



Economic Benefits of Infrastructure Sharing

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Agenda

Infrastructure
Sharing
Defined

Benefits of
Shared
Infrastructure

Challenges to
Shared
Infrastructure

Support for
Structure
Sharing

Infrastructure Sharing Defined



Infrastructure Sharing

- Infrastructure sharing means various kinds of arrangements by which an owner of telecommunication network facilities (including but not limited to, antennas, switches, access nodes, systems, ducts, poles, towers, premises and rights of way) agrees to share access and usage of those facilities with another legal entity, normally another network operator or service provider, subject to a commercial agreement between the parties.

~ www.lawinsider.com/dictionary/Infrastructure-sharing



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Dimensions of infrastructure sharing

- At least three of the following
 - Who is the infrastructure owner?
 - Who is being granted access to the owner's infrastructure?
 - What facilities are included?
 - What form does the commercial agreement take?





Active vs. Passive Sharing

- Active
 - Includes electronic infrastructure
 - Switches, radio access nodes
 - Greater scope for cost reduction
 - Significantly complicates operational procedures
- Passive
 - Includes non-electronic infrastructure
 - Towers, poles, ducts, and premises
 - Simplest form of infrastructure sharing
 - Less scope of cost-savings than active sharing

One-way vs. Reciprocal Sharing

- One-way
 - Simplest form of infrastructure sharing
 - One operator (access provider) leases space to another operator (access seeker)
 - There could be multiple buyers
- Regulators would be concerned with T&C equity
- Reciprocal
 - More complexity in regulation
 - Two operators, with different geographic coverage areas, allow each other the use of their networks
- Due to nature of agreement, cost may not exist
 - Potential for anti-competitive behavior





Infrastructure Ownership

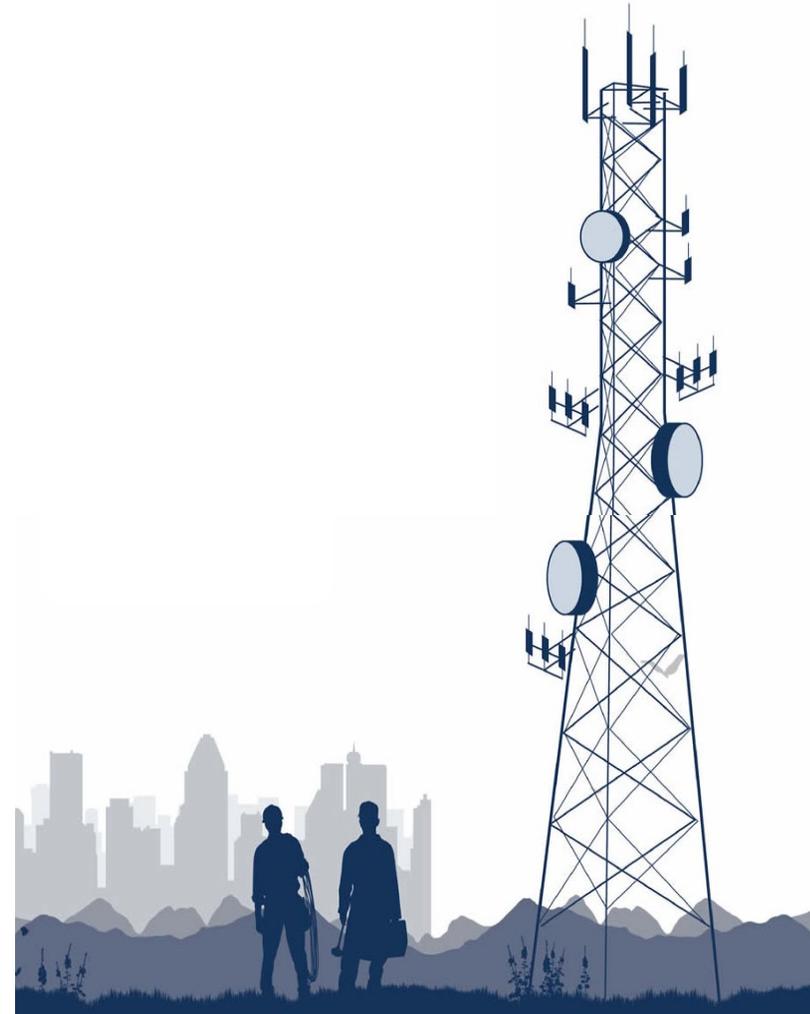
- Third-Party Ownership
 - Ownership of infrastructure assets is passed to a third party, independent company
 - Can apply to both passive and active sharing
 - For operators, the risk of capex is replaced by operational expenditure
- Joint Venture Ownership
 - Sharing parties form a joint venture company, to own and operate the network
 - Beneficial for operators seeking to make shared investments in new tech or new geographical areas

