EXECUTIVE SUMMARY

Second largest subscriber base
- India has the second largest telecom network in the world.
  - The total subscriber base in the country stood at 1,167.81 million, as of August 31, 2020.

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 87.37% in FY20.

Second highest number of internet users
- India has the second highest number of internet subscribers globally.
  - The total number of internet subscribers increased to 749.07 million in June 2020 from 743.19 million in March 2020, registering a quarterly growth rate of 0.79%.

Affordability and lower rates
- As per TRAI, average wireless data usage per wireless data subscriber was 11 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)
India ranks second in terms of number of telecommunication subscriptions, internet subscribers and app downloads* globally.

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.

In 2020-21, the Department of Telecommunications has been allocated Rs. 66,432 crore (US$ 9 billion), a 184% increase over the revised estimates of 2019-20. 61% allocation is towards revenue expenditure and the remaining 39% is towards capital expenditure.

Capital and revenue expenditure have increased by 422% and 121%, respectively, over the revised estimates of 2019-20.

In the era of 5G, telecom will earn 70% of its revenue from core beneficiaries of 5G. Currently, it is earning 30% from enterprises.

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 Government has been proactive in its efforts to transform India into a global telecommunication hub.

The Government of India unveiled National Digital Communications Policy 2018 in September 2018. The policy was meant to attract US$ 100 billion worth of investment and generate 4 million jobs in the sector by 2022.

Notes: *Combined iOS App Store, Google Play and third-party android, ^Nokia MBiT Index 2018, PB- Petabytes
Source: Economic Times, TRAI, App Annie, Department of Telecommunications, PRS Legislative Research
MARKET OVERVIEW
THE TELECOM MARKET SPLIT INTO THREE SEGMENTS

Source: Sutherland Research

- **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.
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 87.37% in FY20.

The total subscriber base in the country stood at 1,167.81 million with a tele-density of 86.23%, as of August 31, 2020.

*Note: CAGR - Compound Annual Growth Rate, *- Till August 2020
Source: Telecom Regulatory Authority of India
The share of the wireless segment in India’s telecommunications market has increased steadily. Wireless segment accounted for 98.28% of the total telephone subscriptions in FY20. Telecommunications penetration has seen a surge in rural areas with rural penetration gaining a significant pie of the overall subscription base. Rural subscribers form 44.27% of the total telephone subscribers in FY20 compared to 33.35% in FY11.

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 1,147.92 million with a tele-density of 84.77%, as of August 31, 2020.

Note: CAGR - Compound Annual Growth Rate, ^CAGR is up to FY20, *- Till August 2020
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 716.19 million, as of August 31, 2020.

**Note:**
- CAGR - Compound Annual Growth Rate, \(^{\wedge}\text{CAGR} \text{ is up to FY20, } ^{\#}\text{Includes Mobile devices users and Fixed wireless subscribers, } ^{*}\text{ Till August 2020}
- **Source:** Telecom Regulatory Authority of India;
NUMBER OF INTERNET SUBSCRIBERS INCREASING AT A FAST PACE

- The total number of internet subscribers increased from 743.19 million in March 2020 to 749.07 million in June 2020, registering a quarterly growth rate of 0.79%. Out of 749.07 million internet subscribers, number of wired internet subscribers are 23.06 million and number of wireless internet subscribers are 726.01 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, -* Till June 2020

Source: Telecom Regulatory Authority of India, Business Monitor International
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.  

Total wireless data usage in India grew 11.01% quarterly to reach 25,369,679 TB in Q1FY21.  

The contribution of 3G and 4G data usage, to the total volume of wireless data usage, was 3.25% and 96.12%, respectively, in the first quarter of FY21. Share of 2G data usage remained 0.62% in the same quarter.

Note: CAGR - Compound Annual Growth Rate, TB- Terabytes
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. 66,858 crore (US$ 9.09 billion) in the first 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
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.

**Emergence of Tower Industry**

- **Rising competition**
- **Higher operating cost and debt burden**
- **Focus on tower sharing to reduce costs**
- **Segregation of towers into separate companies**

*Source: Sutherland Research*
RECENT TRENDS AND STRATEGIES
### NOTABLE TRENDS IN THE INDIAN TELECOM SECTOR … (1/2)

