing; or
- To act as mediator, in the event of a dispute on the matter

An independent body is established, with the task of controlling the enforcement and application of this Regulation: INFRACOM (*Comité Coordenador de Infraestruturas de Comunicações Eletrónicas*)

Three possible models:

- **Model A:** One operator shares its infrastructure with another operator
- **Model B:** Two or more operators agree on joint construction of infrastructure
- **Model C:** A third entity (public utilities) leases infrastructure from operators

ANGOLA



The content of the infrastructure sharing agreement is defined by law:

- Identification of parties;
- Scope;
- Type of sharing model;
- Identification of infrastructures to be shared;
- Parties rights and obligations;
- List of equipment to be installed, if applicable;
- Availability of services required for network operation, such as energy, cooling, fire prevention, other elements;
- Rules for accessing the infrastructure, namely for installation, maintenance and removal;
- Rules on maintenance of equipment and premises;
- No subleasing provisions;
- Rules on pricing;
- Duration;
- Rules on removal of equipment or termination of use for the infrastructure following termination of agreement;
- Dispute resolution



Agreement valid only following homologation by INACOM

Infrastructure Sharing Regulation
(Presidential Decree nr. 166/14, dated 10 July)

BOTSWANA



Telecommunications Act

BTA Guidelines for sharing passive communication infrastructure

Infrastructure sharing not regulated by law, but included in the guidelines issued by the regulator - Botswana Telecommunications Authority (BTA) (<http://www.bocra.org.bw/>)

Guidelines apply to **passive** infrastructure sharing (operators being encouraged to explore other possible types of sharing)

Infrastructure sharing negotiation should be based on the principles of neutrality, transparency and non-discrimination, based on a *first come, first served* model

Prices must be cost-oriented

BTA may intervene in case of litigation

BTA believes it is premature to create laws specifically aimed at infrastructure sharing

“The real value of infrastructure sharing goes well beyond concepts like revenue, turnover and efficiency rates. Its greatest benefit lies in the power to connect communities and people together at low cost”

Source: BTA Guidelines on infrastructure sharing

EUROPEAN UNION / PORTUGAL



2004
General rules in the
Electronic
Communications Law
for the incumbent
operator



Applicable to the incumbent

2005
Legal regime for
construction,
management, access
to infrastructures
within State public
domain

2009
New regime for
infrastructure
construction and
sharing



Applicable to public entities and operators





Law ne. 5/2004, dated 7 February
(Electronic Communications Law)

Directives nr. 2002/19/CE,
2002/20/CE and 2002/21/CE of the
European Parliament and the Council
dated March 7

Decree-Law nr 123/2009, dated 21
May (regime for construction, access
and installation of infrastructures)

Infrastructure sharing obligations applicable to operators, but also to the State (including municipalities), concessionaires for public entities



Access must be provided in non-discriminatory, transparent and equal terms, subject to a cost-oriented pricing principle; **Refusal to provide access is only allowed in specific cases**

Operators required to have Reference Offer; keep updated internal registry of their infrastructures; publicise works carried out in the context of building or enhancing their infrastructures (operators may choose to join construction and share the costs)

Legal regime articulated with regime over powers held by municipality and fiscal obligations and principles in what concerns fees and taxes

MOZAMBIQUE



Telecommunications Strategy
(Resolution nr. 54/2006, dated 26 December)

Telecommunications Law
(Law nr. 8/2004, dated 21 July)

Infrastructure sharing Regulation
(Decree nr. 62/2010, dated 27 December)

Proposed ITED/ITUR Regulation
(May 2015)

Infrastructure sharing regulation spread through various diplomas: Telecom Law, Telecom Strategy and Infrastructure Sharing regulation

Telecommunications Strategy

- Infrastructure sharing identified as essential and should be foreseen in the construction of utilities and pursued by the regulator

Telecommunications Law

- All operators have the right to enter into infrastructure sharing agreements, although only operators with a dominant position are obligated to allow access to their towers and infrastructures, whenever technically feasible

