

TELECOMMUNICATIONS

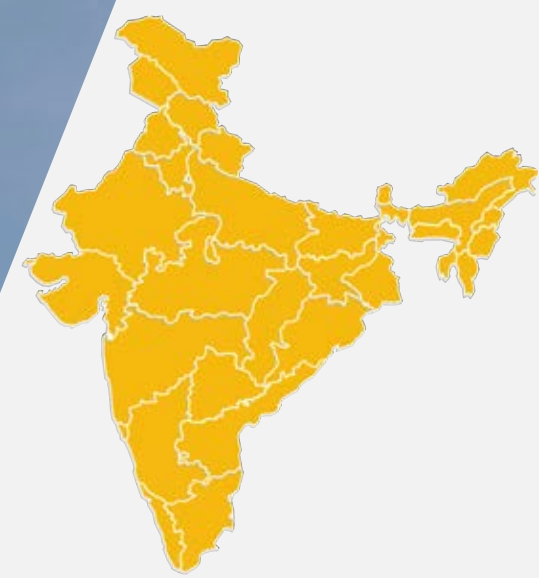
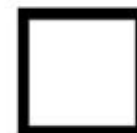
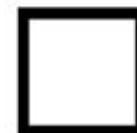


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Second largest subscriber base

- India has the second largest telecom network in the world.
- Total subscriber base in the country stood at 1,177.02 million as on January 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 per cent in FY16 to 87.45 per cent in FY20 (till January 2020).

Second highest number of internet users

- India has the second highest number of internet subscribers globally.
- India's active internet subscription reached 530 million in 2018 at a run rate of 65 million users per year in the last two years.

Affordability and lower rates

- As per a report by Ericsson, India had the world's highest data usage per smartphone, averaging 9.8 GB per month in 2019.
- 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

ADVANTAGE INDIA



- India ranks second in terms of number of telecommunication subscriptions, internet subscribers and app downloads* globally.
- Moreover, India is also one of the largest data consumers globally. It has highest data usage per smartphone, averaging 9.8GB per month.

Robust demand

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

Attractive opportunities

- 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.

ADVANTAGE INDIA

Increasing investment

- As of January 2019, expenditure on telecom infrastructure and services by Government of India grew six-fold to Rs 60,000 crore (US\$ 8.31 billion) between 2014-19.

Policy support

- 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.

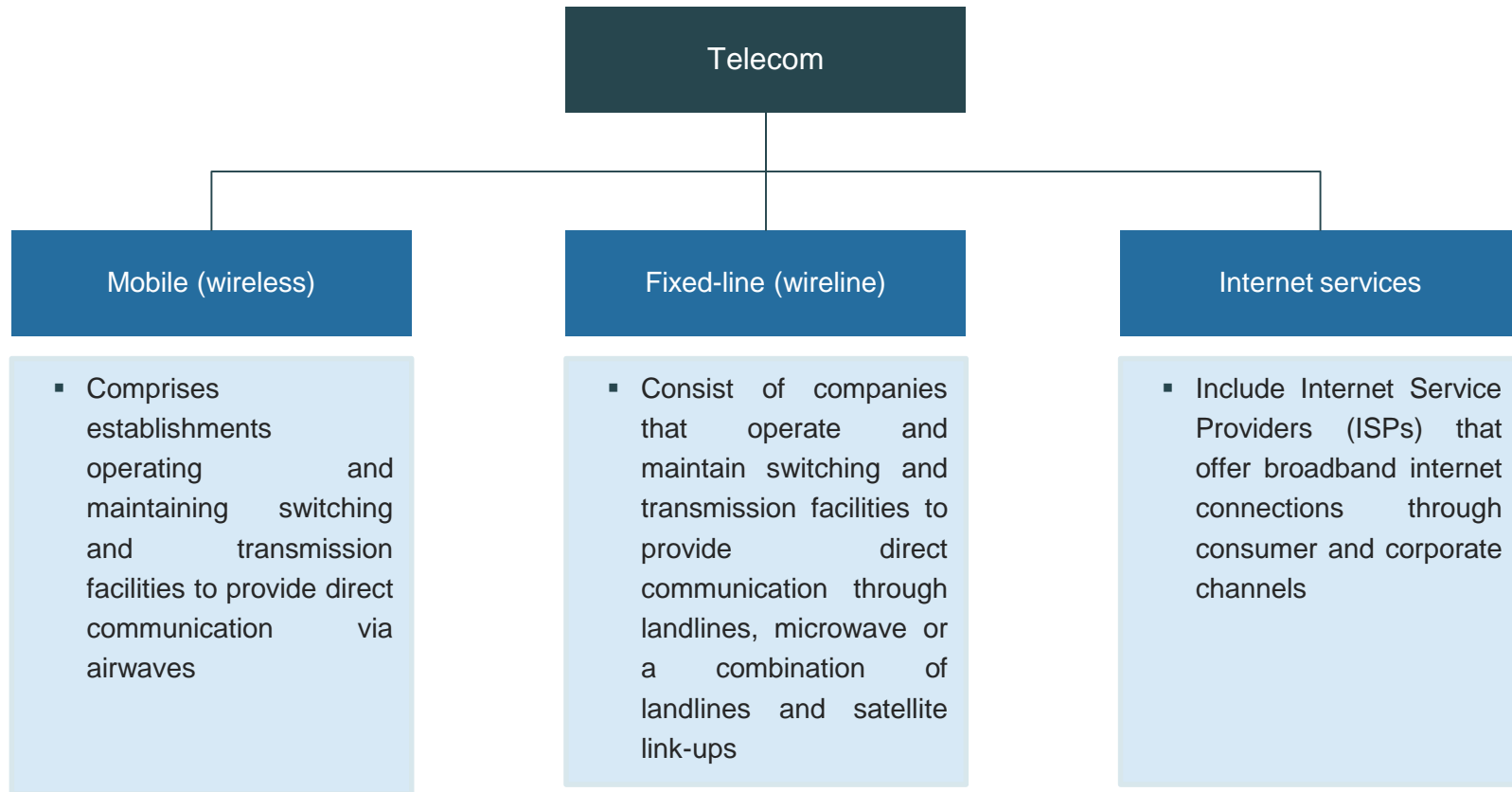
*Notes: *Combined iOS App Store, Google Play and third-party android, ^Nokia MBit Index 2018, PB- Petabytes*

