

# CAPITEL

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## **Building a Carrier Neutral Fiberco**

TowerXchange Asia, Singapore

Puja Goyal. 5 Dec 2018

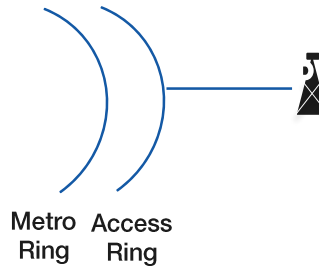
# Tower returns from fiber improve by adding fiber enabled network infrastructure (FNI)

## 1 Tower on microwave



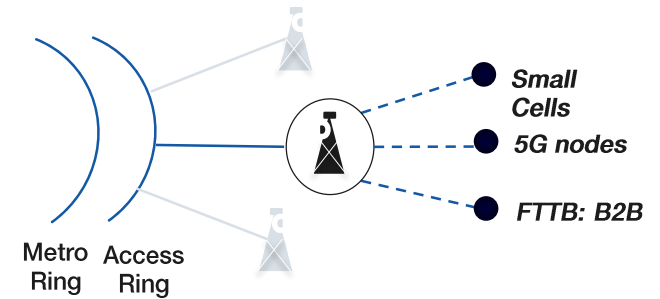
Revenue per tower	\$1000
% EBITDA	50%+
Rol	~12%

## 2 Tower with fiber



\$1,200
50%+
~12%

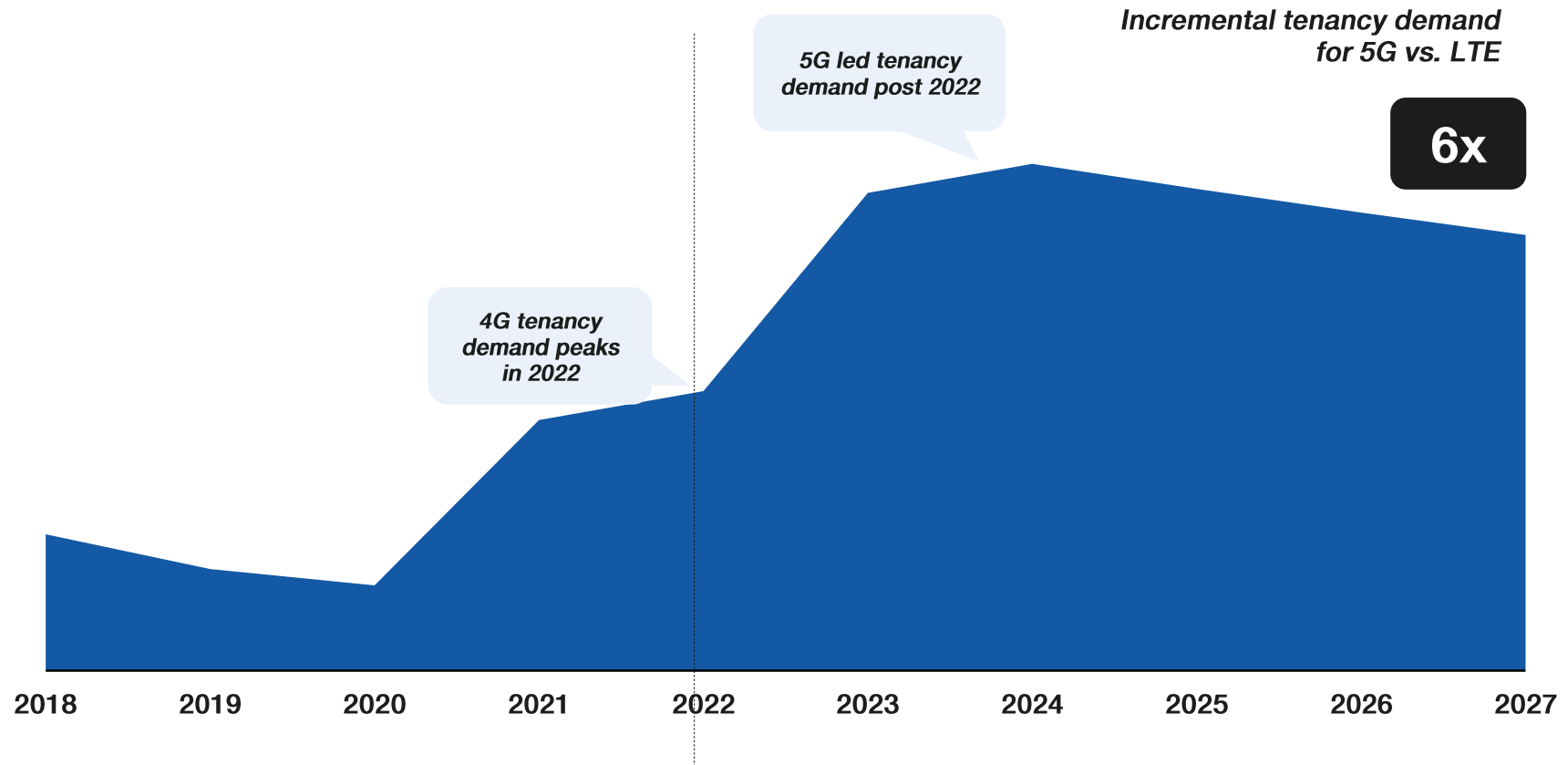
## 3 Tower as a hub with fiber connected infrastructure



