

CREDENCE CAPITAL

(Investment Club of IIM Lucknow)

Telecom Sector Report – September 2021



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Introduction

The Telecom industry in India is the second largest in the world with a subscriber base of 1.2 billion. The number of broadband - subscribers rose to 793 million in June 2021. The number of active Internet users in India is expected to increase by 45% in the next five years from around 622 million in 2020.

The industry has witnessed exponential growth over the last few years primarily driven by affordable tariffs, wider availability, expanding 3G and 4G coverage, increasing smartphone penetration, evolving consumption patterns of subscribers and a conducive regulatory environment.

The Government has emphasized bolstering India's domestic telecom manufacturing capacity. Efforts are also underway to develop a foundational network for 5G technology deployment in India.

The Telecom sector is the 3rd largest sector in terms of FDI inflows, contributing 7.1% of total FDI inflow. The sector contributes directly to 2.2 million employment and indirectly to 1.8 million jobs. The sector is expected to contribute 8% to India's GDP in 2022 from ~6.5% currently.

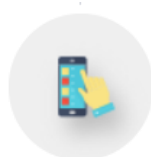
The tele-density (number of telephone connections for every 100 individuals living within an area) of the rural market, which is largely untapped has increased to 60.10% while the overall tele-density of India has reached 88.07% by June 2021.



