Infrastructure Sharing

A global perspective

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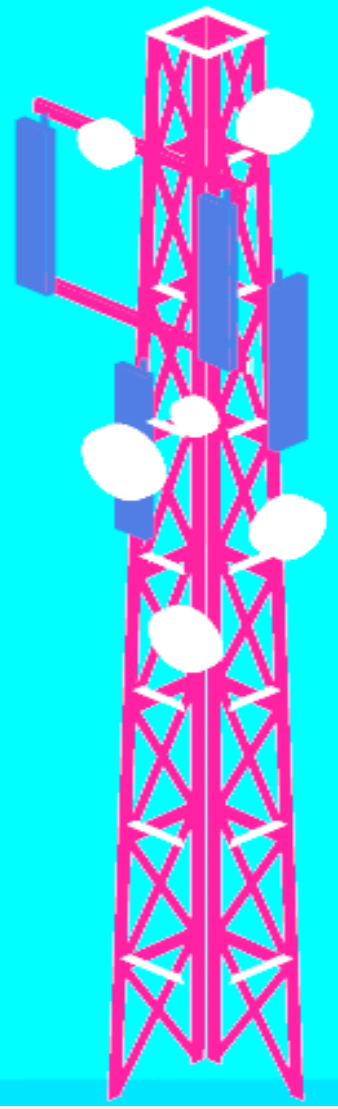
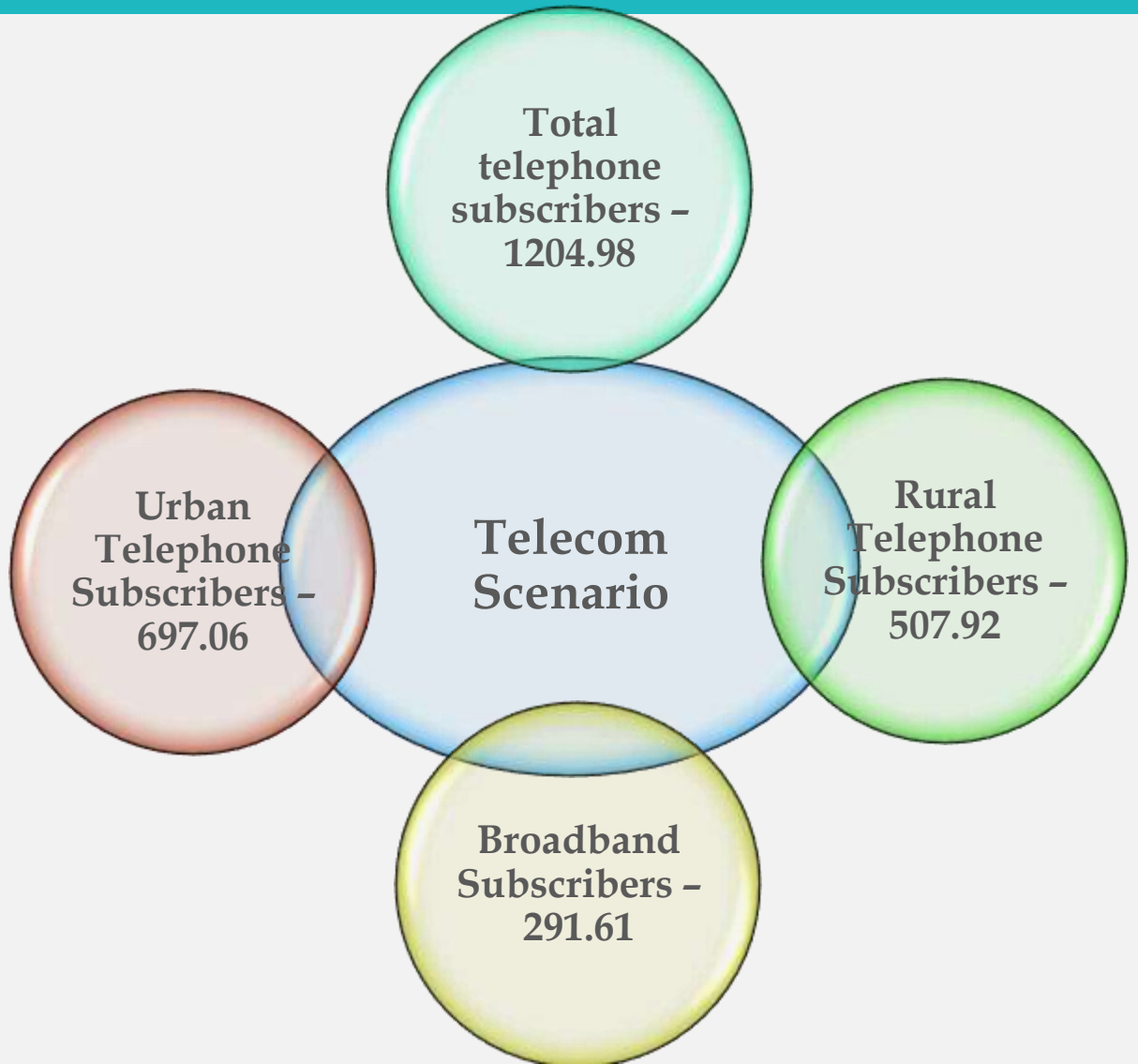