Source: Economic Times, TRAI, App Annie, Department of Telecommunications

MARKET OVERVIEW



THE TELECOM MARKET SPLIT INTO THREE SEGMENTS

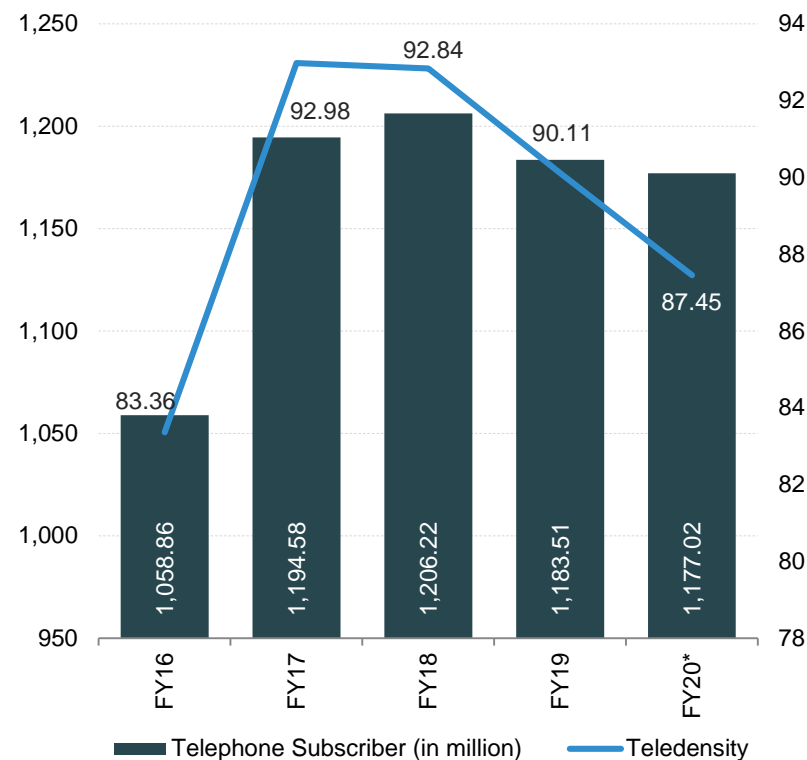


Source: TechSci Research

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 3.78 per cent, reaching 1,183.51 million in FY19.
- Tele-density (defined as the number of telephone connections for every 100 individuals) in India stood at 90.11 per cent in FY19.
- Total telephone subscriber base and tele-density reached 1,177.02 million and 87.45 per cent, respectively, in FY20 (till January 2020).