India is expected to have a digital economy of \$1 tn by 2025

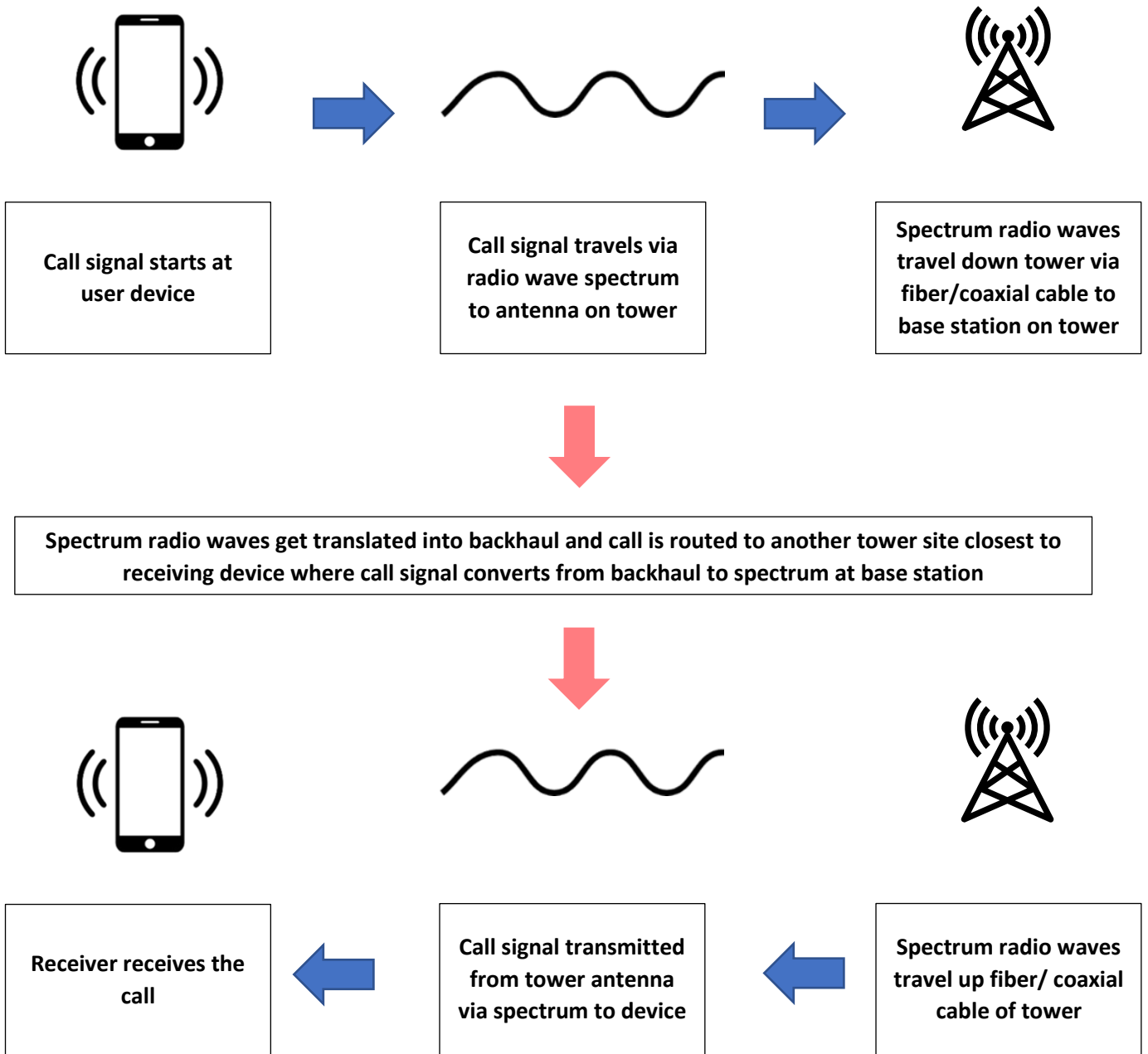


Active internet users in India are expected to reach 900 mn by 2025



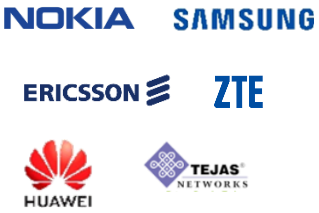


~410 mn additional smartphone users are expected in India by 2025

The mobile call sequence



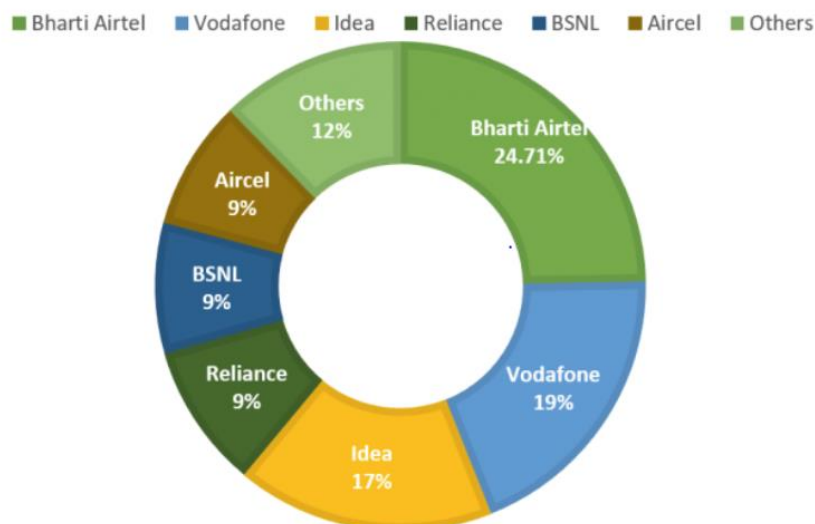
Backhaul: Connections from the base station to the core network

Key Stakeholders

	Network Infrastructure Providers	Tower Companies	Telecom Service Providers
Key Players			
Position in value chain	Device and equipment manufacturer for both telecom service providers and tower companies	Set up towers for TSPs and deploy the passive physical infrastructure necessary to house the active equipment	Players across wireless, wireline & internet services interacting with the end user and providing them network services
Sources of revenue	<ul style="list-style-type: none"> • Manufactured goods - Optical & Data Networking products • Installation and commissioning • Annual maintenance 	<ul style="list-style-type: none"> • Multiple tenants lease vertical space on the tower for their communications equipment 	<ul style="list-style-type: none"> • Fixed voice & data services • Subscription based mobile services • Enterprise solutions • Broadband connections
Major operating costs	<ul style="list-style-type: none"> • Research and development • Software & hardware • Selling & marketing • Manpower 	<ul style="list-style-type: none"> • Ground rent, utilities and fuel, site maintenance, insurance • Additional tenants result in incremental operating costs 	<ul style="list-style-type: none"> • Infrastructure development • Network installation & development • License cost • IT upgradation • Staff salary

Consolidation in the Indian telecom service provider market

**SERVICE PROVIDER'S MARKET SHARE (WIRELESS),
JUNE 2016**



The entry of Reliance Jio completely transformed the sector forcing consolidation and competitors to slash prices.