Introduction

- The global telecommunication market is transforming towards a digital, sharing and interconnected economy.
- The transformations around the globe is driven by innovations and dynamic technological developments which have been fuelled by omnipresent telecom networks and services.
- Increase in access to digital technologies have brought more choices and greater convenience.
- In the coming years, the telecom services will contribute significantly towards inclusive development of the world economy.
- Infrastructure sharing has become a trend – setter and is being emulated across the globe by various countries

Indian Telecom Scenario

- India is currently the world's second-largest telecommunications market and has registered strong growth in the past decade and half.
- The overall telecom density stands at 93.61% with urban tele-density at 172.28% and rural tele-density at 57.55%
- India currently has close to 4,50,000 towers and 20-25% of its towers are fiberized.
- Telecom towers have played a key role in expansion of affordable telecom services in the country

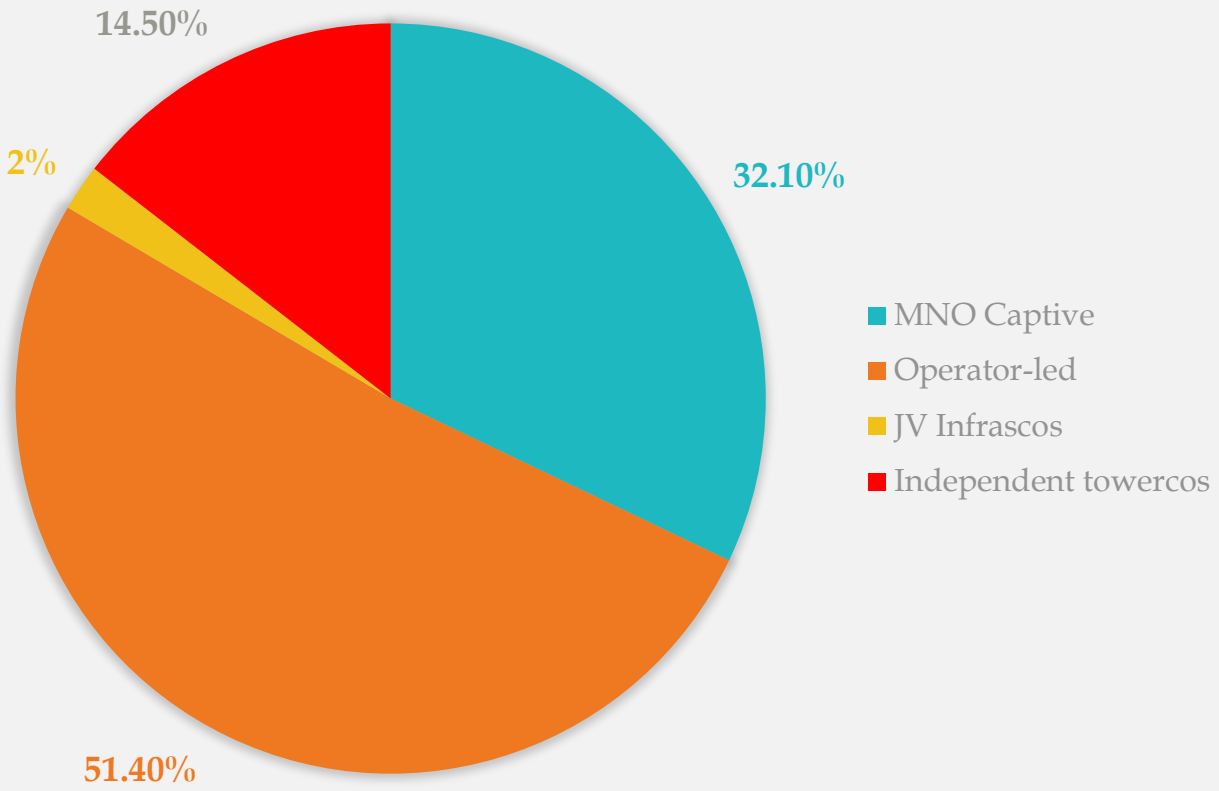


Telecom Tower Industry Overview

- Telecom infrastructure industry is a distinct yet a parallel segment of the telecommunication sector
- **Telecom infrastructure is one of the prime enabler for the expansion of the telecom services in the country**.