Growth in total subscribers and tele-density

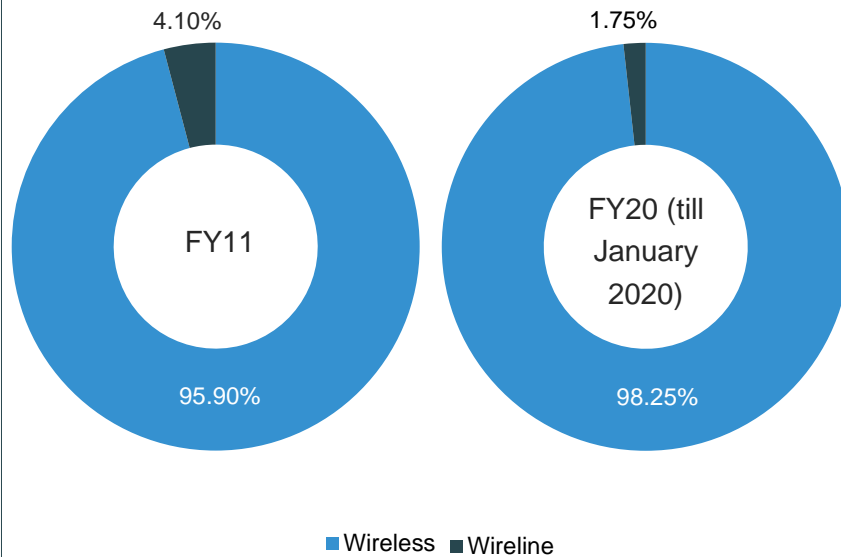


Note: CAGR - Compound Annual Growth Rate, *- till January 2020

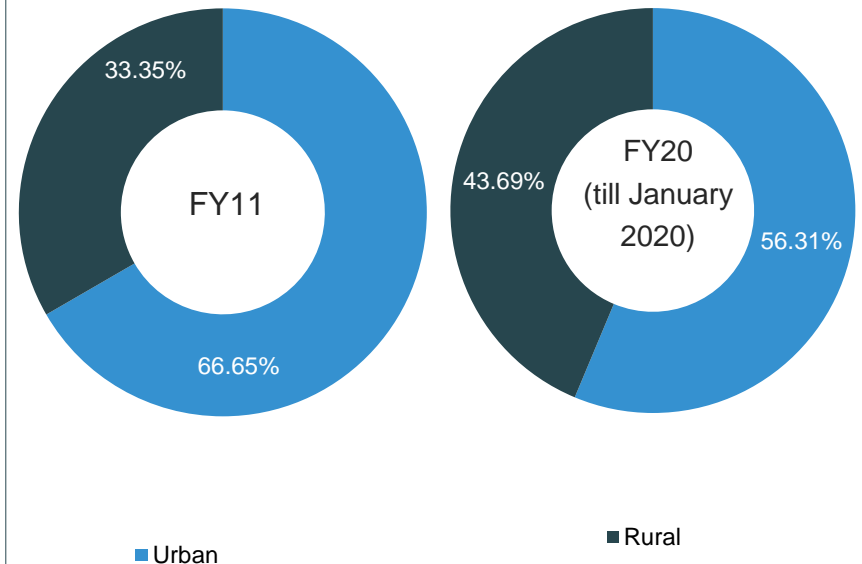
Source: Telecom Regulatory Authority of India