Developments in the Telecom sector after Jio's entry:

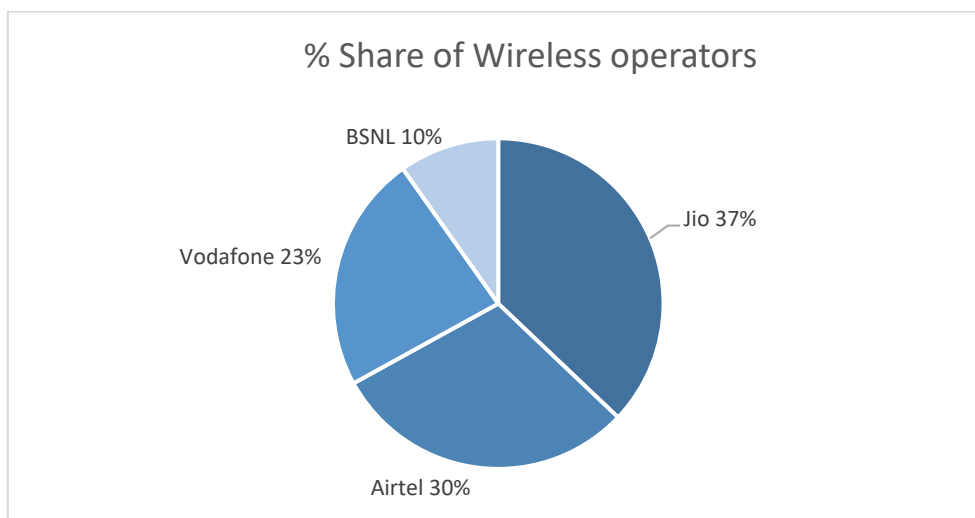
- **Ultra-Cheap Data** - Before the entry of Jio, data was very expensive, and consumers had to shell out huge amounts for 1 GB of data. Jio's launch offer offered free data to consumers at high speed and even after it launched chargeable plans the tariff was very low and so other operators had to eventually follow and bring out new plans.
- **Free Voice Calls** - Voice calls were a major income generator before Jio but became free when it launched its services. Jio claims that its network presently carries 250 crore minutes a day of calls.
- **Increased consumption of online content** – India saw an exponential rise in the consumption of online content with availability of free data. Jio claimed that

India's consumption went from 20 crore GB data to 120 crore Gb in 6 months after it launched its services.

- **Proliferation of 4G smartphones** - The market for 4G smartphones exploded after Jio launched its services as everyone has access to the company's 4G network for free.
- **A record in user acquisition** - Jio claimed that its telecom network had garnered 100 million users in less than 6 months of operations. It also said that this growth was faster than even what Facebook and WhatsApp recorded.
- **Improved broadband internet availability** - TRAI defines broadband speeds as anything above 512kbps or above. With free internet millions of people got access to high speed 4G services and Jio became the country's biggest provider of broadband internet.

Participants	Rationale for players
Bharti Airtel & Aircel	Bharti - Improved its spectrum holdings in 2300MHz band for 4G services in 8 circles Aircel – Helped it in reducing debt
Bharti Airtel & Videocon	Bharti - Improved its spectrum holdings in 1800MHz band for 4G services in 6 circles Videocon – Helped it exit from the circle
Bharti Airtel & Telenor	Bharti - Improved its spectrum holdings in 1800MHz band for 4G services in 7 circles Telenor – Helped it exit from the circle
Bharti Airtel & Tikona	Bharti - Improved its spectrum holdings in 2300MHz band for 4G services in 5 circles Telenor – Helped it exit from the circle
Bharti Airtel & Tata Teleservices	Airtel acquired Tata's consumer mobile business in 19 circles and bolstered its 4G coverage
RCOM & RJio	Both players were able to plug gaps in 800MHz spectrum holdings
Idea & Vodafone	Combined entity to have wider reach in terms of subscribers and spectrum holdings. Operational efficiencies of ₹8,400 crore were also expected

Current landscape of telecom service providers (as of Jun 30, 2021)



Reliance Jio

Q1 FY22 earnings update



The Q1 FY22 numbers for Jio exceeded analyst expectations. Jio's subscriber addition is strong and has helped drive its growth. The telecom giant has **added 54.66 lakh subscribers** vs. the previous month. **Average revenue per user (ARPU) was flat sequentially at Rs 138.4**. In February, Jio launched a new bundled offer providing customers a handset, up to two years of unlimited free calls, and 2 GB of data per month. This helped the company add more users than rival Airtel in March and April. The Jio management said it has witnessed 38 per cent YoY growth in data traffic, but acknowledged challenges in ramping up customer additions due to the second wave.