Benefits of Shared Infrastructure



Efficient Use of Scarce Resources

- There is economic and environmental cost in duplication
- Shared infrastructure on towers avoids
 - Need to construct new towers
 - Trenching to lay fiber
- * This reduces the consumption of scarce resources such as land, energy, and raw materials



Lower Industry Cost

- For any service output, shared infrastructure avoids the cost of constructing and maintaining duplicate infrastructure
- BEREC (Body of European Regulators for Electronic Communications) suggests infrastructure sharing could reduce CAPEX by up to 45% and operational expenditure by 33%

CAPEX



45%

OpEx



33%

Increased Network Coverage

- Cost savings = greater economies of scale
- Under the right regulatory conditions:
 - Where risk of investment is shared
 - Can lead to an acceleration of coverage in higher-cost remote and rural areas



Enhanced Competition

- According to the ITU (International Telecommunication Union) infrastructure sharing enables competing operators, especially new entrants, to compete more effectively with incumbent operators
 - Generally, incumbent operators, control a significant amount of infrastructure, which is not economically feasible to replicate
~ (ITU 2021, 25)



Lower Consumer Prices

- Not all cost savings will be passed on to consumers
- However, multi-operator service provisions create competitive market conditions, in which consumer price reductions will occur
- 15-25% of regulatory authorities believe infrastructure sharing has resulted in lower end-user prices

~ ITU 2021, 34

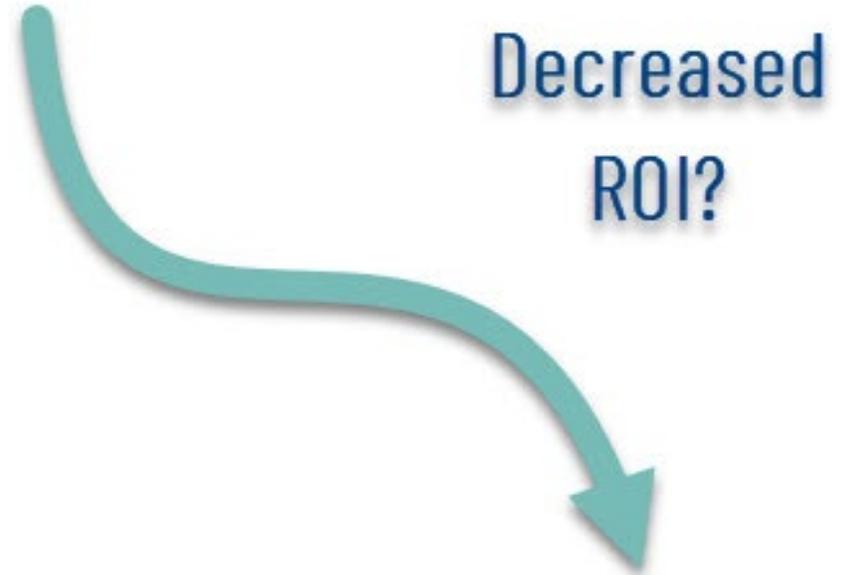


Challenges to Shared Infrastructure



Reduced Incentives to Investment

- While sharing increases the efficient use of existing infrastructure, it may decrease the willingness towards additional investment as ROI is perceived as lower or less certain
- For example, passive sharing:
 - Host operator may be burdened with active components from other companies while receiving low margins on the asset base



Reduced Network Resilience

- The lack of competing infrastructure with fewer independent networks, both increases the burden on remaining networks and means that the effect of outages will be more widespread
- In case of emergency or disaster, network “robustness” will be reduced



Risk of Collusion

- In areas where network elements are shared, operators may not be able to distinguish between their end-user services in quality or cost
- This could decrease competition and may result in collusion
 - Result is the prevention of otherwise viable operations from entering the market
- Some nations (e.g. France, Ireland) have banned active infrastructure sharing, in urban areas, to allow full infrastructure competition to be maintained



Operational Challenges and Costs

- With increased infrastructure sharing, comes increased difficulty for infrastructure owners to plan and manage
 - Coordination between parties is critical but time-consuming
- Where space is limited (demand is greater than supply) rules must be established to ensure fair and equitable access to available resources and investments to increase space