WIRELESS AND RURAL SEGMENTS GAINING SHARE

Wireless and Wireline share in telephone subscriptions



Urban and Rural share in telephone subscriptions

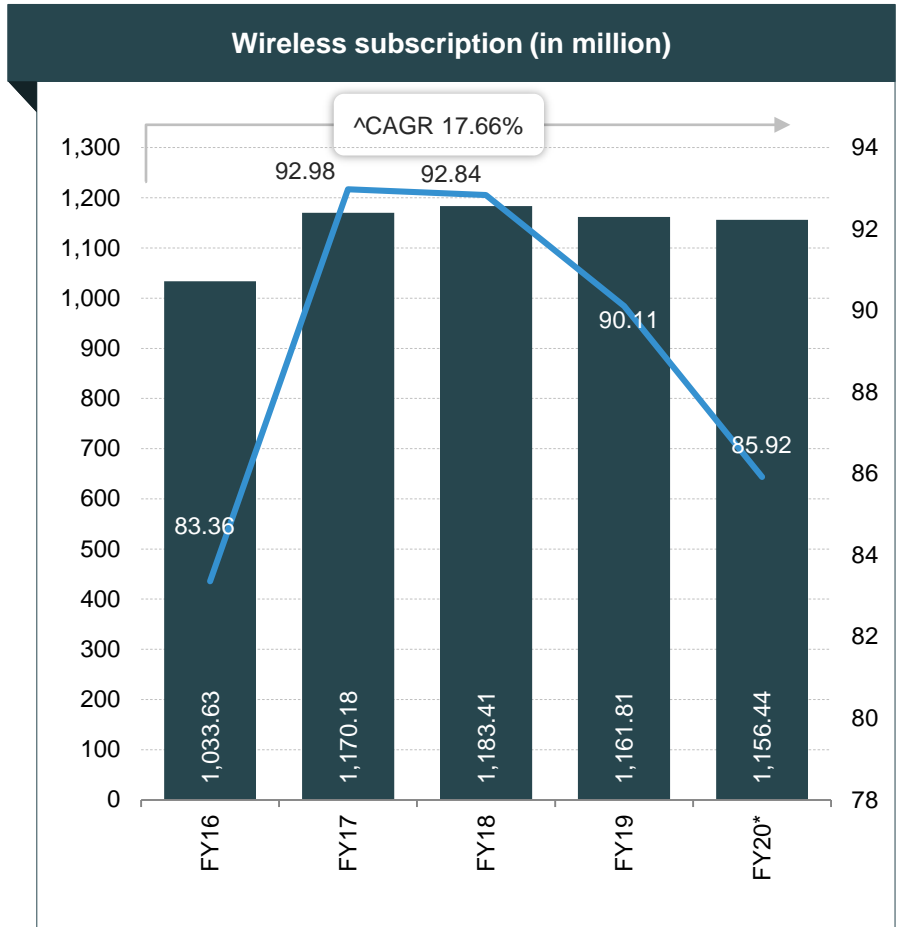


- The share of the wireless segment in India's telecommunications market has increased steadily.
- Wireless segment accounted for 98.25 per cent of the total telephone subscriptions as of January 2020.
- Telecommunications penetration has seen a surge in rural areas with rural penetration gaining a significant pie of the overall subscription base.
- Rural subscribers form 43.69 per cent of the total telephone subscribers in FY20 (till January 2020) compared to 33.35 per cent in FY11.

Source: Telecom Regulatory Authority of India

WIRELESS SUBSCRIPTIONS WITNESS ROBUST GROWTH OVER THE YEARS

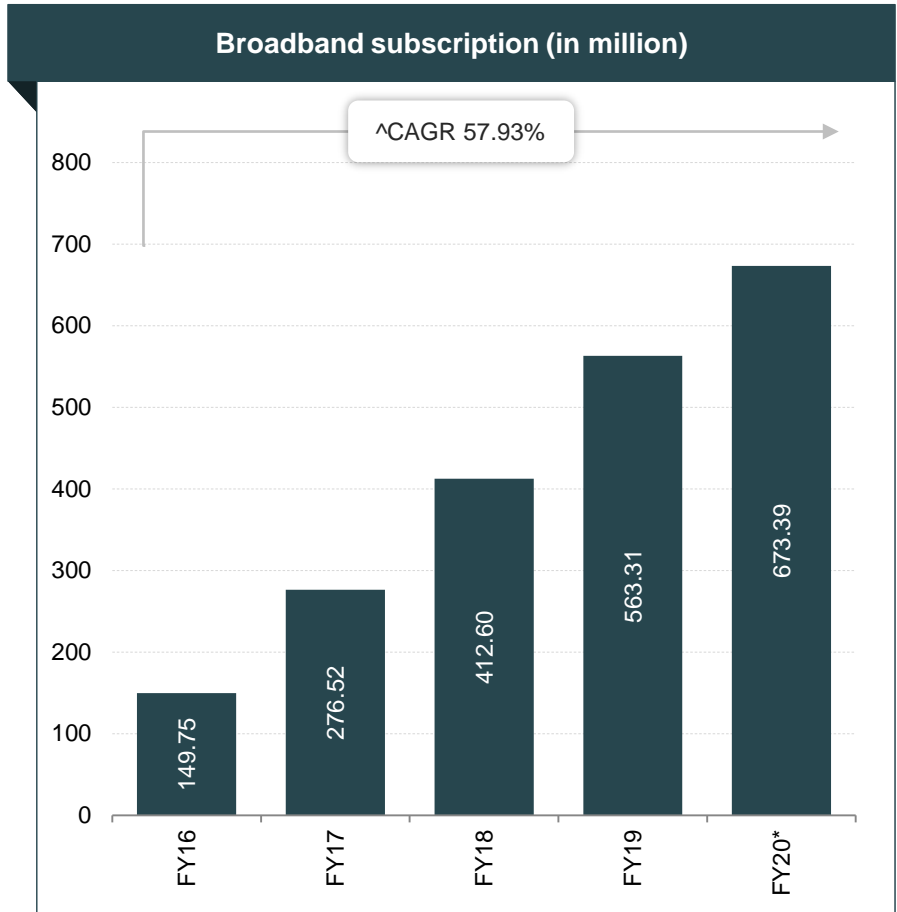
- Wireless subscription has grown robustly over the past few years.
- The growth in wireless subscriptions has led to a significant rise in wireless tele-density.
- In FY20 (till January 2020), wireless subscription stood at 1,156.44 million, whereas, wireless tele-density reached 85.92 per cent.