Latest news

Reliance Jio in partnership with Google will launch an 'ultra-affordable' 4G smartphone called JioPhone Next on September 10 to make the country "2G-mukt". Currently, Vodafone Idea has some 149 million 2G users and Airtel has around 131 million. Jio needs to attract many of them to reach its target of 500 million users. It is expected to be priced around Rs 3,500. Reliance is also signing reverse handset

bundling partnerships ('Jio exclusive') with a slew of companies such as Vivo, Xiaomi, Samsung, Oppo, HMD Global and iTel, among others, for Jio SIM-locked phones.

Bull vs. Bear

	
Launch of low-cost smartphone / 5G adoption	Price war due to aggressive competitiveness
Recent spectrum acquisition allows Jio to onboard 200M additional customers	More than expected capex for 5G upgradation
ARPU expansion through tariff hikes	Delay in monetization of telecom assets

Bharti Airtel

Q1 FY22 earnings update



For Q1 FY22, Airtel reported a consolidated net profit of Rs 284 crore, a sharp fall sequentially with its India wireless business dragged by Covid-induced lockdowns, which led to the telco losing users, even as consumers at the lower end of the market spent less on calls. These, though, were partly offset by a 12.4% on-quarter growth in data usage per customer to 18.93 GB, indicating that people continued to use the telco's mobile broadband network while working from home. **ARPU, a key performance parameter, grew to Rs 146 from Rs 145** in the March quarter. Bharti Airtel **added 38 lakh subscribers** versus a loss of 46.13 lakh users in the previous month.

Latest news

Bharti Airtel plans to raise up to Rs 21,000 crore by selling shares to existing investors. Proceeds will be used to bolster cash reserves to pay statutory dues, expand and deepen its network and prepare for the auction of 5G airwaves and roll out of the technology. This is the company's second rights issue in just over two

years — it had raised ₹25,000 crore in May 2019. The carrier has so far raised \$9.8 billion via equity, debt, stake sales in units and assets sales in India and Africa.

Bull vs. Bear

	
Strong balance sheet and superior network	High capex and spectrum spend limiting FCF growth/deleveraging
Opportunity to gain market share from Vodafone’s 2G costumers	Lack of any relief with respect to AGR related liabilities
Strong value creation expectations from Africa business	Increased competition may impact pricing power

Vodafone Idea

Q1 FY22 earnings update

Vodafone Idea (Vi) narrowed its net loss by 71 per cent to Rs 7,319 crore in first quarter FY 2022 on a year on year basis on account of lower exceptional expenses. In the same period last year it had posted a net loss of Rs 25,460 crore due to provisioning for adjusted gross revenue dues liability. **Average revenue per user (ARPU) fell sequentially to Rs 104 from Rs 107** on account of free recharges during the second wave of pandemic and lower usage. The rough patch for Vodafone Idea continued as the embattled telecom operator **lost 42.89 lakh mobile subscribers** in June.

This was the first financial result of the company under its new chairman Himanshu Kapania who took charge following the resignation of Kumar Managlam Birla last month. The company has sought a moratorium from the government for its spectrum dues and the worsening financial condition has resulted in credit rating downgrade for its long term loans and non convertible debentures.

Latest news

The telco has been trying to close a Rs 25,000-crore fundraising round through a mix of debt and equity. However, despite several rounds of discussions with multiple investors, Vi has struggled to close the funding round. Vodafone Idea needs to pay Rs 22,500 crore between December 2021 and April 2022 toward a mix of regular debt, adjusted gross revenue (AGR) and spectrum dues.

Way forward for VIL

- **Tariff hike** - To fulfil the earnings gap, Vi needs an ARPU increase of over INR35, assuming there is no subscriber churn. This looks like a significant ask
- **Government relief** - Given the weak cash flow scenario, it may prove difficult to repay the spectrum and AGR dues; therefore, it would be important for Vi to get some respite from the government on payment timelines. However, with interest accruals over the extension period, the amount would balloon for the rest of the instalment years; thus, the respite, if any, would be short-lived. Moreover, the postponement of AGR dues may require SC intervention
- **Capital raise or debt restructuring** - Vi has been exploring capital infusion, but with such a large leverage position, the management's planned INR250b capital raise could support barely a year's worth of repayments. Furthermore, debt restructuring may prove difficult given that nearly 80% of the debt is from the government

Can the Vodafone Idea – BSNL merger work?