- Telecom infrastructure such as telecom towers, fibres, and cables plays an important role in facilitating connectivity by the network operators to the subscribers
- Facilitated to carry wireless signals to connect cities, towns and villages
- Tower sharing created a strong incentive for the growth of the sector. An estimated 65% of telecom infrastructure is shared worldwide

Telecom Tower Industry Overview

- Globally, there are **4,082,452 telecom towers**
- Asian tower market comprises of 2,842,851 towers out of which 2,183,800 are owned or operated by tower-cos, representing 77% of the total count of Asia
- The aggregate site count for FY 14-16 for the global tower industry have grown at about 14.61% CAGR, driven by a combination of organic and inorganic growth.
- Further, according to TowerXchange, the telecom tower 'asset class' can be currently valued at **USD 278.7 billion** representing an important player/sector in the industry.



GLOBAL TELECOM TOWER SCENARIO

Indian Telecom Infrastructure Industry

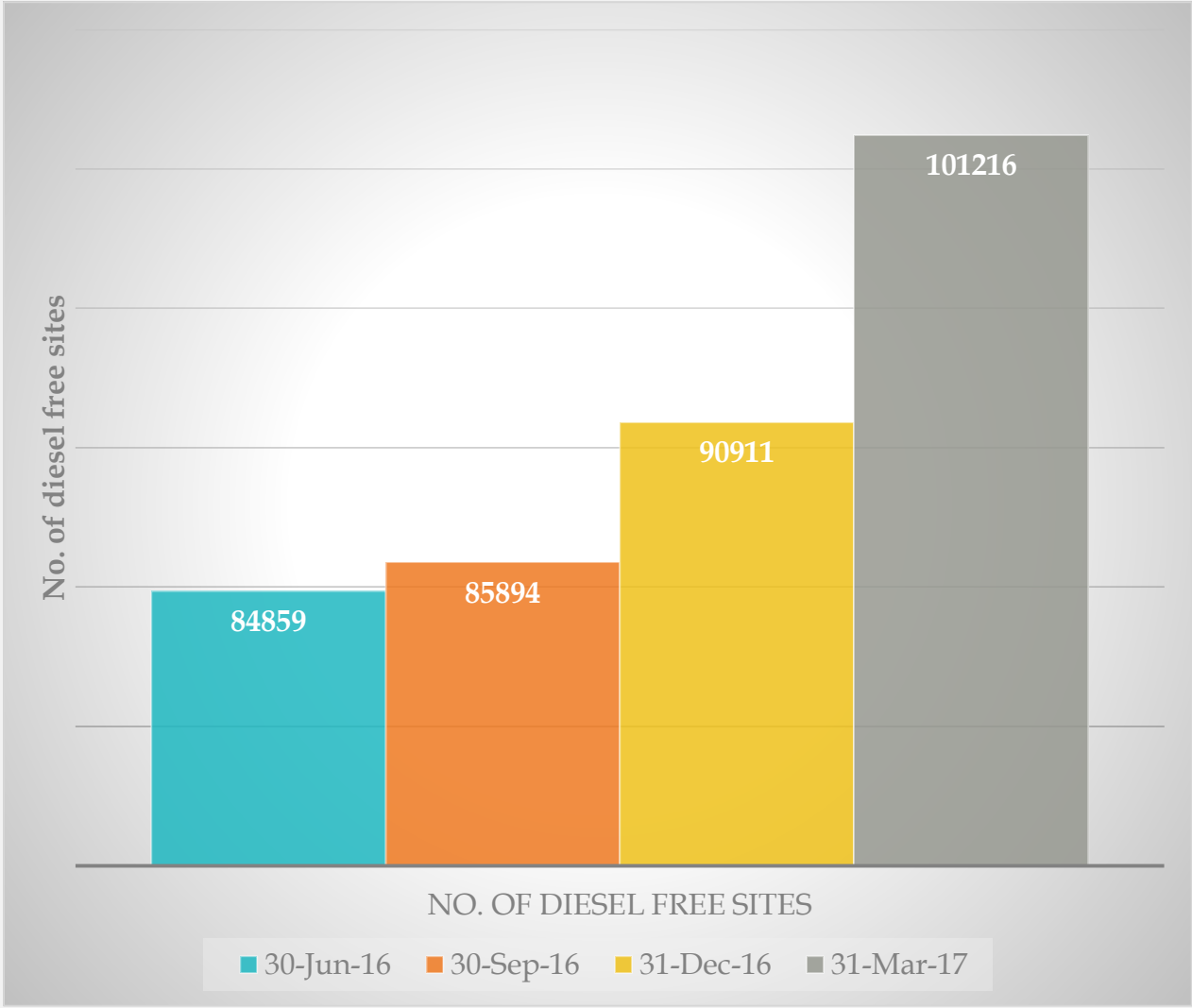
- Telecom infrastructure in India is represented by Infrastructure Providers category – I
- IP-Is have installed 4,50,000 towers in the country that houses close to 15 lakh BTSs
- Business models of the TowerCos is linked to the objective of sharing
- Towers are shared with the TSPs on a non – discriminatory basis resulting in a win – win situation for consumers and service providers