Note: CAGR - Compound Annual Growth Rate, ^CAGR is up to FY19, *- till January 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 563.32 in FY19.
- The number of wired broadband subscriptions stood at 19.08 million in FY20 (till January 2020).
- Wireless broadband subscribers[#] stood at 673.39 million in FY20 (till January 2020).

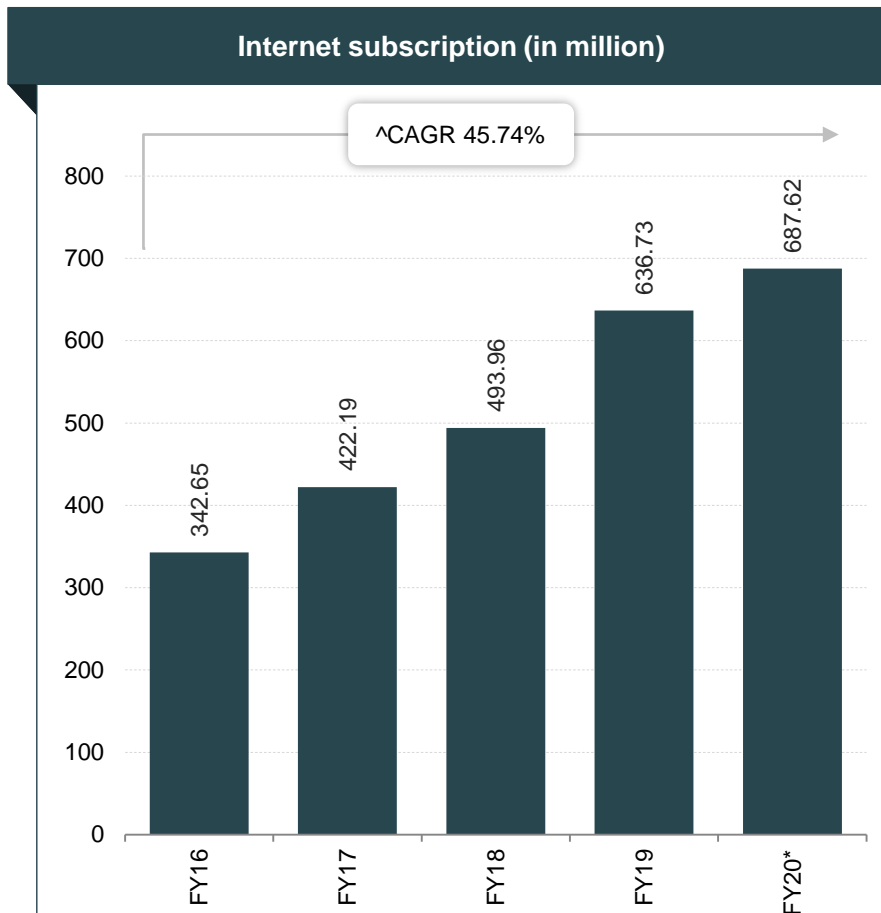


Note: CAGR - Compound Annual Growth Rate, ^CAGR is up to FY18, #Includes Mobile devices users and Fixed wireless subscribers, *- till January 2020

Source: Telecom Regulatory Authority of India;

NUMBER OF INTERNET SUBSCRIBERS INCREASING AT A FAST PACE

- The number of internet subscribers in the country increased at a CAGR of 45.74 per cent during FY16-FY19 to reach 636.73 million in FY19.
- 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 per cent by 2021.
- As of 2019, India holds the world's highest data usage per smartphone, averaging 9.8 GB per month. It is expected to double to 18 GB by 2024.
- As of May 2020, India had over 500 million active internet users (accessed Internet in the last one month).