Pros

- The biggest synergy between the two is that while BSNL is yet to launch 4G services, Vodafone Idea is already offering them across the country. It might lead to faster adoption of 4G services in rural areas

- Vodafone Idea has a strong presence in metro and urban cities, BSNL is known to have a good network in rural areas – where it is sometimes the only service provider
- Both Vodafone Idea and BSNL have extensive fibre networks. Added to this, BSNL has a significant presence in wired services, which is not Vodafone Idea's forte
- The merger will also help avoid a duopoly in the Indian telecom industry

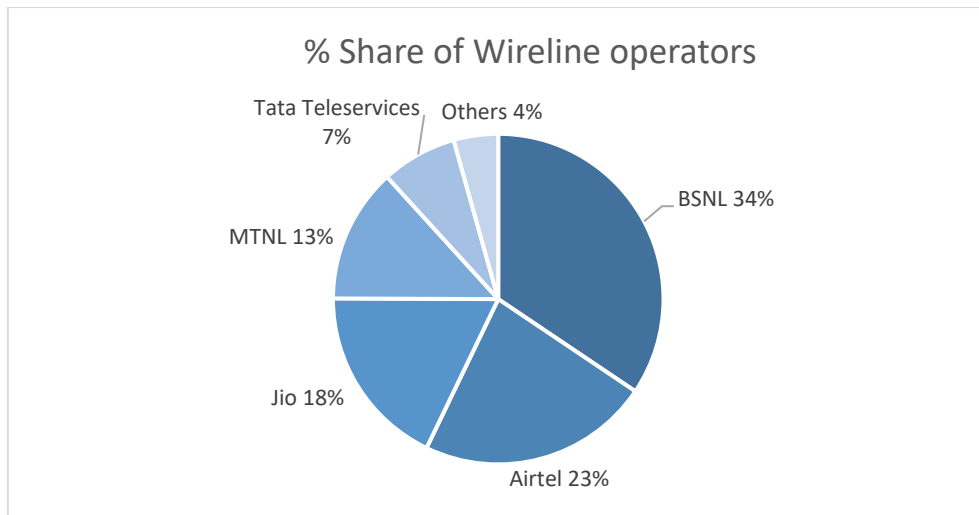
Cons

- While BSNL is highly bureaucratic, Vodafone Idea is run like a corporate. It is hard to imagine Vodafone Idea as a public sector company
- It would be tough for the merged entity to decide the best approach to address workforce-related issues
- Vodafone Idea has a significant percentage of high-value subscribers and there might be an exodus of this segment to Airtel or Jio if it is merged with BSNL
- Merging two struggling companies might not be the best solution to revive them. The pain of merging might only add to their struggles instead of resolving them

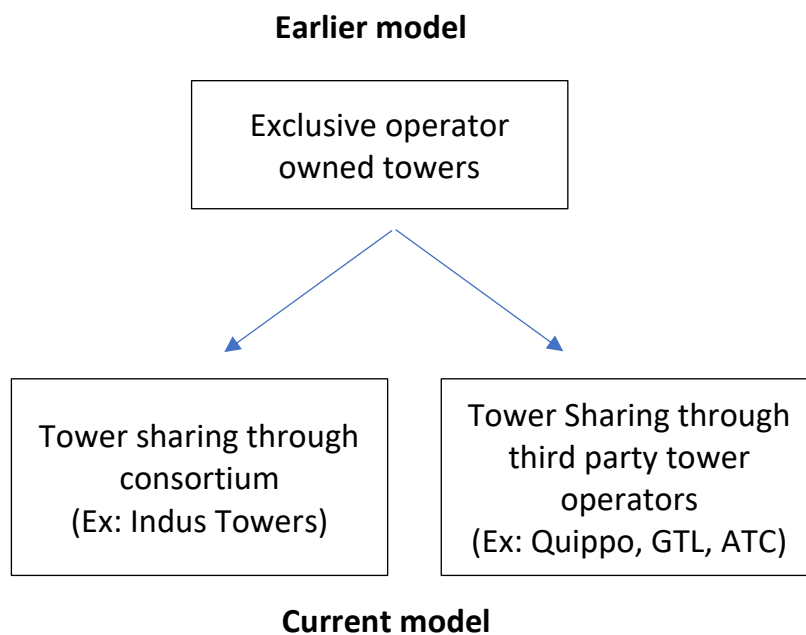
Wireline Operators

Wireline subscribers increased from 21.66 million at the end of May-21 to 21.74 million at the end of June-21. The share of urban and rural subscribers in total wireline subscribers were 91.11% and 8.89% respectively at the end of June, 2021.

