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Executive summary

2. RISING PENETRATION RATE
- Telecom penetration, also known as tele-density, has grown rapidly over the last few years.
- Tele-density grew from 18.23% in FY16 to 86.38% in FY21*.

3. SECOND HIGHEST NUMBER OF INTERNET USERS
- India has the second highest number of internet subscribers globally.
- The total number of internet subscribers increased to 747.41 million in December 2020.

1. SECOND LARGEST SUBSCRIBER BASE
- India has the second-largest telecom network in the world.
- The total subscriber base in the country stood at 1,173.83 million, as of December 31, 2020.

4. AFFORDABILITY AND LOWER RATES
- In India, the average wireless data usage per user increased 20% year-over-year to reach 13.5 GB per month in FY20.
- Availability of affordable smartphones and lower rates of data are expected to drive growth in the Indian telecom industry.

Source: Telecom Regulatory Authority of India (TRAI), News Articles. FY21* (until December 2020)
Advantage India
Advantage India

2. ATTRACTIVE OPPORTUNITIES

- India’s 5G subscriptions to have 350 million by 2026, accounting for 27% of all mobile subscriptions.
- 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 Competition Commission of India (CCI) has urged the government to ensure adequate 5G airwaves to be auctioned at an affordable rate.

1. ROBUST DEMAND

- The tele-density of rural subscribers increased to 29.92% in December 2020, from 17.41% in December 2010, showcasing significant growth potential in the demand from the rural sector.
- Also, India is one of the biggest consumer of data worldwide. As per TRAI, average wireless data usage per wireless data subscriber was 11 GB per month in FY20.

3. POLICY SUPPORT

- The Government has been proactive in its efforts to transform India into a global telecommunication hub.
- The Union Cabinet approved Rs. 12,195 crore (US$ 1.65 billion) production-linked incentive (PLI) scheme for telecom & networking products under the Department of Telecom.

4. INCREASING INVESTMENT

- In 2021-22, the Department of Telecommunications has been allocated Rs. 58,737.00 crore (US$ 8 billion). 56% allocation is towards revenue expenditure and the remaining 44% is towards capital expenditure.
- Under Union Budget 2021-22, the government allocated Rs. 14,200 crore (US$ 1.9 billion) for telecom infrastructure that entails completion of optical fibre cable-based network for Defence services, rolling out broadband in 2.2 lakh panchayats and improving mobile services in the North East.

Source: Economic Times, TRAI, App Annie, Department of Telecommunications, PRS Legislative Research
Market Overview
The telecom market split into three segments

- **Mobile (wireless)**: Comprises establishments operating and maintaining switching and transmission facilities to provide direct communication via airwaves.

- **Fixed-line (wireline)**: Consist of companies that operate and maintain switching and transmission facilities to provide direct communication through landlines, microwave or a combination of landlines and satellite link-ups.

- **Internet services**: Include Internet Service Providers (ISPs) that offer broadband internet connections through consumer and corporate channels.

*Source: Sutherland Research*
Expanding telecom subscriber base

- India is currently the second largest telecommunication market and has the second highest number of internet users in the world.
- India’s telephone subscriber base expanded at a CAGR of 2.70% between FY16-20 and reached 1,177.97 million in FY20.
- Tele-density (defined as the number of telephone connections for every 100 individuals) in India stood at 86.38%, as of December 31, 2020.
- The total subscriber base in the country stood at 1,173.83 million, as of December 31, 2020.
- The total wireless or mobile telephone subscriber base increased to 1,151.81 million in October 2020 from 1,148.58 million in September 2020.

Note: * Data as of December 31st
Source: Telecom Regulatory Authority of India
Increase in wireless segment and rural subscribers

- The share of the wireless segment in India’s telecommunications market has increased steadily.
- Wireless segment accounted for 98.29% of the total telephone subscriptions in December 2020.
- Rural subscribers’ tele-density in December 2010 increased from 17.41% to 29.92% in December 2020.