Year 2000 & IP-1	• The Telecom Infrastructure Industry came into existence in the year 2000
Pre-2005 – No Sharing	• No sharing of towers. • Few Operators shared towers on a barter system
Evolution of tower industry post 2005	• IP-Is started sharing their towers on a non-discriminatory and transparent manner to all licensed TSPs thereby promoting 'Sharing of Towers'

Evolution on Indian Tower Sector

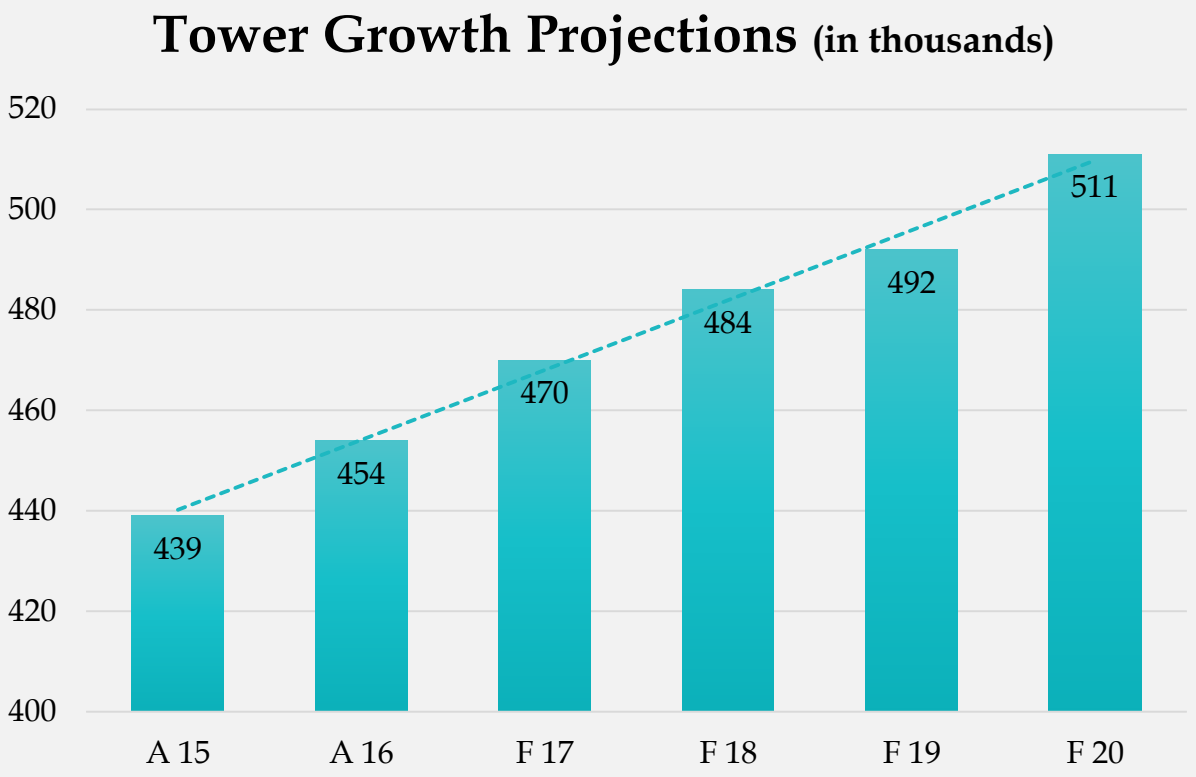
Environment Initiatives - Indian Telecom Infrastructure Industry