The wireline segment is dominated by BSNL where it has more than 34% share of the market, with over 7.48 million subscribers. The next big player in the market is Airtel which has a 23% market share and a subscriber base of 4.93 million.



Changing trends in Tower infrastructure



Why companies had exclusive tower infrastructure earlier?

- Building tower infrastructure takes time to get the required clearances, and huge investment in land and equipment
- Once an operator developed the tower infrastructure in a circle, it created entry barrier for the new players

Why are companies sharing the towers now?

- Tower operating costs is one of the biggest operating costs of the telecom companies
- Sharing towers reduce the costs significantly. Selling of towers to a third part could bring in cash as each tower can be sold at anywhere between Rs. 50 lacs to Rs. 1 crore
- Companies want to quickly build towers to roll-out 3G and 4G services which involves huge investment
- 3G and 4G services require a greater number of towers (BTS cell sites) than the 2G services to cover the same geographical area
- Time-bound roll-out of services (right-of-way) after getting the licences has been made mandatory
- Rural expansion requires more towers and the ARPU is low

Monetisation of tower assets by telecom companies

- The government approved the Rs 25,215 crore Reliance Industries-Brookfield tower deal in Sep 2020, a year after it was announced. The investment by the group is for around 135,000 communication towers used by Reliance's telecoms venture Jio which is an anchor tenant of the tower portfolio under a 30-year Master Services Agreement
- Post-merger of Bharti Infratel and Indus Towers, Vodafone owns 28.2% stake in the consortium. The merger helped Vi divest 11.15% stake for Rs. 3760 Crs. The proceeds will help Vi partly pay their dues towards AGR
- Bharti Airtel sold its Tanzanian tower operations for \$175 million (Rs 1,313 crore) in a bid to focus on asset-light and core subscriber-facing operations, with some of the funds being used to pare debt at the consolidated level.

Other major developments in the telecom industry

What is the AGR dispute?

To provide relief to telecom operators from the steep fixed license fee regime, the NDA government in 1999 gave an option to the licensees to switch to the revenue sharing fee model. Under this regime, the mobile telephone operators were required to share a percentage of their AGR with the government as annual license fee (LF) and spectrum usage charges (SUC).

License agreements between the Department of Telecommunications (DoT) and the telecom companies help defining the gross revenues of the latter. AGR is then calculated after allowing for certain deductions spelt out in these license agreements. The LF and SUC were set at 8 per cent and between 3-5 per cent of AGR respectively, based on the agreement.

The dispute between DoT and the mobile operators has been mainly on the definition of AGR. The DoT argued that AGR includes all revenues (before discounts) from both telecom and non-telecom services. The companies claimed that AGR should comprise just the revenue accrued from the core services and not dividend, interest income or profit on sale of any investment or fixed assets.

Latest on AGR

The Supreme Court in its judgement pertaining to the AGR (Sept '20) allowed telecom companies, including Bharti Airtel and Vodafone Idea, to repay about Rs 1.43 lakh crore in combined dues they owe the government over 10 years. The breather is short of the 15-20 years sought by the telcos, and which the court said was unreasonable, but came as a shot in the arm to the companies that missed a January deadline to repay their dues. According to the court ruling, 10% of the total

dues had to be paid before March 31, 2021, following which payments have to be made in yearly instalments starting from April 1, 2021 up to March 31, 2031.

The Supreme Court on July 23, 2021 rejected the appeal by Vodafone Idea, Bharti Airtel and Tata Teleservices to allow correction of errors in the telecom department's AGR calculations. However, the government is now exploring ways to allow telcos such as Vodafone Idea and Bharti Airtel to pay their AGR dues over 20 years.