**Note:** *Data as of December 31st*

**Source:** Telecom Regulatory Authority of India
Wireless subscriptions witness robust growth over the years

- Wireless subscription has grown robustly over the past few years.
- The growth in wireless subscriptions has led to a significant rise in wireless tele-density.
- In FY20, wireless subscription stood at 1,157.75 million, whereas wireless tele-density reached 85.57%.
- The total wireless subscriber base in the country stood at 1,153.77 million with a tele-density of 84.90%, as of December 31, 2020.
- The wireless subscriber base of Jio stands at 408.8 million, Bharti Airtel at 338.7 million and Vodafone Idea at 284.3, as of December 31, 2020.
- In December 2020, Bharti Airtel gained 4.05 million wireless subscribers, followed by Reliance Jio, which added 4.78 lakh.

Note: * Data as of December 31st  
Source: Telecom Regulatory Authority of India
Strong growth in broadband drives internet access revenues

- Total broadband subscription in the country grew from 149.75 million in FY16 to 687.44 in FY20.
- The number of wired broadband subscriptions stood at 19.18 million in FY20.
- Wireless broadband subscribers stood at 668.26 million in FY20.
- The total broadband subscriber base in the country stood at 734.82 million, as of October 31, 2020.
- As of October 31, 2020, Reliance Jio was leading the broadband services market (wired and wireless) with 55.53% share, followed by Bharti Airtel (23.17%), Vodafone Idea (16.40%) and BSNL (3.52%).

Note: *- Data as of December 31st  
Source: Telecom Regulatory Authority of India;
The total number of internet subscribers increased from 749.07 million in June 2020 to 776.45 million in September 2020, registering a quarterly growth of 3.66%. Of this subscriber base, the number of wired internet subscribers was 24.36 million and wireless internet subscribers (752.09 million).

The number of internet subscribers in the country increased at a CAGR of 21.36% from FY16 to FY20 to reach 743.19 million in FY20.

The number of internet subscribers in the country is expected to double by 2021 to 829 million*. Overall IP traffic is expected to grow four-fold at a CAGR of 30% by 2021.

As per TRAI, average wireless data usage per wireless data subscriber was 11 GB per month in FY20. It is expected to reach to 18 GB by 2024.

**Note:** CAGR - Compound Annual Growth Rate; BSNL - Bharat Sanchar Nigam Ltd, IP - Internet Protocol, ^CAGR is up to FY19, *as per CISCO, *- Until September 2020

**Source:** Telecom Regulatory Authority of India, Business Monitor International
Exponential growth in data consumption

- India holds the distinction of being the largest consumer of mobile data globally.
- Data consumption in the country has witnessed exponential growth over the course of the past few years.
- The total wireless data usage in India grew 1.82% quarterly to reach 25,227 PB in the third quarter of FY21.
- The contribution of 3G and 4G data usage to the total volume of wireless data usage was 2.81% and 96.48%, respectively, in the third quarter of FY21. Share of 2G data usage stood at 0.71% in the same quarter.

Note: CAGR - Compound Annual Growth Rate, PB- Petabytes
Source: Telecom Regulatory Authority of India
The Indian telecom sector’s gross revenue declined from US$ 40.29 billion in FY16 to US$ 35.87 billion in FY20.

Gross revenue of the telecom sector stood at Rs. 68,228 crore (US$ 9.35 billion) in the third quarter of FY21.

Indian telecom sector’s revenue expanded at 5.58% in FY20 on the back of stabilising tariff wars and increased spending by subscribers due to minimum recharge plans.