Infrastructure Sharing Regulation

- Detailed regulation of passive infrastructure sharing: procedures and content of sharing agreement; mandatory information to be provided by owners/operators of the infrastructure; obligation to send final agreement to INCM
- No standard sharing agreement
- INCM intervenes in case of litigation

MOZAMBIQUE



Telecommunications Strategy
(Resolution nr. 54/2006, dated 26 december)

Practical challenges:

- Overlapping of regulation in various diplomas
- Sharing options and mechanisms vary from operator to operator
- No infrastructure sharing culture
- No technical or operational specifications apply
- Few incentives to sharing - regulatory fees, tax exemptions, for example)



Revision to Infrastructure Sharing Regulation ongoing



NIGERIA



Under the Nigerian Communications Act, the Regulator NCC must encourage and promote infrastructure sharing by licensed operators, including by issuing guidelines to the effect

Government Notice nr. 115 (Nigerian Communications Act))

- In order to develop and incentivate infrastructure sharing, NCC approved guidelines on passive infrastructure sharing, based on a “*first come, first served*” model (capacity being allocated in accordance with the order of the access requests)
- Guidelines indicate terms of the infrastructure sharing relationship between the operators (content of contract/ types of sharing, terms and conditions. etc.)
- Sharing requests should be replied within 30 days and refusal is allowed only in case of insufficient capacity; safety, reliability, incompatibility of facilities; and engineering considerations
- Reference offer must be provided by operators, but is not absolutely binding

Guidelines on Collocation and Infrastructure sharing



NIGERIA



Guidelines on Collocation and Infrastructure sharing

Operators may negotiate infrastructure sharing agreements freely, NCC intervening (i) in the event of refusal to share; or (ii) to act as mediator in the absence of an agreement

Negotiation to be based on the principles of neutrality, transparency and non-discrimination and prices must be cost-oriented

Infrastructure sharing carried out under the terms of the license issued by NCC



Both the licence model (**Infrastructure Sharing and Collocation Services License**) and specific conditions for infrastructure sharing are available through the regulator's website (<http://www.ncc.gov.ng/>)

SOUTH AFRICA



Act nr. 1/2014
(Electronic Communications Act)

Infrastructure sharing obligation applies to all operators holding a ENCS licence (Electronic Communications Network Service), which allows for the roll-out and operation of a physical telecommunications network

These operators must share their electronic communications facilities with other operators and must comply with any guidelines by the regulator - Independent Communications Authority of South Africa (ICASA) (<https://www.icasa.org.za/>)

The law does not have a clear definition of “infrastructure”, which means not all stakeholders agree on its scope

In September 2015, ICASA carried out a public consultation on infrastructure sharing in the country, which results were published in March 2016

SOUTH AFRICA



Act nr. 1/2014
(Electronic Communications Act)

ICASA carried out a public consultation on infrastructure sharing and published its conclusions in March 2016, which did not set major differences, but concluded that



- Benefits are realised by stakeholders as a result of existing initiatives for infrastructure sharing.
- Infrastructure sharing is important, but its efficiency may be limited in areas where infrastructure is in poor condition
- Investment mechanisms such as the USAF may need to be explored to encourage network rollouts in areas that are not financially viable
- The objectives of infrastructure sharing have, to a certain extent, been achieved through commercial agreements
- Infrastructure sharing matters should not be dealt with in one regulation

ICASA conclusion: **current rules on infrastructure sharing already regulate the matter of infrastructure sharing.** In any case, specific matters such as local loop unbundling should be addressed



TANZANIA



Electronic and Postal Communications
(Access, Co-location and Infrastructure
sharing) Regulations, 2011

All operators must share their infrastructure with other operators on a non-discriminatory and impartial basis, according to a “*first come, first served*” model

The law imposes the principle of free negotiation, with the parties having the freedom to establish a standard sharing model (with cost-oriented prices)

Final version of sharing agreement must be sent to the regulator, which has the right to approve or propose changes



The regulator Tanzania Communications Regulatory Authority (TCRA) (<http://www.tcra.go.tz/>) may impose the infrastructure sharing obligation on the incumbent