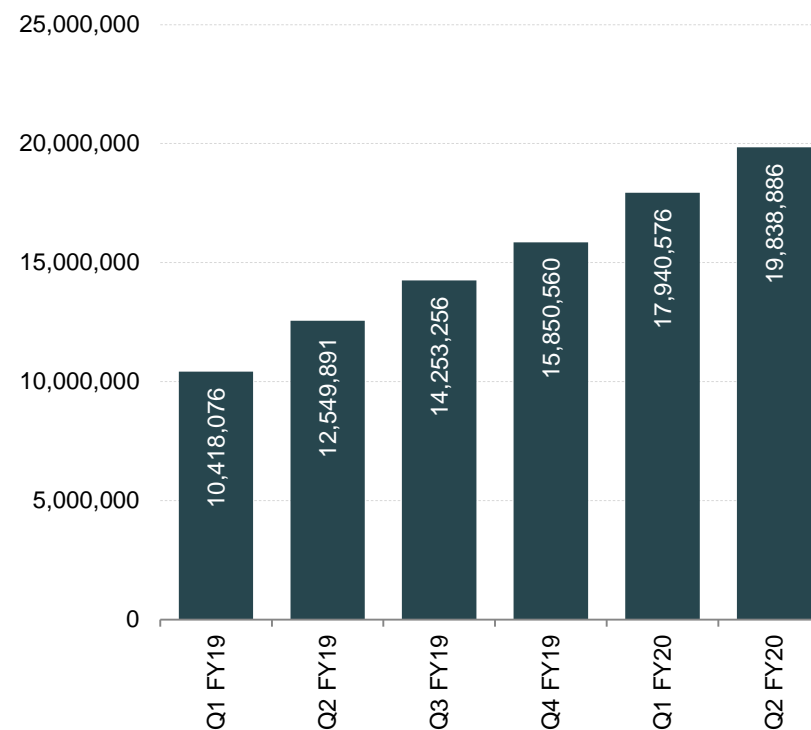
Note: CAGR - Compound Annual Growth Rate; BSNL - Bharat Sanchar Nigam Ltd, IP – Internet Protocol, ^CAGR is up to FY19, #as per CISCO, *- till September 2019

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.
- Total wireless data usage in India grew 10.58 per cent y-o-y to 19,838,886 TB in Q2FY20.
- The contribution of 3G and 4G data usage in total volume of wireless data usage was 5.72 per cent and 93.65 per cent, respectively, in Q2FY20. Share of 2G data usage remained 0.62 per cent during the quarter.

Total Wireless Data Usage (in Terabytes)



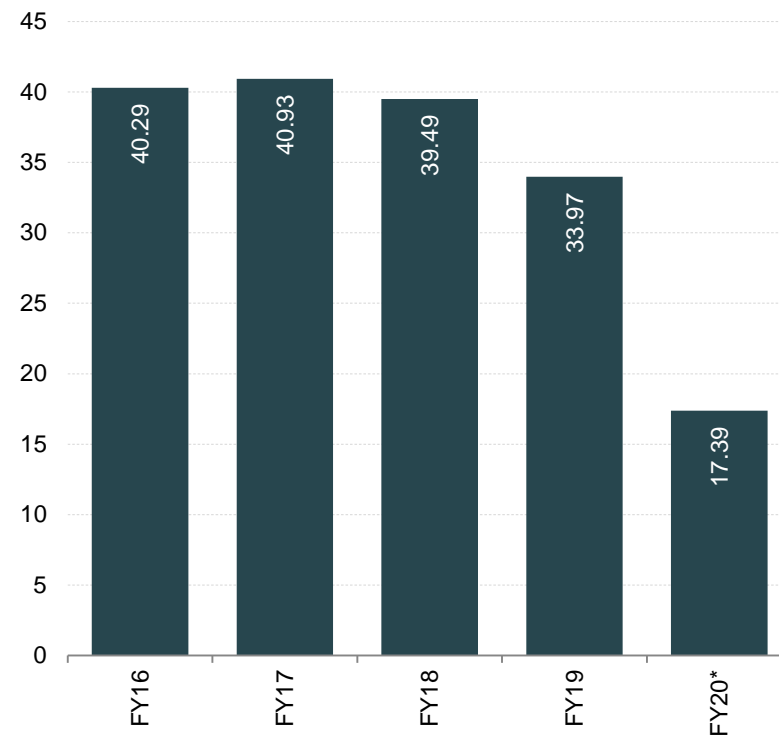
Note: CAGR - Compound Annual Growth Rate