Note: CAGR - Compound Annual Growth Rate, FY - Indian Financial Year (April - March),
Source: Telecom Regulatory Authority of India’s Performance Indicator Report
Emergence of tower industry

- A surge in the subscriber base has necessitated network expansion covering a wider area, thereby creating a need for significant investment in telecom infrastructure.
- To curb cost and focus on core operations, telecom companies have been segregating their tower assets into separate companies. For example: Reliance Communications has decided to finalise a deal to sell its stake in Reliance Infratel. The value of the deal is around US$3.68 billion.
- Creating separate tower companies has helped telecom companies lower operating cost and improve capital structure. This has also provided an additional revenue stream.
- Inspired by the success seen by Indian players in towers business, most of the operators around the world are replicating the model.

Source: Sutherland Research
Recent Trends and Strategies
Notable trends in the Indian telecom sector… (1/4)

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

2. **Expansion to rural market**
   - Over 62,443 uncovered villages in India will be provided with village telephone facility with subsidy support from the government’s Universal Service Obligation Fund (thereby increasing rural tele-density).
   - Broadband service provider, Excitel, plans to raise Rs. 200 crore (US$ 28.37 million) in funding as it plans to expand FTTH (fibre to the home) deployment on its network and establish presence in 50 cities by December 2021.

3. **Emergence of BWA technologies**
   - BWA technologies, such as WiMAX and LTE, is among the most recent and significant developments in wireless communication.
   - Bharti Airtel VoLTE and Reliance Jio 4G services 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.

4. **Commercial SMS traffic**
   - Due to higher post-pandemic digital adoption, daily commercial SMS traffic in India, currently, has increased by ~20%, even as overall text messaging continues to shrink. At present, ~1.3 billion commercial SMSs are sent every day.

Notes: BWA - Broadband Wireless Access, TRAI - Telecom Regulatory Authority of India, News Article
Source: News Source
Notable trends in the Indian telecom sector… (2/4)

5 Internet of Things (IoT)
- 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.
- Jio’s IoT platform is ready to be commercially available in 2020.

6 Public Wi-Fi Networks
- 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 by Public Data Office Aggregators (PDOAs) to provide public Wi-Fi services through Public Data Offices (PDOs).

7 Universal Service Obligation Fund
- In December 2020, the Union Cabinet, chaired by the Prime Minister, Mr. Narendra Modi, approved the provision for a ‘Universal Service Obligation Fund (USOF)’ scheme to provide mobile coverage in Arunachal Pradesh and two districts of Assam, namely KarbiAnglong and Dima Hasao, under the Comprehensive Telecom Development Plan (CTDP) for the North Eastern Region (NER).

8 Satellite-based Narrowband-IoT Network
- In December 2020, BSNL, in partnership with Skylotech India, announced a breakthrough in satellite-based NB-IoT (Narrowband-Internet of Things) for fishermen, farmers, construction, mining and logistics enterprises.

Source: Press Information Bureau
Notable trends in the Indian telecom sector… (3/4)

Investment in optical fibre network
- Reliance Jio Infocomm is going to expand its optical fibre network to over 1,100 cities under its Jio GigaFiber brand
- On September 21, 2020, Prime Minister, Mr. Narendra Modi launched a project to connect all 45,945 villages in Bihar with optical fibre internet service. This project will be completed by March 31, 2021 at a cost of Rs. ~1,000 crore (US$ 135.97 million); Rs. 640 crore (US$ 87.01 million) of capital expenditure will be funded by the Department of Telecommunications.
- In December 2020, the Union Cabinet, chaired by the Prime Minister, Mr. Narendra Modi, approved the provision of submarine optical fibre cable connectivity between Mainland (Kochi) and Lakshadweep Islands (KLI Project).

Consolidation
- Vodafone India and Idea have merged into Vodafone idea. Vodafone Idea unified assets and completed network integration in June 2020.

Consumer spending
- In the first quarter of FY21, customer spending on telecom services increased 16.6% y-o-y, with over three-fourths spent on data services. This spike in consumer spending came despite of the COVID-19 disruption and lack of access of offline recharges for a few weeks.