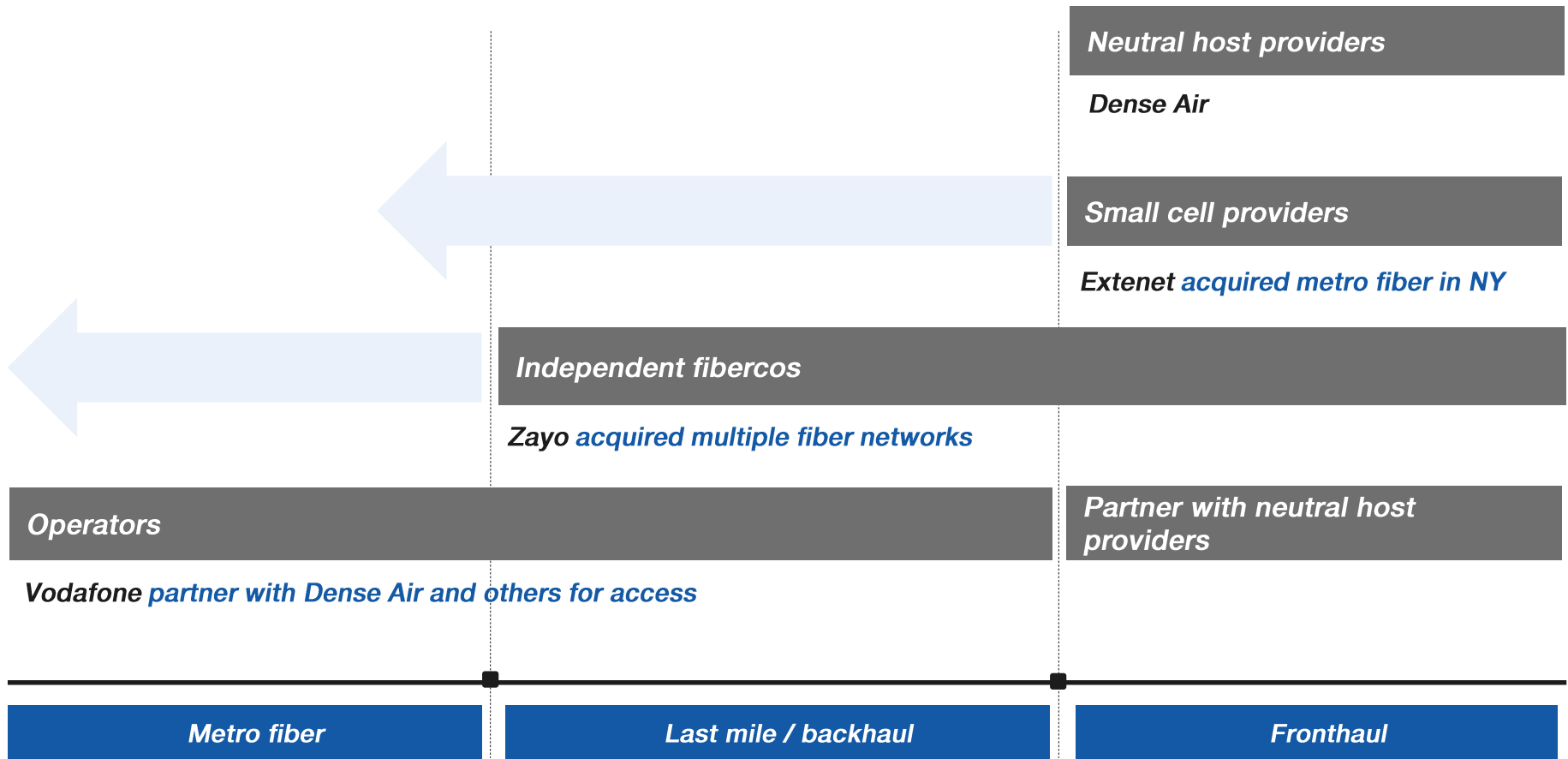
\$1,600+
60%+
~15%+

In emerging Asian markets, the 5G led FNI opportunity will be higher than LTE

**CHINA TOWER CORP.**  
**Incremental Tenancies (mn), 2018 – 2027**

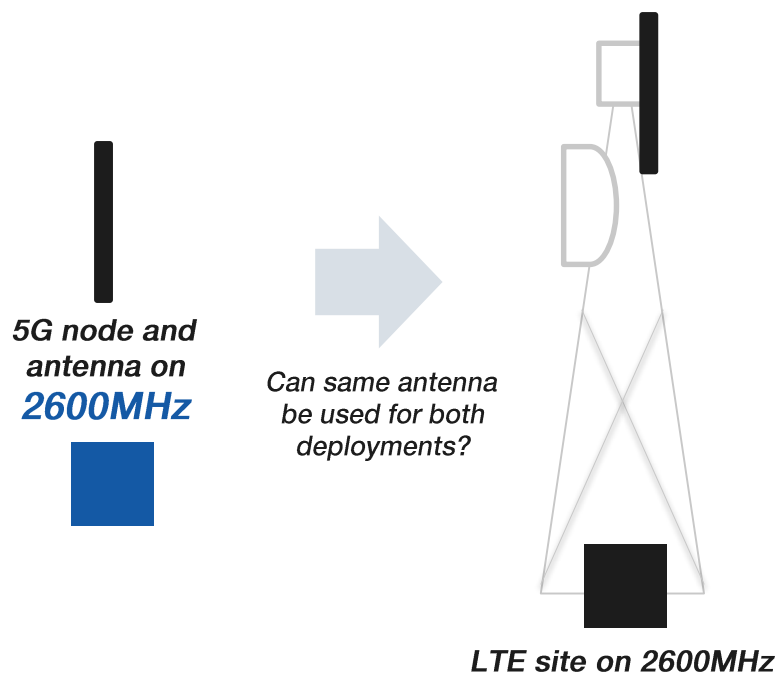


# FNI market isn't a logical guarantee for towercos with multiple emerging competitors

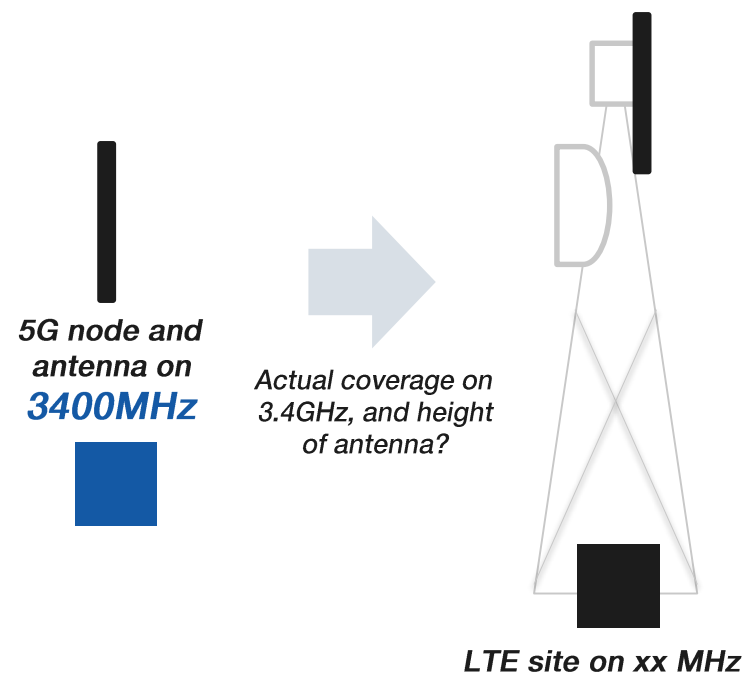


# Technical considerations will also affect utilization of towerco LTE grid and FNI revenues

## 1. Amendment / loading of 5G on existing LTE site, or new tenancy?



## 2. Deployment of 5G on existing LTE site, or need new street furniture?

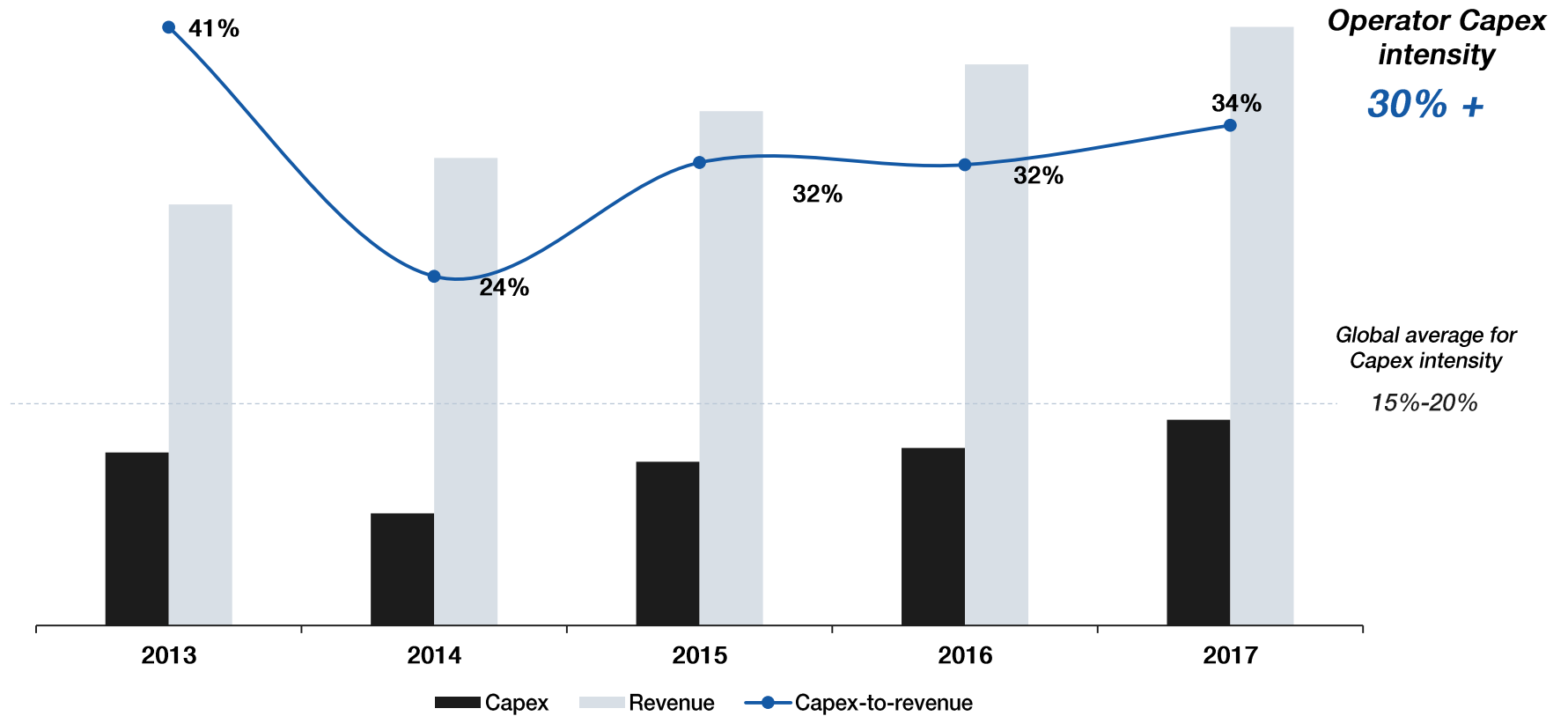