- Absence of uninterrupted electricity and 99.95% network requirement forces the industry to resort to alternate energy sources such as Diesel gensets.
- Despite the diesel usage by the industry Diesel consumption by mobile towers is only1.54% out of 12 identified sectors in India
- The industry have taken a range of initiatives such as energy storage solutions, renewable energy technologies, conversion of sites from indoor to outdoor, free cooling units and diesel free sites
- The industry have installed close to 1 lakh diesel free site as of March 2017, i.e., sites which consumes only a liter of diesel a day



Growth Trajectory – India

- The towers are projected to cross the half a million mark by the year 2020. The number may be higher due to increase in number of subscribers, data demand and emerging technologies.
- Business model for the Indian Tower companies is linked to the objective of sharing
- As per reports the tenancy ratio is expected to increase from 1.95 in March 2015 to 2.9 times by March 2020
- Rise in tenancy ratio can be attributed to increased expansion of 3G and 4G services in the country.



Source: Deloitte

	Total BTS	GSM	CDMA	3G	4G	WIMAX
Total BTSs*	1,420,392	6,59,608	28,645	3,25,361	4,03,016	3,762

Source: COAI (as on March 2017)

Infrastructure Sharing

- Telecom, being a capital expenditure intensive business, needs huge investment year-on-year for growth and expansion
- Sharing infrastructure allows telecom tower sites to host active network components of multiple telecom service providers
- Tower infrastructure companies provides an **Integrated Neutral Host Platform** that is used by diverse and often competing operators helping build a unique, scalable and successful business model for Telecom
- Under this model, the telecom infrastructure is being shared with the operators on a **non-discriminatory**, **transparent and in a cost effective** manner.
- Results in a Win – Win Situation for Tower Companies & Customers – Rate for space and energy gets reduced by approx. 20% for both operators when second operator comes on board