Rising investment
- Between April 23 and July 16, 2020, Jio Platforms Ltd. sold 25.24% stake worth Rs. 1.52 trillion (US$ 21.57 billion) to various global investors in separate deals involving Facebook, Silver Lake, Vista, General Atlantic, Mubadala, Abu Dhabi Investment Authority (ADIA), TPG Capital, L. Catterton, Public Investment Fund (PIF), Intel Capital, Qualcomm Ventures and Google.
- In November 2020, Google paid Rs. 33,737 (US$ 4.5 billion) for a 7.73% stake in Reliance Industries Ltd.’s digital subsidiary—Jio Platforms Ltd.

Source: ‘Searching for New Frontiers of growth: Indian Banks’- PwC, Reserve Bank of India, Press Information Bureau, News Article
Mobile banking

- Department of Posts launched mobile banking for its saving account customers.
- As of January 2020, 213 banks were live on unified payment interface (UPI).

Source: News Source
Strategies adopted

1. **MARKETING STRATEGY**
   - Players are using innovative marketing strategies to succeed in this sector.
   - Vodafone Idea launched #StrongerEveryHour with an aim to highlight the improved network of Vodafone SuperNet 4G - India’s Data Strong Network.
   - Airtel launched a new ad campaign ‘Sab Kuch Try Karo, Fir Sahi Chuno’ and rolled out a new campaign ‘Open to Questions’, highlighting its aim to resolve every single customer query, learn quickly from failures and ensure these are not repeated.

2. **DIFFERENTIATION**
   - Players differentiate themselves by providing different services to customers.
   - Bharti Airtel has already partnered with Amazon Prime and Hotstar and is expected to tie up with Netflix to offer free subscription to Netflix’s content for its mobile customers.
   - In September 2020, Reliance Jio partnered with 22 foreign airlines for inflight internet connectivity with plans starting at Rs. 499 (US$ 6.76) per day.
   - In September 2020, Airtel and Radware partnered to offer cloud security services to businesses in India.

3. **REDUCED NUMBER OF PLANS**
   - Players have reduced the number of plans on offer and now offer a limited number of simple tariff plans along with marquee plans.
   - This has simplified choosing plans for customers as they can choose the best deals for themselves.

4. **PRICING STRATEGY**
   - Players price their products very carefully due to the price sensitive nature of customers and high competition in the sector.

**Notes:** CDMA - Code Division Multiple Access, GSM - Global System for Mobile Communication
**Source:** Company website and News Article
## Key companies in the market

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<thead>
<tr>
<th>Company</th>
<th>Ownership</th>
<th>Presence</th>
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<tbody>
<tr>
<td>Mahanagar Telephone Nigam Ltd (MTNL)</td>
<td>Government (56.3%), Life Insurance Corporation (18.8%)</td>
<td>Fixed-line and mobile telephony (in Delhi and Mumbai), data and Internet</td>
</tr>
<tr>
<td>Bharat Sanchar Nigam Ltd (BSNL)</td>
<td>Government (100%)</td>
<td>Fixed-line and mobile telephony (GSM - outside Delhi and Mumbai), data and Internet in 22 circles</td>
</tr>
<tr>
<td>Bharti Airtel</td>
<td>Bharti Group (45.48%), Pastel Ltd (14.79%), Indian Continent Investment (6.65%),</td>
<td>Broadband and mobile (GSM) in 22 circles</td>
</tr>
<tr>
<td>Vodafone Idea Limited</td>
<td>Aditya Birla Group and Vodafone Group partnership</td>
<td>Broadband and mobile (GSM) in 22 circles</td>
</tr>
<tr>
<td>Reliance Jio Infocomm</td>
<td>Reliance Industries Limited.</td>
<td>Broadband and mobile</td>
</tr>
</tbody>
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*Source: Companies' website, Moneycontrol*
Growth Drivers
Sector benefits from rising income, growing young population

Growing demand
- Higher real income and changing lifestyles
- Growing young population
- Increasing MoU and data usage

Policy support
- Reduction in license fee
- Relaxed FDI norms
- Encouraging firms to expand to rural areas