## Towercos will need additional capabilities to compete in the FNI market

<i><b>Competitors</b></i>	<i><b>Operational</b></i>	<i><b>Commercial</b></i>	<i><b>Financial</b></i>
<b>1. Operators</b>	<ul style="list-style-type: none"> <li>• Towercos have local field teams for deployment and maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Partnerships with real estate and other retail providers</li> </ul>	<ul style="list-style-type: none"> <li>• Ability to invest substantial Capex in the last mile</li> <li>• Lower cost of capital in some cases</li> </ul>
<b>2. Neutral hosts</b>	<ul style="list-style-type: none"> <li>• Towercos have existing base of tower assets and operator relationships reduces demand risk</li> </ul>	<ul style="list-style-type: none"> <li>• Towerco partnership with operators results in demand led deployment without the demand risk of proactive deployment</li> </ul>	<ul style="list-style-type: none"> <li>• Towerco ability to bundle macro tower, small cells, 5G nodes and other FNIs</li> </ul>
<b>3. Fibercos</b>	<ul style="list-style-type: none"> <li>• Existing base of tower assets and operator relationships reduces demand risk</li> </ul>	<ul style="list-style-type: none"> <li>• Fibercos can also bundle B2C enterprise services and long haul routes</li> </ul>	<ul style="list-style-type: none"> <li>• Towerco ability to bundle macro tower, small cells, 5G nodes and other FNIs</li> </ul>