Any move which leads to a reduction in AGR dues or even the annual AGR instalments will come as relief for loss-making Vodafone Idea. The telco is burdened with Rs 1.9 lakh crore of debt – faces Rs 58,254 crore in AGR dues, of which it has paid Rs 7,854 crore. It needs to pay around Rs 9,000 crore as its next AGR instalment, which falls due in March 2022. Vodafone won't be able to make the payment unless it raises funds, increases tariffs and gets relief from the government. Vodafone idea has cited relief in AGR dues as a key factor in determining whether it continues as a going concern.

Bharti Airtel, which is much stronger financially, faces Rs 43,980 crore in AGR dues, of which it has paid over Rs 18,000 crore. It needs to pay less than Rs 4,500 crore as its AGR instalment in March 2022. Any reduction will help it free up cash for network investments and prepare for 5G rollouts.

The reality of 5G

In early May 2021, India announced that it would allow mobile carriers to carry out 5G trials with Ericsson, Nokia, Samsung among others. The statement left off Huawei and other Chinese equipment manufacturers. They haven't been banned from supplying equipment outright, but none of the participating service providers have tied up with manufacturers from the neighbouring country. Cybersecurity risks and surveillance concerns are a major concern for India since the Indian government is

yet to formulate a robust legal and institutional mechanism for protecting privacy and data.

Pre-existing partnerships and economic rationales—such as low costs and better technology—will be crucial factors for Indian mobile operators when it comes to choosing a 5G supplier given they are already under massive financial stress and due to lack of revenues. This may severely incapacitate them from investing in new technology.

The deployment of 5G, the next generation of wireless technology, has become a priority around the world. India, of course, does not wish to be left behind in the race to build the infrastructure that could have an economic impact exceeding \$1 trillion by 2035 in India alone, according to government estimates. The 5G-enabled tech could also help India leapfrog traditional barriers to development by supporting ambitious infrastructure and e-governance initiatives.

5G will introduce a range of new high-bandwidth, low-latency services — be the high-speed video downloads, virtual reality, augmented reality or mission-critical applications, or connecting billions of devices and sensors for the Internet of things and industry. 5G empowers telecom service providers to move beyond a subscriber-driven business model and reinvent themselves as digital service providers. This will help drive innovation, safety and productivity across industries and enterprises.

5G trials in India

In May 2021, The Department of Telecommunications (DoT) allotted 5G trial spectrum in the 700 Mhz, 3.5 Ghz and 26 Ghz bands, paving the way for Reliance Jio, Bharti Airtel and Vodafone Idea (Vi) to partner with non-Chinese network vendors and develop India-relevant use cases on the next-gen fast wireless broadband technology. This is aimed to underline the government's plans to go for a comprehensive auction of multiple 5G bands. Even as telcos are conducting trials,

the Telecom Regulatory Authority of India (TRAI) is yet to hold the auction for the 5G spectrum in India. Earlier, the Standing Committee on Information Technology was told the 5G network will roll out in the country to some extent, for specific uses, by the end of 2021 or the beginning of 2022.

In July 2021, Telecom operator Bharti Airtel hit the milestone speed of over 1 Gigabit per second (Gbps) during a 5G field trial conducted on the network gear for the Finnish firm Nokia in Mumbai. Jio had conducted 5G trials in Mumbai during June. It is using equipment developed indigenously. Jio is also in talks with equipment providers Nokia, Samsung and Ericsson for conducting trials in other cities as well.

5G & fiberisation of towers

Currently, around 33% of telecom towers are connected with fibre in India which needs to reach at least 70% to fully utilise the potential which 5G services could offer. Against a target of 7.5 million kms of fibre required to be deployed, only 2.68 million kms have been deployed to date. India's fibre deployment (in kms) to population ratio stands at just 0.09 % compared to other countries including the US and Japan where it is 1.7 % each and China with 0.87%.

The current capacity per tower site is about 300 mbps for 2G/3G/4G services while for 5G, the capacity required for each site will increase to 1-5 Gbps which will require fiberized backhaul. Traditional microwave can only provide speeds of 250 Mbps. E-band microwave can provide 1-2 Gbps of speed depending on the allocation of the number of spots. In order to achieve capacities of 1-5 Gbps, there is a need to deploy fibre across all the tower sites. Also, a multi-fold increase in small cells deployment will be required with each of them having backhaul on fibre.