Reduced Capital Expenditure

Reduced Operational Expenditure

Faster time to roll-out services

Cost & Energy efficiencies

Increased Connectivity

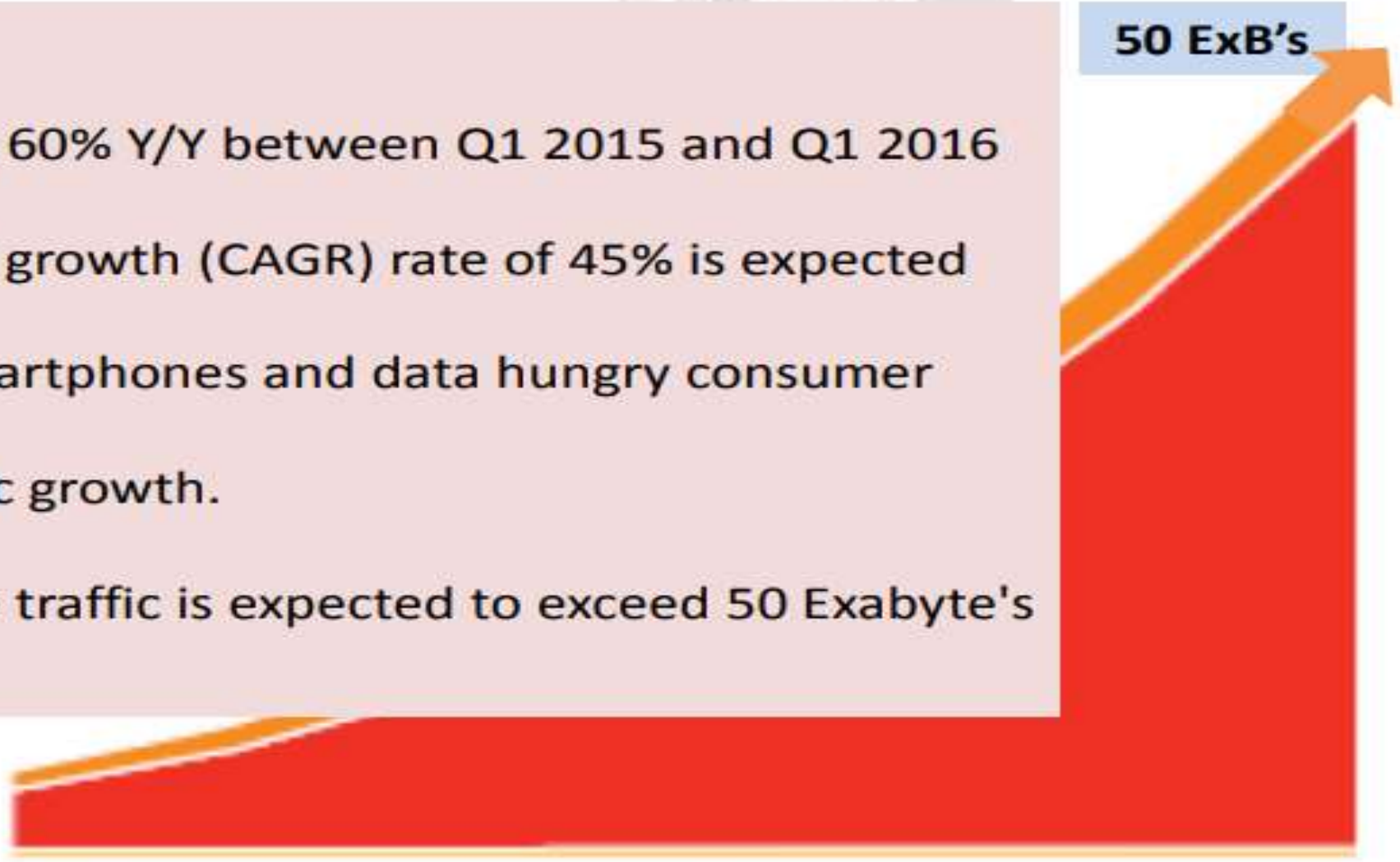
Safety & Improved Aesthetics

Reduces entry barriers

Benefits of Infrastructure Sharing

Global Industry Market Drivers

- Mobile data traffic grew 60% Y/Y between Q1 2015 and Q1 2016
- An compounded annual growth (CAGR) rate of 45% is expected
- The increased use of smartphones and data hungry consumer drives mobile data traffic growth.
- By 2021 monthly mobile traffic is expected to exceed 50 Exabyte's



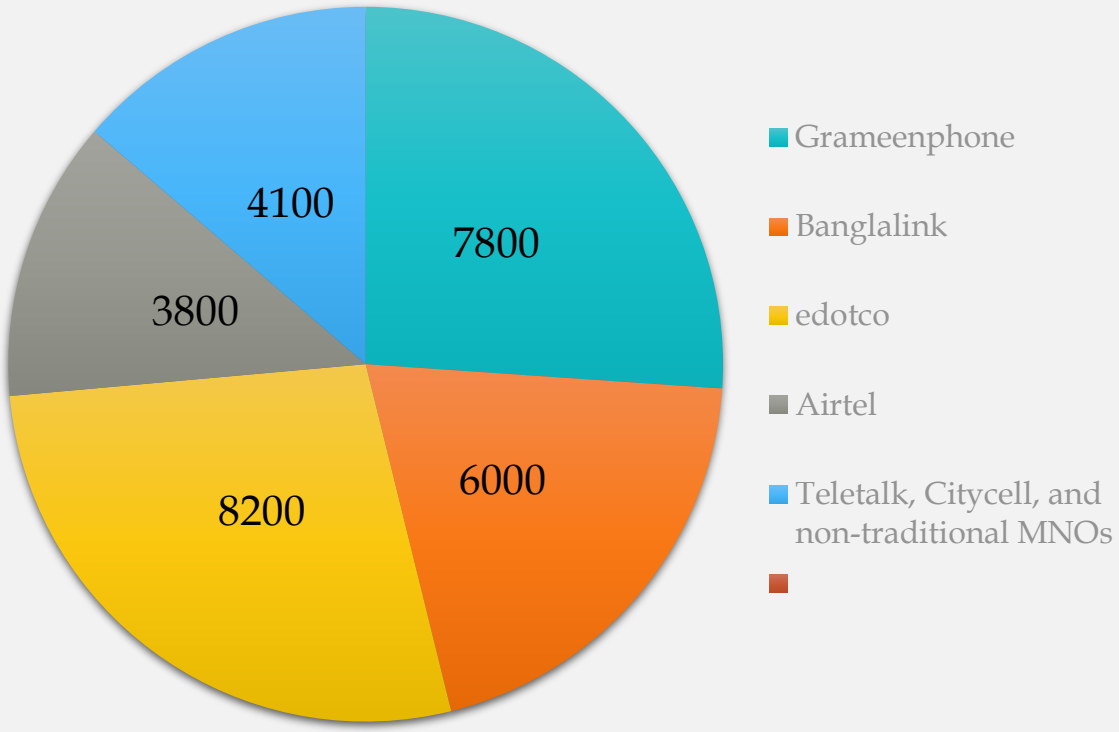
Source: https://nca.org.gh/assets/Uploads/Infrastructure-Sharing-NCA-Ghana-Francois.pdf