# 1. Leverage higher ability to invest in last mile and access vs. operators

Capex intensity for Philippines  
MNOs  
2013-17

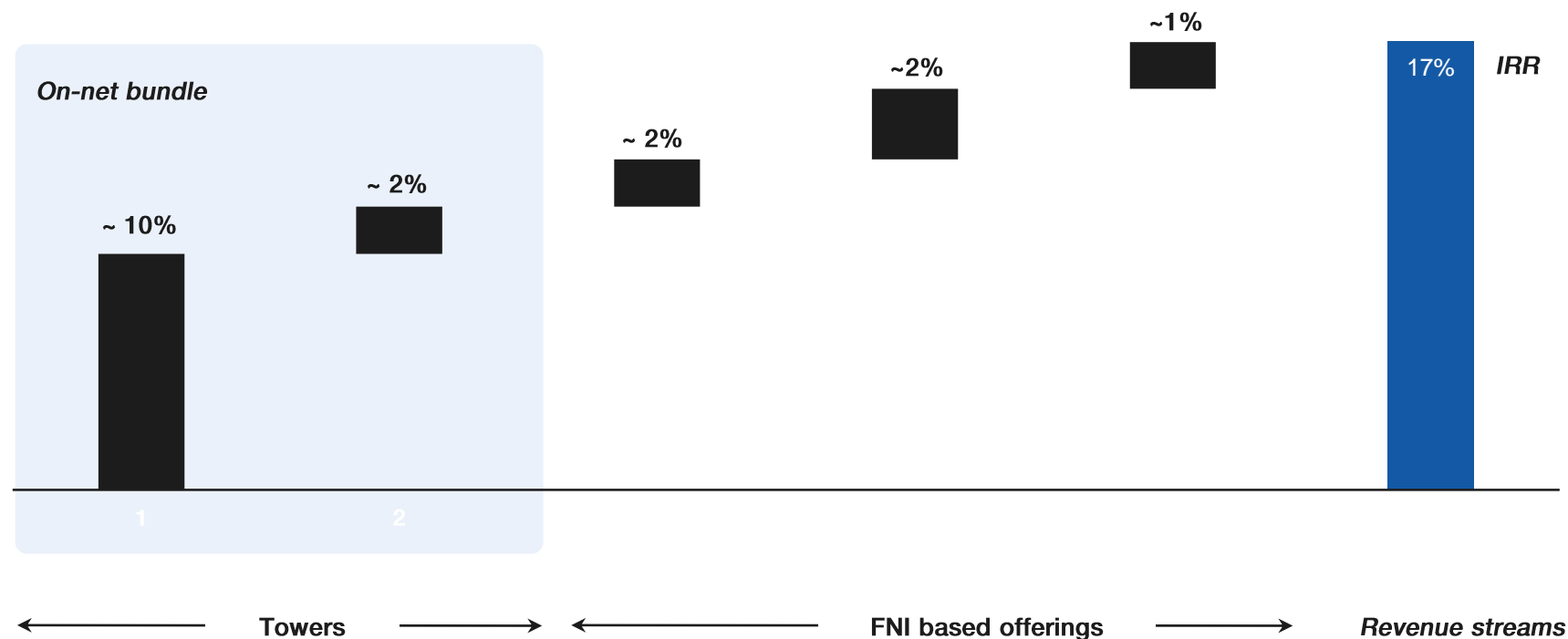


## 2. Leverage ability to bundle on-net towers vs. neutral hosts

### Towerco revenue model components

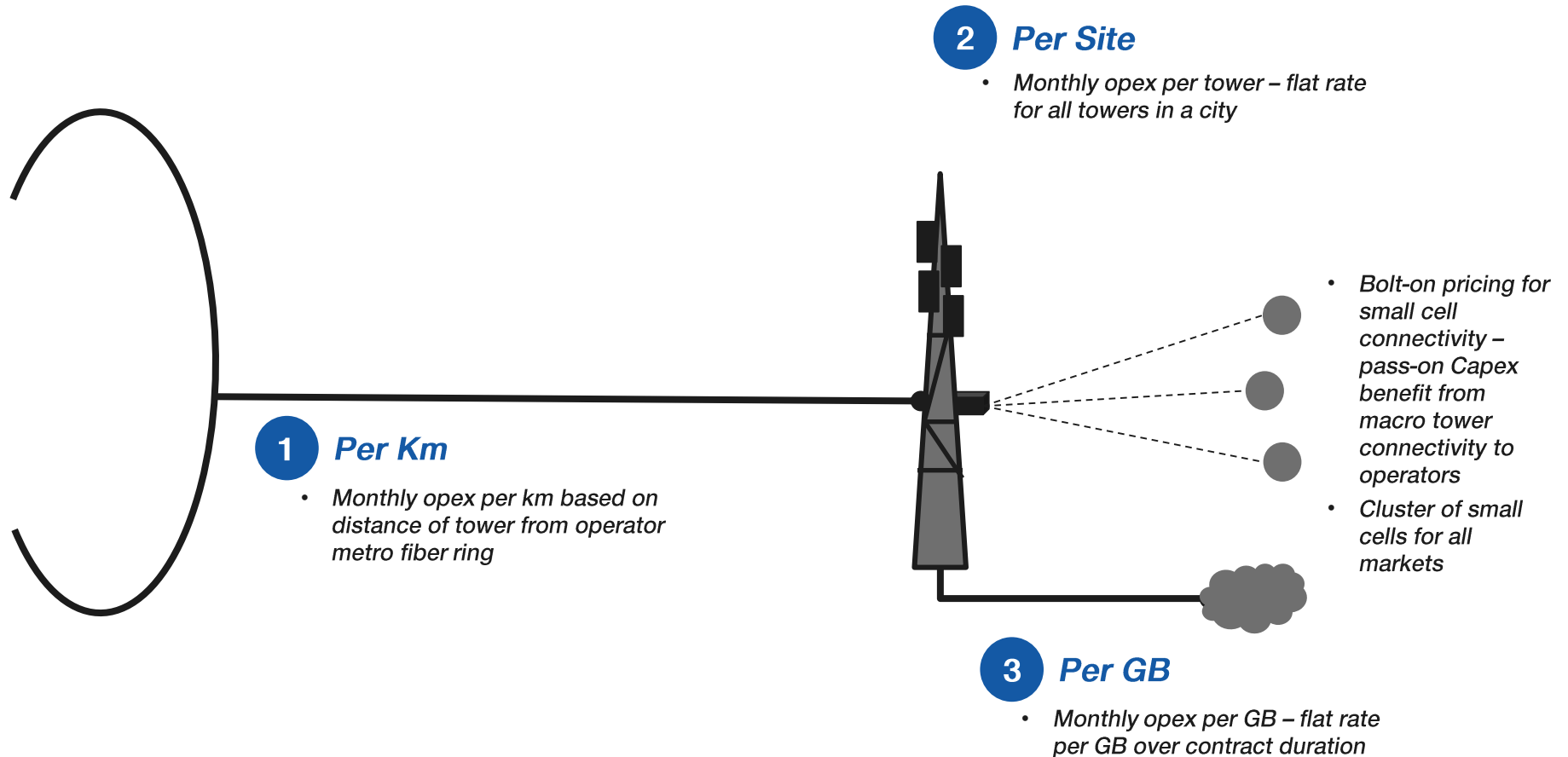
IRR (Internal rate of return)