TCRA to consult stakeholders in 2016 on the topic of infrastructure sharing, for the purpose of preparing setting up a new infrastructure sharing regime

ZAMBIA



Information and Communication
Technologies Act (2009)

ZICTA Guidelines

The law contains no express reference to infrastructure sharing

Sets out an obligation (applicable to all operators) to ensure access, co-location and interconnection, in accordance with the guidelines published by the regulator - Zambia Information and Communications Technology Authority (ZICTA) (<http://www.zicta.zm/>)



In practice, regulation is equivalent to an infrastructure sharing obligation

ZICTA provides a template contract for access, co-location and interconnection, although it is not mandatory and the parties may agree on different models

GOOD PRACTICES

GOOD PRACTICES

1. SHARING-FRIENDLY ENVIRONMENT

- Establishing an **adequate regulatory environment** that favours competition (based not only on services, but also on infrastructure) and the entry of new operators, considering the advantages and disadvantages of possible business models
- Creating **incentives to competition and investment (regulatory fee exemptions, tax regimes)**, in order not to limit infrastructure sharing to certain operators or types of services



GOOD PRACTICES

2. INNOVATIVE REGULATORY POLICIES AND STRATEGIES

Reasonable Terms and Conditions so that: (i) sharing obligations do not hinder the investment made in infrastructure/services; and (ii) commercial and non-commercial terms do not act as a barrier to sharing arrangements

Pricing: prices should ensure commercially reasonable build-or-buy positions

Pre-approved agreement templates

Licensing: licensing procedure for providers of passive infrastructure that do not compete in retail market (ex. TowerCos)

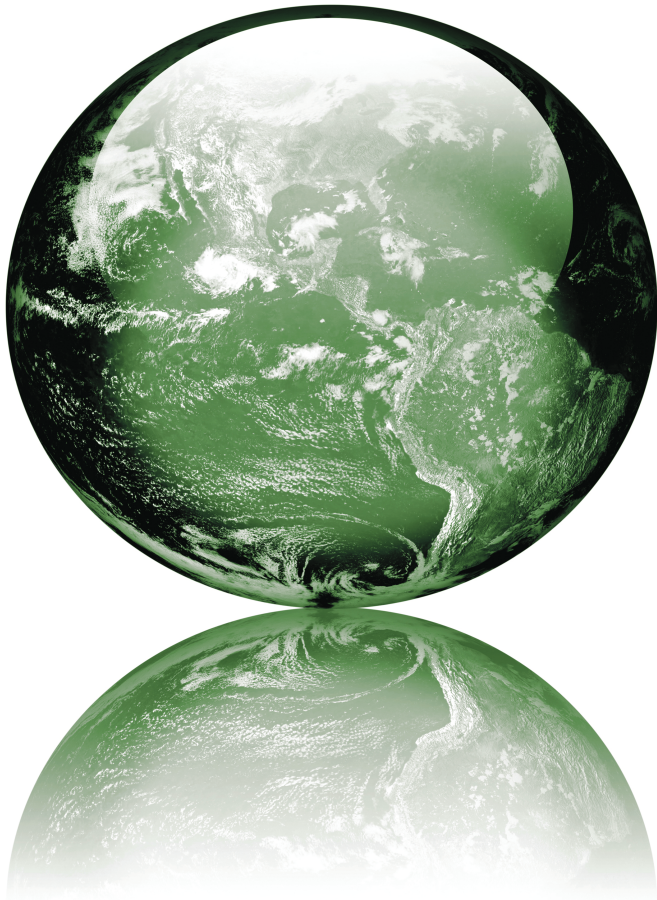
One-stop-shop: for coordination of installation and operation work, as well as connection between operators

Transparency: mandatory provision of information by operators on their websites

Dispute Resolution: intervention of regulator or other independent body, in the event that alternative mechanisms are not sufficient

Universal access: creation of incentives (such as regulatory exemptions) for infrastructure sharing, which allow for compliance with universal access goals

Interaction with other sectors and market players: incentivising sharing with players in other sectors (specifically utilities) benefiting the environment, financial health and urban planning



Q&A