Increasing investment
- Higher FDI inflow
- Increasing M&A activity

Note: FDI - Foreign Direct Investment, MOU - Minutes of Use per month and per subscriber, M&A - Mergers and Acquisitions
Rising income and growing rural market fuels demand for telecom services

- Incomes have risen at a brisk pace in India and will continue rising given the country’s strong economic growth prospects.
- GDP per capita of India is expected to grow at a CAGR of 7.47% from US$ 1,481.56 in 2012 to US$ 3,273.85 in 2023.
- Increasing income has been a key determinant of demand growth in the telecommunication sector in India.
- The emergence of an affluent middle class is triggering demand for the mobile and internet segments.
- A young growing population is aiding this trend (especially the demand for smart phones).

### 1. To compensate the consumers in case of call drop

- In August 2017, TRAI directed operators to have a call-drop rate of not greater than 2%.
- The policy measures of TRAI have had a positive impact. Call-drops in the country decreased from 0.94% in 2016 to 0.52% in March 2018.

### 2. Standards of quality wireline and wireless services

- In 2015, TRAI made regulations to amend the standards of quality of wireline (telephone service) and cellular mobile telephone services. These regulations has been laid down to ensure effective compliance with the quality-of-service regulations and to protect the interest of the customers.

### 3. Relaxed FDI norms

- FDI in telecom sector has been increased to 100% from 74%. Out this, 49% will be done through automatic route and the rest will be done through the FIPB approval route.
- FDI of up to 100% is permitted for infrastructure providers offering dark fibre, electronic mail and voice mail.

### 4. Telecommunication tariff order

In February 2018, TRAI passed the Telecommunication Tariff (63rd amendment) order, according to which, telecom firms are free to give promotional offers to customers if the offers are transparent, non-predatory and non-discriminatory.

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**Notes:** FDI - Foreign Direct Investment, FIPB - Foreign Investment Promotion Board  
**Source:** TRAI, News Article
5 **International Tie-ups**

- On January 15, 2021, India and Japan signed an MoU to enhance cooperation in the field of Information and Communications Technologies. The MoU was signed between the Union Minister for Communications, Electronics and IT, Ravi Shankar Prasad, and the Japanese Minister for Internal Affairs and Communications, Takeda Ryota.
- On November 4, 2020, The Union Cabinet, chaired by the Prime Minister, Shri. Narendra Modi, approved to sign a Memorandum of Understanding (MoU) between the Ministry of Communication and Information Technology and the Department of Digital, Culture, Media and Sports (DCMS) of United Kingdom Government on cooperation in the field of telecommunications/information and communication technologies (ICTs).

6 **Financial support**

- The USOF (Universal Service Obligation Fund) is expected to extend financial support to operators providing services in rural areas and encourage active infrastructure sharing among operators.

7 **Set up internet connections**

- The Department of Information Technology intends to set up over 1 million internet-enabled common service centres across India as per the National e-Governance Plan.
- On August 8, 2016, TRAI made the 10th amendment to the TCPR (Telecom Consumers Protection Regulations) permitting telecom companies to offer data packs having maximum validity of 365 days.

*Source: TRAI, News Article*
8
Financial support
• The USOF (Universal Service Obligation Fund) is expected to extend financial support to operators providing services in rural areas and encourage active infrastructure sharing among operators.

9
Indian Mobile Congress
• On December 8, 2020, Prime Minister Narendra Modi inaugurated and addressed the virtual edition of the India Mobile Congress (IMC) 2020.
• The objective of IMC 2020 was to align with the Prime Minister’s vision to promote ‘Aatmanirbhar Bharat’, ‘Digital Inclusivity’ and ‘Sustainable development, entrepreneurship & innovation’ and drive foreign and local investments, encourage R&D in the telecom and emerging technology sectors.