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Green telecom**               | 1. The green telecom concept is aimed at reducing carbon footprint of the telecom industry through lower energy consumption.  
                                 | 2. The Government of India’s National Digital Communication Policy, which released in September 2018, envisaged strengthening of mobile tower industry by promoting and incentivising deployment of solar and green energy for telecom towers.  
                                 | 3. 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. |
| **Expansion to rural market**   | 1. 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).  
                                 | 2. 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. |
| **Emergence of BWA technologies** | 1. BWA technologies, such as WiMAX and LTE, is among the most recent and significant developments in wireless communication.  
                                 | 2. Bharti Airtel VoLTE and Reliance Jio 4G services are live across all the 22 telecom circles since 2019.  
                                 | 3. India is expected to be the second largest market in 5G services followed by China in the next 10 years. |
| **Commercial SMS traffic**      | 1. 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. |
| **Internet of Things (IoT)**    | 1. 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.  
                                 | 2. Reliance Jio has partnered with Samsung Electronics to set up a nationwide IoT network.  
                                 | 3. Jio’s IoT platform is ready to be commercially available in 2020. |

**Notes:** BWA - Broadband Wireless Access, TRAI - Telecom Regulatory Authority of India, News Article  
**Source:** News Source  

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### NOTABLE TRENDS IN THE INDIAN TELECOM SECTOR

... (2/2)

<table>
<thead>
<tr>
<th>Consolidation</th>
<th>Vodafone India and Idea have merged into Vodafone Idea. Vodafone Idea unified assets and completed network integration by June 2020.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer spending</td>
<td>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.</td>
</tr>
<tr>
<td>Rising investment</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>On November 24, 2020, Google paid Rs. 33,737 (US$ 4.5 billion) for a 7.73% stake in Reliance Industries Ltd.’s (RIL) digital subsidiary—Jio Platforms Ltd.</td>
</tr>
<tr>
<td></td>
<td>In April 2020, Vodafone Group Plc infused Rs. 1,530 crore (US$ 217.05 million) in Vodafone Idea as accelerated payment to help it manage its operations.</td>
</tr>
<tr>
<td>Mobile banking</td>
<td>Department of Posts launched mobile banking for its saving account customers.</td>
</tr>
<tr>
<td></td>
<td>In October 2020, Unified Payments Interface (UPI) recorded 2.07 billion transactions worth Rs. 3.86 lakh crore (US$ 52.10 billion).</td>
</tr>
<tr>
<td></td>
<td>As of November 26, 2020, 555 banks have been permitted to provide mobile banking services in India.</td>
</tr>
<tr>
<td>Investment in optical fibre network</td>
<td>Reliance Jio Infocomm is going to expand its optical fibre network to over 1,100 cities under its Jio GigaFiber brand. In August 2019, Reliance commercially launched Jio GigaFiber as a wired broadband service.</td>
</tr>
<tr>
<td></td>
<td>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 Department of Telecommunications.</td>
</tr>
</tbody>
</table>

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

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.

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.

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
<table>
<thead>
<tr>
<th>Company</th>
<th>Ownership</th>
<th>Presence</th>
</tr>
</thead>
<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>
</table>

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).

Notes: CAGR - Compound Annual Growth Rate, *Estimates after 2013, ^Data for 2005, 2006 and 2025 is from BCG’s The New Indian: The Many Facets of a Changing Consumer, for 2017 from IBM-Kalaari Capital’s Imagining a Trillion Dollar Digital India and for 2018 from Redseer Consulting’s Indian Habit of Being Healthy Source: IMF World Economic Outlook Database April 2018
### STRONG POLICY SUPPORT CRUCIAL TO THE SECTOR’S DEVELOPMENT … (1/3)

<table>
<thead>
<tr>
<th>To compensate the consumers in case of call drop</th>
</tr>
</thead>
</table>
| ▪ 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. |

<table>
<thead>
<tr>
<th>Standards of quality wireline and wireless services</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ 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 better and effective compliance with the quality of service regulations and to protect the interest of the customers.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Relaxed FDI norms</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ 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.</td>
</tr>
<tr>
<td>▪ FDI of up to 100% is permitted for infrastructure providers offering dark fibre, electronic mail and voice mail.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skill development</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ In a major push for Prime Minister Narendra Modi's 'Skill India' mission, Microsoft's India-born CEO, Satya Nadella, launched a cloud hosted platform named &quot;Project Sangam&quot; to help the Government train and assist people get jobs via professional networking website like LinkedIn, which was acquired by the company last year.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>International Tie-ups</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ On November 4, 2020, The Union Cabinet, chaired by the Prime Minister, Mr. 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).</td>
</tr>
</tbody>
</table>

**Notes:** FDI - Foreign Direct Investment, FIPB - Foreign Investment Promotion Board

**Source:** TRAI
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.

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.

In January 2015, the Government recommended reduction in license fees of telecom operators by 6%. Telecom operators currently pay 8% of adjusted gross revenue as licence fee.

The issuance of several international and national long-distance licenses has created opportunities and attracted new companies into the market.