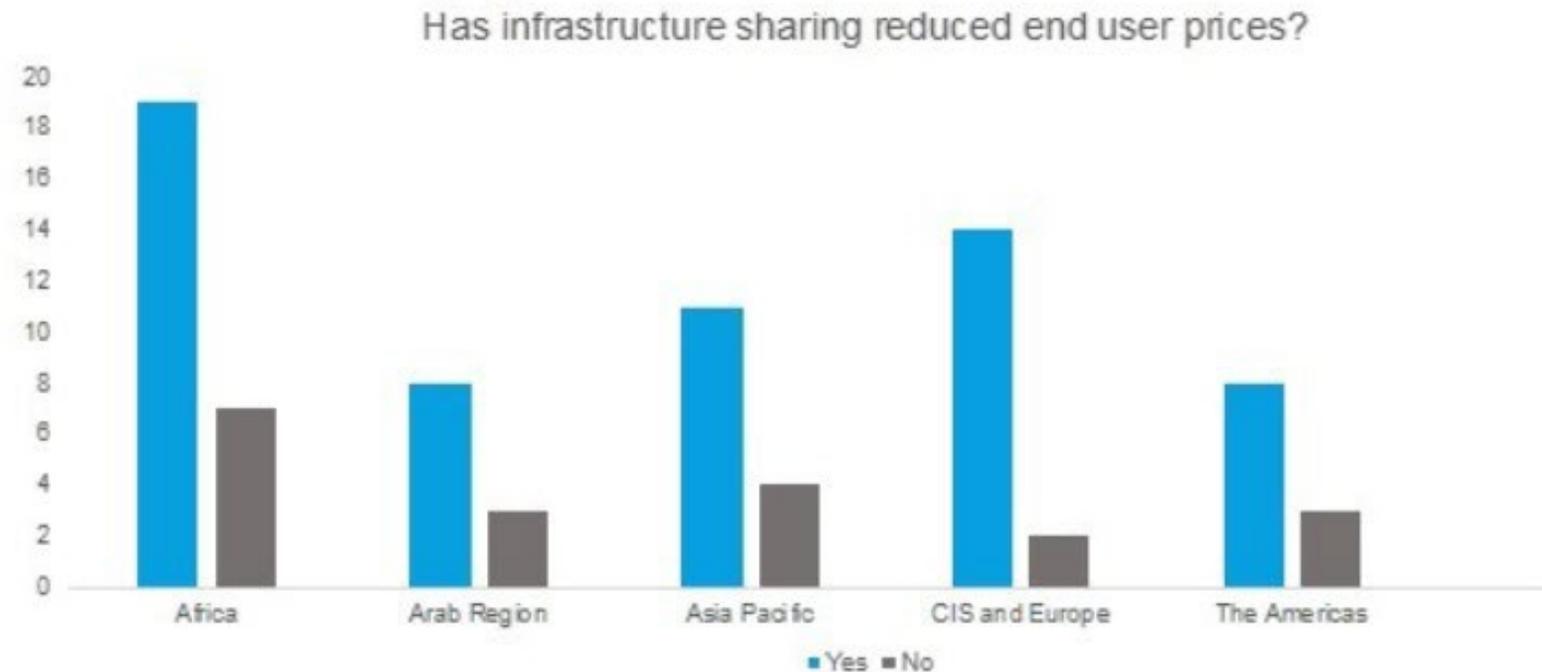


Support for Structure Sharing



Overall Positive Outlook

- While there are challenges with infrastructure sharing, regulatory authorities across the globe view it favorably



Source: ITU (2021 Tariff Policy Survey, excluding countries where no information available)

Embracing Co-opetition?

- A collaborative agreement, between two or more competing firms, to create value based on shared resources
- Firms would co-operate in some areas while competing in others
- Entities in co-opetition are generally motivated to collaborate in ways that increase the size of their existing markets and/or allow them to enter new markets



African Leadership

- According to the ITU (International Telecommunications Union) 38 African countries have already incorporated mobile telecom infrastructure sharing into regulations
 - Aimed at encouraging mutual investment among telecom operators
 - Promote more judicious use of capital
- Implementation Obstacles
 - Operator's desire for leadership
 - Regulator's apprehension about the risk of collusion endangering competition
- Passive is more prevalent than active sharing



A look at South Africa

- Public-private partnerships, like the East African Community, seek to harmonize regulations for cross-border infrastructure sharing
 - Public-private partnership emerging as the model for effective telecom infrastructure sharing
 - Collaborative effort contributes to cost savings and aligns with broader national objectives to expand connectivity and foster digital inclusion
- Avoids the risk of mandatory infrastructure sharing
 - Passive sharing for compliance
 - Flexibility = economically efficient sharing practices with regulator encouragement



Questions?

Please contact Doug, Sam or Jon with any questions you may have on this presentation.



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