10
Enhanced spectrum limit
• The prescribed limit on spectrum will be increased from 6.2 MHz to 2x8 MHz (paired spectrum) for GSM technology in all areas other than Delhi and Mumbai, where it will be 2x10 MHz (paired spectrum).
• Telecom players can, however, obtain additional frequency. there will be an auction of spectrum subject to the limits prescribed for the merger of licenses.
• On January 6, 2021, the Department of Telecommunications (DoT) issued Notice Inviting Applications (NIA) for auction of Spectrum in 700 MHz, 800 MHz, 900 MHz, 1,800 MHz, 2,100 MHz, 2,300 MHz and 2,500 MHz bands. Last date for submission of applications for participation in the auction is February 5, 2021, and auction to commence online from March 1, 2021.

Source: TRAI, News Article
Make in India

• Government of India announced the Phased Manufacturing Programme (PMP) to promote domestic production of mobile handsets. This initiative will help in building a robust indigenous mobile manufacturing ecosystem in India and incentivise large scale manufacturing.
• In January 2020, HFCL Limited, formerly known as Himachal Futuristic Communications, supplied indigenously designed, developed and manufactured 100,000 Wi-Fi systems in a record time, and stated that Wi-Fi Access Network Interface (WANI) with the government’s ambitious BharatNet initiative would augment broadband uptake in rural India.
• In March 2020, the Government approved the production-linked incentive (PLI) scheme for Large Scale Electronics Manufacturing. The scheme proposes production linked incentive to boost domestic manufacturing and attract large investments in mobile phone manufacturing and specified electronic components including Assembly, Testing, Marking and Packaging (ATMP) units.
• On November 11, 2020, the Union Cabinet approved the production-linked incentive (PLI) scheme in 10 key sectors (including electronics and white goods) to boost India’s manufacturing capabilities, exports and promote the ‘Atmanirbhar Bharat’ initiative.
• Under this scheme, incentives will be provided to manufacture and export specific telecom & networking products.
• The government approved Rs. 12,195 crore (US$ 1.65 billion) for telecom & networking products under the Department of Telecom.

Adequate 5G Airwaves

• In January 2021, the Competition Commission of India (CCI) urged the government to ensure adequate 5G airwaves to be auctioned at affordable rates amid acute financial stress in the debt-laden telecom sector.

Source: TRAI, News Article
National digital communications policy - 2018

**Connect India**
- Provide universal broadband connectivity at 50 Mbps to every citizen
- Provide 1 Gbps connectivity to all Gram Panchayats of India by 2020 and 10 Gbps by 2022
- Enable fixed line broadband access to 50% of households
- Achieve ‘unique mobile subscriber density’ of 55 by 2020 and 65 by 2022
- Ensure connectivity to all uncovered areas

**Propel India**
- Attract investment worth US$ 100 billion in digital communications sector
- Increase India’s contribution to global value chain
- Creation of innovation led start-ups in digital communications sector
- Train/ re-skill 1 million manpower for building new age skills
- Accelerate transition to Industry 4.0

**Secure India**
- Establish a comprehensive data protection regime for digital communications
- Ensure net neutrality principles are upheld
- Develop and deploy robust digital communication network security frameworks
- Build capacity for security testing and establish appropriate security standards
- Address security issues relating to encryption and security clearances

*Note: Mbps - Mega bits per second, Gbps - Giga bits per second
Source: National Digital Communications Policy, 2018*
Foreign investment flowing in… (1/2)

- FDI inflows in the telecom sector stood at US$ 37.62 billion from April 2000 to December 2020.
- In the same period, FDI inflow in the sector accounted for ~7% share of the total FDI inflows in the country.
- In January 2020, Government of India allowed 100% FDI in Bharti Airtel.
- Between April 23 and July 16, 2020, Jio Platforms Ltd. sold 25.24% stake worth Rs. 1.52 trillion (US$ 21.57 billion) to various global investors in separate deals involving Facebook, Silver Lake, Vista, General Atlantic, Mubadala, Abu Dhabi Investment Authority (ADIA), TPG Capital, L. Catterton, Public Investment Fund (PIF), Intel Capital, Qualcomm Ventures and Google. This is the largest continuous fundraise by any company in the world.