*Illustrative*

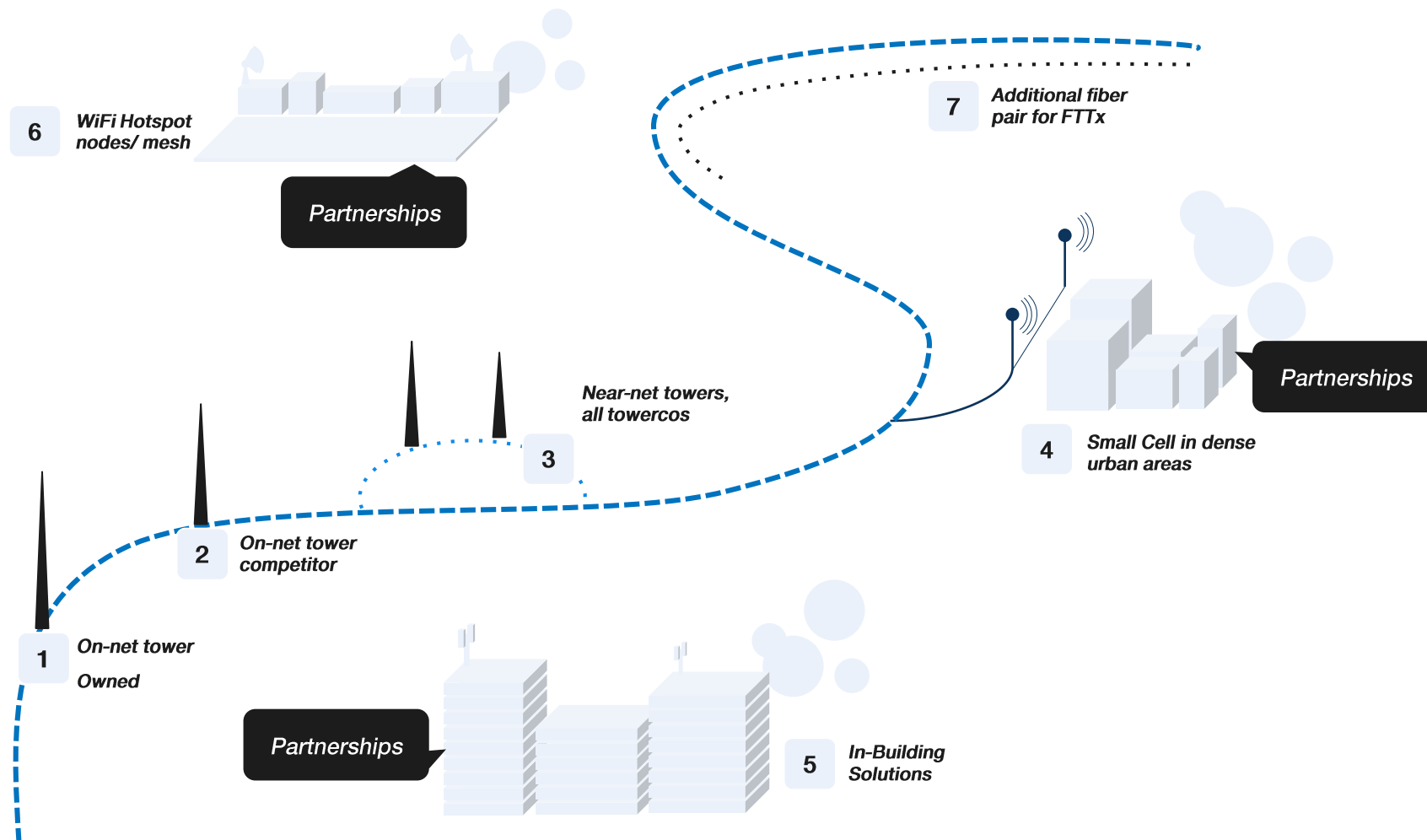




### 3. Leverage ability to offer recurring opex based models vs. neutral hosts



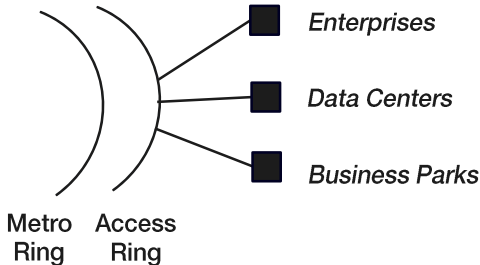
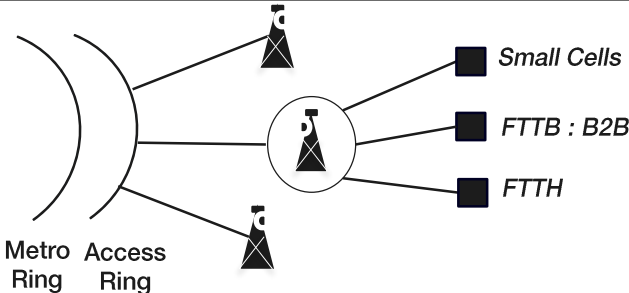
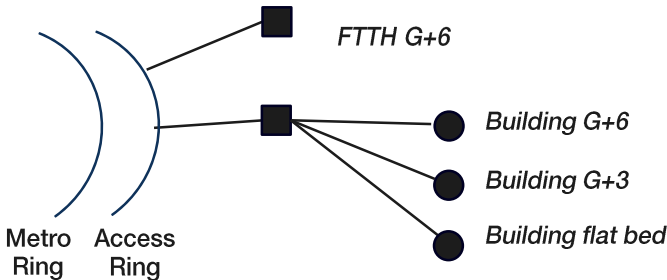
## 4. Leverage partnerships with real estate providers vs. others



There can be multiple target segments and business models for a fiberco

Increasing requirement of bundling and high-touch service	Large enterprises	Solutions and applications (e.g. Symantec), M2M, cloud, bundling of mobility services	Solutions and applications + Branch office connectivity	Primarily branch office connectivity	Independent fiberco target
	Medium enterprises	Solutions and applications, bundling of mobility services	Solutions and applications + Branch office connectivity	Primarily branch office connectivity	
Increasing requirement of network capacity	Small businesses and SoHO	Cluster model + SoHo in cities: Connectivity + cloud based applications + security			
	Network Infrastructure	Cloud RAN and small cells; data centers, select incremental FTTT	FTTT to be a big opportunity with pricing power for early movers	FTTT to be a big opportunity with pricing power for early movers	
	MDUs	FTTB, FTTH (Operators, select independent fiberco's)	FTTB (Operators, independent fiberco's) E LAN (BB providers)	Limited segment size	
	Flat bed (Residential, Commercial)	FTTB + ELAN	Cable broadband + Ethernet LAN + FTTB	Primarily wireless, some cable bb	
		Metros	Tier 1 markets	Tier 2 markets	

## The network deployment architecture for fiberco will vary based on business model

Segments	Description	Examples
<b>Tower centric fiberco</b>	 <ul style="list-style-type: none"> <li>• Connecting business customers</li> <li>• Serving enterprise and data centers with long-term contracts and revenue visibility</li> <li>• No B2C play – B2B either as metro fiber provider or including last mile</li> </ul>	<ul style="list-style-type: none"> <li>• RJio</li> <li>• Towercos</li> <li>• Lighttower</li> </ul>