Global Scenario

Bangladesh

- A well embedded culture of infrastructure sharing exists in Bangladesh, with bi-lateral swaps since the early days of GSM rollout, and towers leased on commercial terms since the Bangladesh Telecommunication Regulatory Commission (BTRC) released their amended guidelines in 2011
- The country has around **29000 towers** with 1000 towers being built annually
- Given the appeal of Bangladesh's culture of infrastructure sharing, and the efficiencies towercos can generate, a well laid regulatory regime can facilitate significant investments in the country.

Estimated Tower Count



Global Scenario

- **Africa**
  - There is a trend for Government to back infrastructure sharing projects
  - Sharing is seen as a step to reduce costs in network deployment, expand network coverage, reduce the rural – urban digital divide and accelerate broadband take – up.
- **China**
  - The sharing model was initiated by China about few years back with the advent of 4G services
  - operators see tower sharing as an effective strategy to accelerate 4G service expansion in the country
  - Sharing minimize their capex and opex and provides more value to their consumers as well as investors

Global Scenario

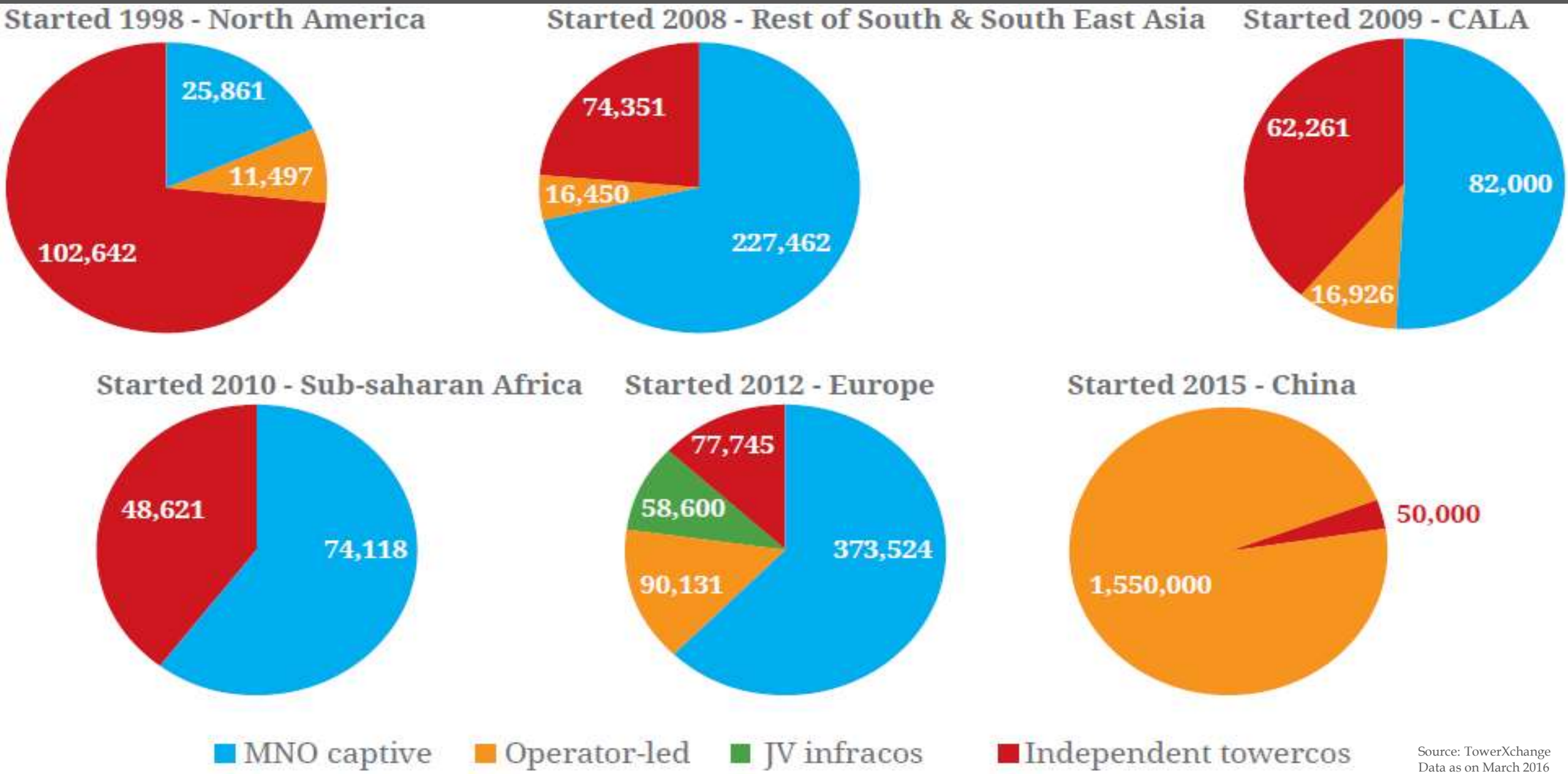
- **European Union (EU)**
  - Has actively encouraged this activity since the first mobile licences were issued
  - Recognising the public and environmental benefits of site and mast sharing