Note: * - Until December 2020
Source: Department for Promotion of Industry and Internal Trade (DPIIT)
- Vodafone India and Idea Cellular merged into ‘Vodafone Idea’ to become India’s largest telecom company as of September 2018.

### Foreign investment in India

<table>
<thead>
<tr>
<th>Target</th>
<th>Acquirer</th>
<th>Acquisition price (US$ million)</th>
<th>Division acquired</th>
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<tbody>
<tr>
<td>Bharti Airtel</td>
<td>Singtel (as of February 2019)</td>
<td>367.15</td>
<td>Increase in stake to 48.90%</td>
</tr>
<tr>
<td>Bharti Airtel</td>
<td>Singtel (2018)</td>
<td>411.02</td>
<td>Increase in stake to 27.08%</td>
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<tr>
<td>Ascend Telecom Infrastructure Pvt. Ltd.</td>
<td>IDFC Alternatives (2017)</td>
<td>54.29</td>
<td>33% stake</td>
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<tr>
<td>Telenor</td>
<td>Bharti Airtel (2017)</td>
<td>N/A</td>
<td>Infrastructure and Contracts</td>
</tr>
<tr>
<td>Bharti Airtel's operations in Burkina Faso and Sierra Leone</td>
<td>Orange SA (2016)</td>
<td>900</td>
<td>100% stake</td>
</tr>
<tr>
<td>MTS</td>
<td>Reliance Communication (2015)</td>
<td>736.98</td>
<td>8 - 10% stake</td>
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<tr>
<td>Augere Wireless</td>
<td>Bharti Airtel (2015)</td>
<td>21.3</td>
<td>100% stake</td>
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<td>Bharti Airtel</td>
<td>Singtel (2013)</td>
<td>302</td>
<td>Increases stakes to 32.34%</td>
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<tr>
<td>Bharti Airtel</td>
<td>Qatar Foundation Endowment (2014)</td>
<td>1,260</td>
<td>PE deal - 5% stake</td>
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<tr>
<td>Vodafone India Ltd</td>
<td>Vodafone International Holdings (2014)</td>
<td>1,641</td>
<td>Increases stakes to 100%</td>
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<tr>
<td>Ascend Telecom</td>
<td>Ascend Telecom Infrastructure Pvt Ltd</td>
<td>54.29</td>
<td>33% stake</td>
</tr>
</tbody>
</table>

**Notes:** M&A - Merger and Acquisition, PE - Private Equity  
**Source:** Thomson Banker, Deal Tracker, Grant Thornton
Opportunities across segments in the industry

1. Increasing mobile subscribers
   • India’s mobile subscriber base is expected to reach 1,420 million by 2024 from 1,200 million in 2018, with 80% users having 4G connection.

2. Untapped rural markets
   • By December 2020, rural tele-density reached 59.05%, up from 43.05% in March 2016.

3. Rising internet penetration
   • Internet penetration is expected to grow steadily and is likely to be bolstered by Government policy.
   • Number of broadband subscribers reached 687.44 million in FY20.
   • To encourage cash economy, Indian Government announced to provide free Wi-Fi to more than 1,000 gram panchayats.

4. Development of telecom infrastructure
   • TRAI has made several recommendations for the development of telecom infrastructure, including tax benefits and recognising telecom infrastructure as essential infrastructure.

5. Growth in MVAS
   • Indian Mobile Value-Added Services (MVAS) industry is expected to row at a CAGR of 18.3% during the forecast period of 2015-2020 and reach US$ 23.8 billion by the end of 2020.

6 Telecom equipment market
   • Telecom equipment market was expected to reach US$ 30 billion by the end of 2020.
   • The government is encouraging global telecom network manufacturers such as Ericsson, Nokia, Samsung and Huawei to manufacture all their equipment in India with 100% local products.