<b>Carrier neutral fiberco / Metro fiber provider</b>	 <ul style="list-style-type: none"> <li>• Connecting operator towers to the access ring/metro ring.</li> <li>• Using connected tower as a hub to connect small cells, residential buildings and businesses.</li> </ul>	<ul style="list-style-type: none"> <li>• Eurofiber</li> <li>• Operator Enterprise Business</li> </ul>
<b>Operator fiberco</b>	 <ul style="list-style-type: none"> <li>• Primarily connecting residential HHs</li> <li>• Alignment of last mile mix based on household need, affordability, as well as type (MDU vs. Flat bed)</li> </ul>	<ul style="list-style-type: none"> <li>• ACT</li> <li>• Operator FBB</li> <li>• Third party regional providers</li> </ul>

The unit economics and pricing models vary based on the selected business model and the techno-commercial architecture adopted

Pricing model	Applicability	Model details
1 <b>IRU based pricing</b>	<ul style="list-style-type: none"> <li>Dark fiber metro access</li> </ul>	<b>Upfront payout of \$xx per pair per route km of metro fiber, with recurring payouts for maintenance</b>
2 <b>Dark fiber@ monthly Opex</b>	<ul style="list-style-type: none"> <li>Dark fiber fronthaul access</li> <li>Dark fiber last mile access</li> <li>Dark fiber metro access</li> </ul>	<b>Recurring \$xx per pair per route km, with escalation</b>
3 <b>End-to-end model</b>	<ul style="list-style-type: none"> <li>End to end provisioning of dark fiber including inter-city long haul routes</li> </ul>	<b>Monthly charge per fiber connected site / per node / per small cell</b>
4 <b>Bandwidth sale</b>	<ul style="list-style-type: none"> <li>Bandwidth lease on metro and inter-city routes</li> </ul>	<b>Monthly charge per xx Gbps or GB</b>

Towercos can use target fiberco as a platform to build a strong carrier neutral fiberco