Source: Telecom Regulatory Authority of India, Lok Sabha

TELECOM REVENUES

- Indian telecom sector's gross revenue declined from US\$ 40.29 billion in FY16 to US\$ 33.97 billion in FY19.
- Gross revenue of the telecom sector stood at Rs 121,527 crore (US\$ 17.39 billion) in FY20 (April-September 2019).
- Indian telecom sector's revenue is expected to grow seven per cent in FY20 based on stabilizing tariff wars and increased spending by subscribers due to minimum recharge plans.

Telecom Sector Gross Revenue (US\$ billion)



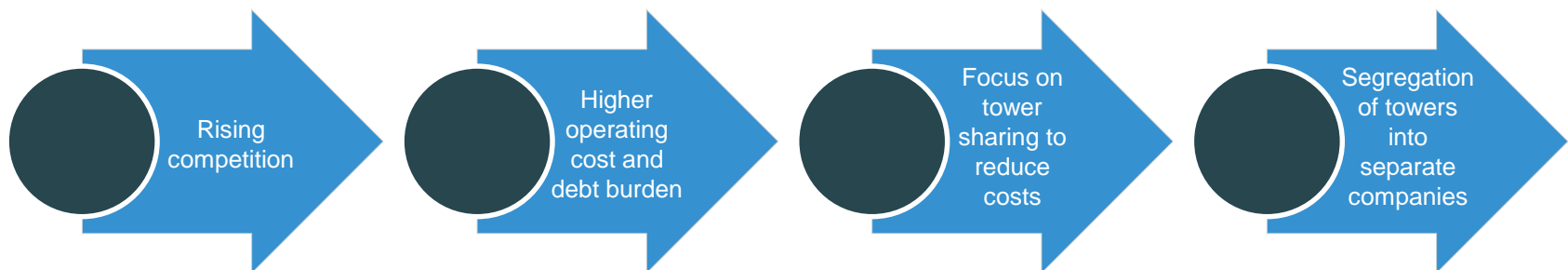
Note: CAGR - Compound Annual Growth Rate, FY – Indian Financial Year (April – March), *- till September 2019

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.

Emergence of Tower Industry



Source: TechSci Research

RECENT TRENDS AND STRATEGIES



NOTABLE TRENDS IN THE INDIAN TELECOM SECTOR

... (1/2)

Green telecom

- The green telecom concept is aimed at reducing carbon footprint of the telecom industry through lower energy consumption.
- 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.
- 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

- 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).
- The rural subscriber base accounted for 43.36 per cent of the total subscriber base in FY20 (till December 2020), thereby fuelling growth across the sector.

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.

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.

Notes: BWA - Broadband Wireless Access, TRAI - Telecom Regulatory Authority of India

Source: News Source

NOTABLE TRENDS IN THE INDIAN TELECOM SECTOR

... (2/2)

Consolidation

- Vodafone India and Idea have merged into Vodafone idea. Vodafone Idea is unifying assets and aims to complete network integration by June 2020.

Rising investment

- In June 2020, Jio Platforms Ltd. sold 22.38 per cent stake worth Rs 1.04 trillion (US\$ 14.75 billion) to ten global investors in a span of eight weeks from separate deals involving Facebook, Silver Lake, Vista, General Atlantic, Mubadala, Abu Dhabi Investment Authority (ADIA), TPG Capital and L. Catterton. This is the largest continuous fundraise by any company in the world.
- 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.

Mobile banking

- Department of Posts launched mobile banking for its saving account customers.
- By October 2019, the number of mobile wallet transactions stood at 3.59 billion.
- As of January 2020, more than 542 banks have been permitted to provide mobile banking services in India.

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. In August 2019, Reliance commercially launched Jio GigaFiber as a wired broadband service.

Notes: FKM – Fibre Kilometre

Source: 'Searching for New Frontiers of growth: Indian Banks'- PwC, Reserve Bank of India

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'.

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.

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.