- **Nepal**
  - Infrastructure sharing is viewed as an efficient means of addressing access issues
  - According to the Nepal Telecommunication Authority, infrastructure sharing is generally translated as having two or more operators coming together to share various parts of their network infrastructure for the purpose of their service provisioning.

Global Scenario

- **Canada**
  - In Canada, the government has announced a policy of auctioning advance wireless services (AWS) radio spectrum in the 2 GHz band which makes network sharing compulsory.
  - The new framework also includes mandatory sharing of antenna towers and infrastructure sites, and the prohibition of most exclusive site sharing arrangements.

Rest of the World



Source: TowerXchange
Data as on March 2016

Regulatory Controls – Infrastructure Sharing

Country	Has sharing been mandated?	Has sharing been approved?	Differentiated approach to national roaming depending on geographic area
Australia		√ Regulator is supportive √ RAN sharing permitted	
Austria	√ Antenna masts and powerline masts must be shared if technically feasible, in particular in relation to frequencies	√ Only for 3G networks and limited in duration and by coverage agreements	
Denmark	X	√ Regulator is supportive of some forms but not others	
Finland		√ Subject to meeting minimum licence requirements	Regulated for 3G on 2G
Germany	X	√ National roaming, time limited √ Limited RAN sharing	√ Roaming in urban areas to be phased out before roaming in rural areas
Sweden	√ Regulator occasionally intervenes where commercial negotiations fail	√ Shared 3G network which serves 70% of the population has been permitted	
UK	X	√ National roaming time limited √ RAN sharing announced	√ Roaming in urban areas to be phased out before roaming in rural areas

Challenges faced

- Permissions required to install towers due to absence of uniform procedures and policies
  - Lack of implementation of central policies at State level continues to be a challenge
- Constantly evolving regulatory environment
- Availability of quality electricity at tower sites
- Security of infrastructure
  - Cases of theft, dismantling of sites, and diesel pilferage is on a rampant rise in the country
- Capacity and available space on existing infrastructure for telecom tower installation
  - In India, availability of government lands and buildings is still a challenge
- Availability of financing model for installation of capital intensive infrastructure
  - Benefits of Infrastructure Status granted to Indian TowerCos is yet to be extended to the sector
- High operational costs
  - Poor or lack of grid power
  - Increase permit fees

Future Opportunities

- Accelerating the roll-out of mobile broadband and 4G
- A leadership role in emerging technologies such a internet of things (IOT), Machine to Machine Communication (M2M), Smart Cities which will require a robust shareable infrastructure
- Evolve business models, broader topology of tower structures to enable street level coverage, and broader mix of services
- Enabling the sharing of small cells and DAS: **Need for Micro Sites**, **DAS**, etc. to cater to increased data demand
- Diversification into fiberization of sites.
- **Energy Management will be the focus -**
  - Clean Energy Sources
  - Data Analytics
  - Energy Efficient Equipment

Thank You

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