### Operating platform for fiber<sup>1</sup>



1. Operator fiber asset (including SLB)
2. Regional fiberco



### Building blocks: Metro Fiber



1. Aggregation of regional metro fiber assets
2. Operator fixed line / enterprise business



### Building blocks: Network capacity infrastructure



1. Small cell providers
2. IBS providers
3. Data centers



### Opportunities



1. FTTT
2. Small cell networks
3. Smart cities
4. Connected buildings
5. FTTx
6. 5G / IoT

# Summary

- *FNI economics are attractive, incremental returns from improving utilization of the fiber asset*
- *FNI opportunity is expected to scale up in emerging Asian markets*
- *However, there will be competition from emerging providers, including operators*
- *Need to leverage*
  - *Ability to invest Capex at lower cost of capital, and for long term*
  - *Bundle macro towers with FNI for pricing models*
  - *Relationship with operators to reduce demand risk from proactive deployments*
- *The three main decisions to be taken by the towerco are*
  - *Target segments and business models (B2B vs B2C),*
  - *Techno commercial architecture, and*
  - *Pricing models*
- *Basis the above decisions the towerco can build an operational platform to participate in the FNI based services, and grow organically as well as inorganically by aggregating multiple smaller fiber providers*

# Contents

FNI overview

About us



About us: We are a specialist techno-commercial advisor for major investments and transactions in data Infrastructure, data networks and data services

Focus areas	Segments	Propositions	Clients and coverage
<b>Data Infrastructure</b>	<ul style="list-style-type: none"> <li>• Wirelsss towers</li> <li>• Fiber networks</li> <li>• Data centers</li> </ul>	<b>Due diligence</b> <ul style="list-style-type: none"> <li>- Market due diligence (without access to client data room)</li> <li>- Commercial due diligence (buyers / sellers)</li> <li>- Technical and asset due diligence (partners)</li> </ul>	<ul style="list-style-type: none"> <li>• Infrastructure funds</li> <li>• Private Equity funds</li> <li>• Hedge funds</li> <li>• Towercos</li> <li>• Operators</li> <li>• Service providers</li> <li>• OEMs</li> </ul>
<b>Data Networks</b>	<ul style="list-style-type: none"> <li>• Broadband and 5G</li> <li>• Enterprise networks</li> <li>• Spectrum</li> </ul>	<b>Investment planning</b> <ul style="list-style-type: none"> <li>- Investment planning and business case development</li> <li>- Technology roadmap planning and assessment of key risks</li> <li>- Spectrum planning and valuation</li> </ul>	<ul style="list-style-type: none"> <li>• Coverage from Singapore, New Delhi, New York and London (Sales office)</li> <li>• Experience of advising on 40+ investments and transactions with cumulative deal value of \$30bn+</li> </ul>
<b>Data Services</b>	<ul style="list-style-type: none"> <li>• Media distribution</li> <li>• 5G and IoT</li> <li>• Internet</li> </ul>		

We have served major operators, towercos and financial investors in India, China, Asia and EMEA on \$500mn+ investments and transactions

<b>Client</b>	<b>Engagement</b>	<b>Asset</b>	<b>Towers</b>	<b>Year</b>	<b>Value</b>	<b>Market</b>
<b>Towerco</b>	Supply side propositions for fiber	Fiber	-	2018	-	India
<b>Public equity fund</b>	Towerco pricing and unit economics	Indus-Infratel	~140,000	2018	-	India
<b>Infra fund</b>	Tower market study and tenancy forecast	Globe	~ 8,000	2018	-	Philippines
<b>UK based PE fund</b>	China tower IPO investments	China Tower Corp	1.9 mn+	2018	-	China
<b>Infra fund</b>	Data center market overview	Data centers	-	2018	-	Regional
<b>Strategic investor</b>	Towerco business case	Bharti Infratel	10,000+	2018	-	S. Asia
<b>Towerco</b>	Fiber-to-the-Tower city selection / PMO	Fiber	~75,000	2018	-	India
<b>Infra fund</b>	Commercial due diligence	Indus	~140,000	2017	\$5bn+	India
<b>Infra fund</b>	Commercial due diligence	Vodafone-Idea	~20,000	2017	\$1bn	India
<b>Infra fund</b>	Market due diligence (non-binding offer)	TowerVision	~ 8,000	2017	\$500mn	India
<b>Infra fund</b>	Market due diligence (non-binding offer)	Ascend	~ 10,000	2017	\$500mn	India
<b>Infra fund</b>	Advisory, post binding-stage	Reliance Infratel	~ 43,000	2017	\$3bn+	India
<b>PE + Pension funds</b>	Technology risk assessment, small cells	Wireless towers	-	2017	-	Regional
<b>PE fund</b>	Pricing model evolution	Wireless towers	-	2017	-	Regional
<b>India Towerco</b>	Three year investment strategy	Towers, fiber	-	2017	-	India / Regional
<b>India Towerco</b>	Tenancy demand forecast	Wireless towers	-	2017	-	India
<b>PE fund</b>	Commercial due diligence	Reliance Infratel	~ 43,000	2016	\$3bn+	India
<b>Major Investment bank</b>	Unit economics and pricing	Broadband	-	2016	-	India
<b>Regulator</b>	Spectrum auction structuring	Spectrum	-	2016	\$400mn+	Pakistan
<b>Regional operator</b>	Unit economics	Broadband	-	2016	-	Asia
<b>Public equity fund</b>	Stake purchase from exiting investor	Bharti Infratel	~ 80,000	2015	\$100mn+	India
<b>Towerco</b>	Shared WiFi and fiber business case	Wireless towers	-	2015	-	India
<b>Global operator</b>	Network Capex planning	Wireless business	-	2015	-	India



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