Government Initiatives

The Government of India has introduced Digital India programme where sectors such as healthcare, retail, etc. will be connected through internet. For domestic consumption and export, Ericsson will start manufacturing 5G radio products in India. The PLI has already triggered entry of several global players manufacturing mobile devices and components. The Union Cabinet approved Rs.12,195 crore (US\$1.65billion) production-linked incentive (PLI) scheme for telecom & networking products under the Department of Telecom. Around 25 telecom gear makers -- including Nokia and HFCL -- have applied under the scheme. Indigenous companies Tejas Networks and Dixon Technologies will also apply before the deadline ends.

The Government of India's National Digital Communications Policy 2018 has envisaged attracting investments worth US\$ 100 billion in the telecommunications sector by 2022. The policy also envisages to provide universal broadband coverage at 50 megabit per second (Mbps) to every citizen in addition to providing 10 gigabit per second (Gbps) connectivity to all Village Panchayats of India by 2022 under BharatNet.

Foreign Direct Investment (FDI) in the telecom sector has been increased to 100% from 74%. Of this, 49% will be done through automatic route and the rest will be done through the Foreign Investment Promotion Board (FIPB) approval route. FDI up to 100% is also permitted for infrastructure providers offering dark fibre, electronic mail and voice mail. The FDI inflows were \$7.5bn during April 2018 to March 2021.

The Government has also proposed a joint task force between Ministry of New Renewable Energy (MNRE) and Department of Telecommunication to promote green technology in the sector. The green telecom concept is aimed at reducing carbon footprint of the telecom industry through lower energy consumption.

Valuation Metrics

EBITDA is useful as an evaluation metric due to the nature of the telecom sector. The sector is, overall, characterized by being high-growth and capital intensive, with high fixed costs and relatively high levels of debt financing. Many companies have a large base of fixed assets, leading to correspondingly high levels of depreciation expenses. One advantage of using EBITDA for evaluations is by excluding the impact of accounting and financing decisions related to capital expenditures, it allows for more accurate comparisons between similar firms, especially if one firm is in the midst of extensive capital projects while the other is not.

Discounted cash flows can be used for valuation, after considering the following factors:

1. Arriving at cash flow is difficult due to various reasons such as changing subscriber base (due to mobile number portability), changing business models (due to integration of businesses i.e. payment banks), changing regulations related to rates and taxes
2. Most of the investments in the sector are funded through debt. Hence, the cost of capital is close to cost of debt
3. Major costs like spectrum pricing are largely fixed

Upcoming Trends & Opportunities

Increasing subscriber base: India has the second largest telecom network in the world. In India, the total subscriber base stood at 1.2 billion in June 2021 with 792.8 million broadband internet subscribers. Telecom penetration, also known as tele - density, grew to 88% in June 2021. The mobile subscriber base is expected to reach 1.42 billion by 2024 with almost all users having 4G/5G connectivity. As per TRAI, average wireless data usage per wireless data subscriber was 11GB per month in

FY20. It is expected to reach to 18GB by 2024 representing huge opportunity for players

Untapped Rural Markets: The rural tele-density in June 2021 reached 60.1%, growing consistently from 51.26% in FY 2016 which indicates a huge untapped opportunity in the rural markets.

Higher investment from foreign players: European telecom gear vendors such as Ericsson and Nokia are eager to expand their existing operations in India for the global supply chain under the PLI scheme. Similarly, other global vendors such as Samsung, Cisco, Jabil, Foxconn, Sanmina and Flex have shown interest to set up manufacturing in India for telecom and networking products under the newly announced PLI scheme.

Emergence of BWA technologies: Broadband Wireless Access (BWA) technologies, such as WiMAX and LTE is among the most significant recent developments in wireless communication. Bharti Airtel VoLTE and Reliance Jio 4G are live across all the 22 telecom circles since 2019. India is expected to be the second largest market in 5G services followed by China in the next 10 years.

Internet of Things: IoT is the concept of electronically interconnected and integrated machines, which can help in gathering and sharing data. The Indian Government is planning to develop 100 smart city projects where IoT will play a vital role in development of those cities. Reliance Jio has partnered with Samsung Electronics to set up a nationwide IoT network. In December 2020, the Union Cabinet, chaired by the Prime Minister, Mr. Narendra Modi, approved a proposal by Department of Telecommunications for setting up of Public Wi-Fi Networks to provide public Wi-Fi services through Public Data Offices (PDOs).