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 March 2020, the Government approved the Production Incentive Scheme (PLI) 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.

Notes: USOF - Universal Service Obligation Fund; OFC - Optical Fibre Cable, WiMAX - Worldwide Interoperability for Microwave Access Telecommunications

Source: TRAI
### Financial support
- The USOF is expected to extend financial support to operators providing services in rural areas and encourage active infrastructure sharing among operators.

### 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.

### Telecommunication amendment order for broadcasting and cable services
- In 2015, telecom authority issued this order mandating every DTH operator to specify the tariff for supply and installation of the customer premises equipment. DTH operator should specify the refundable security deposit, installation charges, monthly rental charge and activation.
- As of July 2019, India achieved 100% digitisation of cable TV network.

### Indian Mobile Congress
- In October 2019, India held the third edition of Indian Mobile Congress, dominated by 5G, IoT and AI. The conference brought together more than 5,000 delegates and 50,000 visitors.
- Global and local industry leaders such as Samsung, Intel, Ericsson, Huawei, Qualcomm, Nokia, Airtel, Reliance Jio and Vodafone participated in the event.
- Jio announced partnership with Samsung to bring 5G along with new traffic security system. Furthermore, Ericsson demonstrated India’s first video call through a 5G network in conjunction with Qualcomm India.

**Notes:** USOF - Universal Service Obligation Fund; OFC - Optical Fibre Cable

**Source:** TRAI
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 inflow in the telecom sector stood at US$ 37.27 billion from April 2000 to June 2020.
- In this period, FDI into the sector accounted for ~8% share of the total FDI inflow into 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: *- Till June 2020
Source: Department for Promotion of Industry and Internal Trade (DPIIT)
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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>
</tr>
</thead>
<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>
</tr>
<tr>
<td>Ascend Telecom Infrastructure Pvt. Ltd.</td>
<td>IDFC Alternatives (2017)</td>
<td>54.29</td>
<td>33% stake</td>
</tr>
<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>
</tr>
<tr>
<td>Augere Wireless</td>
<td>Bharti Airtel (2015)</td>
<td>21.3</td>
<td>100% stake</td>
</tr>
<tr>
<td>Bharti Airtel</td>
<td>Singtel (2013)</td>
<td>302</td>
<td>Increases stakes to 32.34%</td>
</tr>
<tr>
<td>Bharti Airtel</td>
<td>Qatar Foundation Endowment(2014)</td>
<td>1,260</td>
<td>PE deal - 5% stake</td>
</tr>
<tr>
<td>Vodafone India Ltd</td>
<td>Vodafone International Holdings (2014)</td>
<td>1,641</td>
<td>Increases stakes to 100%</td>
</tr>
<tr>
<td>Ascend Telecom Ltd</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
### 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.^

### Untapped rural markets
- By April 2020, rural tele-density reached 58.03%, growing from 43.05% as of March 2016.

### 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.

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**Note:** ^Ericsson Mobility Report November 2018  
**Source:** KPMG, TRAI
**OPPORTUNITIES ACROSS SEGMENTS IN THE INDUSTRY … (2/2)**

<table>
<thead>
<tr>
<th>Development of telecom infrastructure</th>
<th>Growth in MVAS and cloud computing</th>
<th>Telecom equipment market</th>
<th>Growing Cashless Transactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ TRAI has made several recommendations for the development of telecom infrastructure, including tax benefits and recognising telecom infrastructure as essential infrastructure.</td>
<td>▪ 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 2020.</td>
<td>▪ Telecom equipment market is expected to reach US$ 30 billion by 2020.</td>
<td>▪ 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 1.49 billion in terms of volume with transactions worth nearly Rs. 2.90 lakh crore (US$ 41.22 billion) in July 2020.</td>
</tr>
</tbody>
</table>

**Notes:** VAS - Value-Added Services, NTP - National Telecom Policy, * - as per IDC, ^ - as per Electronics Industry Associations

**Source:** Press Information Bureau, Government of India

For updated information, please visit www.ibef.org
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 ORGANISATIONS

<table>
<thead>
<tr>
<th>Association of Unified Telecom Service Providers of India (AUSPI)</th>
<th>Association of Competitive Telecom Operators (ACTO)</th>
</tr>
</thead>
</table>
| **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/) | **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) |

<table>
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<tr>
<th>Internet and Mobile Association of India (IAMAI)</th>
<th>Cellular Operators Association of India</th>
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| **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) | **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) |
USEFUL INFORMATION
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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<th>Year</th>
<th>Rs. Equivalent of one US$</th>
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<td>2019-20</td>
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### Exchange Rates (Calendar Year)

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</tbody>
</table>

*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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