7. Growing Cashless Transactions
   • In order to overcome the cash related problems being faced by people, due to demonetisation, Paytm launched a service through which consumers and merchants can pay and receive money instantly, without an internet connection.
   • Payments on unified payments interface (UPI) hit an all-time high of 2.30 billion (by volume), with transactions worth ~Rs. 4.31 lakh crore (US$ 59.08 billion) in January 2021.

Source: KPMG, TRAI, Press Information Bureau, Government of India, NPCI
Mobile application market: fast growing segment

- In 2019, India surpassed the US to become the second-largest market in terms of number of app downloads.
- App downloads in the country increased from 12.07 billion in 2017 to 19.00 billion in 2019 and is expected to reach 37.21 billion in 2022F.
- India has witnessed a 195% growth in app downloads in the past three years.
- Indian users spent around US$ 370 million through app stores in 2019.
- The segment’s growth is expected to be driven by increasing mobile connections and availability of low-range smartphones.
- Over 100 million apps are downloaded every month across different platforms such as iOS and Android.

Notes: F - Forecast, *As per latest data available, ^Combined iOS App Store, Google Play and third-party android, Q1- Jan to March
Source: Gartner, Deloitte, Assorted News Articles, App Annie
# Key industry contacts

<table>
<thead>
<tr>
<th>Agency</th>
<th>Contact Information</th>
</tr>
</thead>
</table>
| **Association of Unified Telecom Service Providers of India (AUSPI)** | Address: B-601, Gauri Sadan 5, Hailey Road, New Delhi - 110 001, India  
Tel: 91 11 23358585  
Fax: 91 11 23327397  
Website: [http://www.auspi.in/](http://www.auspi.in/) |
| **Association of Competitive Telecom Operators (ACTO)** | Address: UGF-74, World Trade Centre, Babar Road, Connaught Place, New Delhi-110 001  
Tel.: 91-11- 43565353/ 43575353/ 9899242273  
Fax: 91 11 43515353  
E-mail: info@acto.in, tapan@acto.in  
Website: [www.acto.in](http://www.acto.in) |
| **Internet and Mobile Association of India (IAMAI)** | Address: 232-B, Ground Floor, Okhla Industrial Estate, Phase III, New Delhi 110020  
Tel: 91 11 46570328  
E-mail: kalyan@iamai.in  
Website: [www.iamai.in](http://www.iamai.in) |
| **Cellular Operators Association of India** | Address: 14, Bhai Vir Singh Marg, Sector 4, Gole Market, New Delhi - 110001, India  
Tel: 91 11 2334 9275  
E-mail: contact@coai.in  
Website: [www.coai.com](http://www.coai.com) |
Appendix
Glossary

• BWA: Broadband Wireless Access
• CAGR: Compound Annual growth rate
• DoT: Department of Telecommunication
• FDI: Foreign Direct Investment
• FTTH: Fibre To The Home
• FY: Indian Financial Year (April to March)
• IMF: International Monetary Fund
• Rs.: Indian Rupee
• IPTV: Internet Protocol Television
• M&A: Mergers and Acquisitions
• MoU: Minutes of Use per month and per subscriber
• MPEG: Moving Picture Experts Group
• OFC: Optical Fibre Cable
• TRAI: Telecom Regulatory Authority of India
• USOF: Universal Service Obligation Fund
• US$: US Dollar
• VAS: Value-Added Services
• WiMAX: Worldwide Interoperability for Microwave access telecommunications

Wherever applicable, numbers have been rounded off to the nearest whole number
Exchange Rates (Fiscal Year)

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Exchange Rates (Calendar Year)

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Note: As of January 2021
Source: Reserve Bank of India, Average for the year
India Brand Equity Foundation (IBEF) engaged Sutherland Global Services private Limited to prepare/update this presentation.

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