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 websites

KEY COMPANIES IN THE MARKET

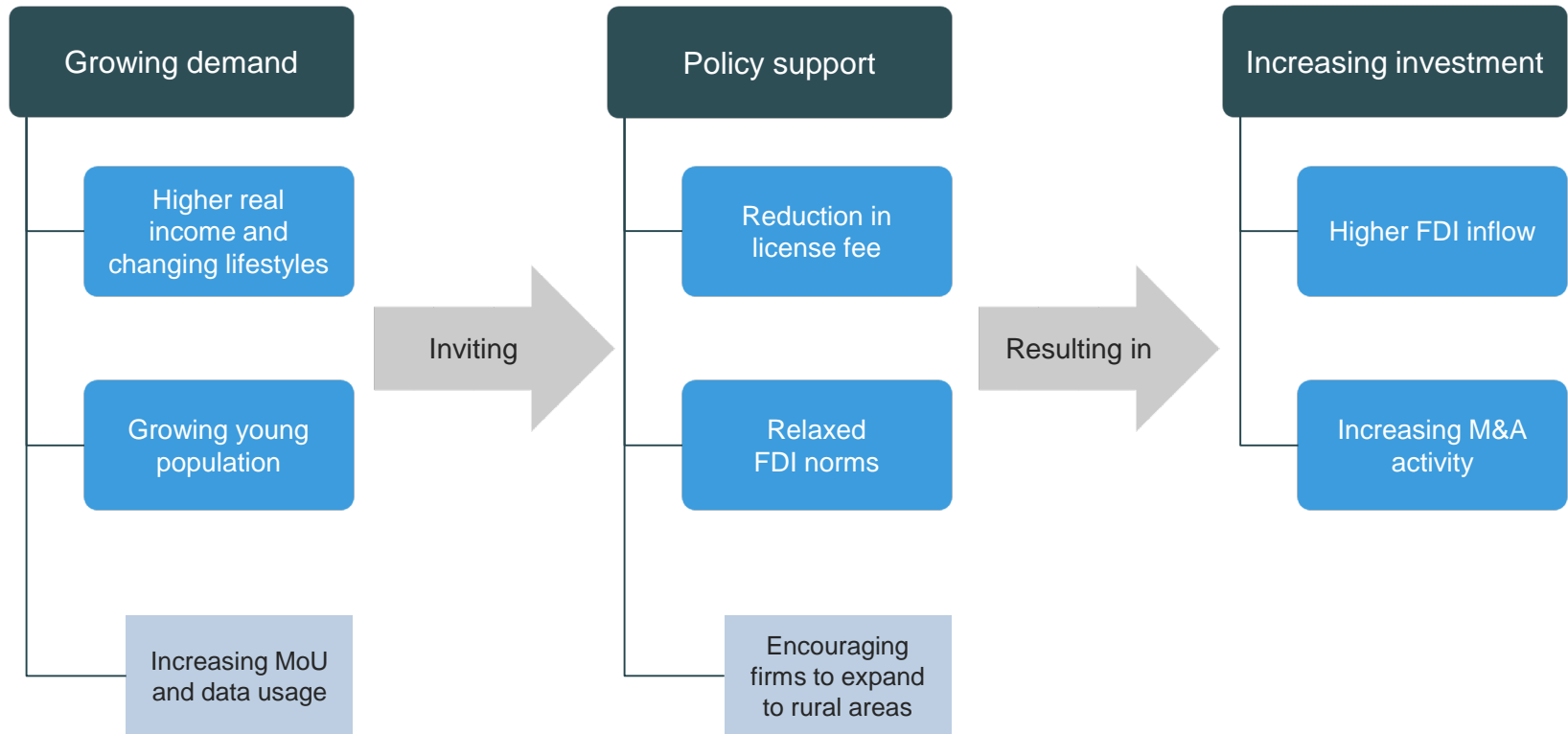
Company	Ownership	Presence	
 MTNL	Mahanagar Telephone Nigam Ltd (MTNL)	Government (56.3 per cent), Life Insurance Corporation (18.8 per cent)	Fixed-line and mobile telephony (in Delhi and Mumbai), data and Internet
 BSNL Connecting India	Bharat Sanchar Nigam Ltd (BSNL)	Government (100 per cent)	Fixed-line and mobile telephony (GSM – outside Delhi and Mumbai), data and Internet in 22 circles
 Air tel	Bharti Airtel	Bharti Group (45.48 per cent), Pastel Ltd (14.79 per cent), Indian Continent Investment (6.65 per cent),	Broadband and mobile (GSM) in 22 circles
  	Vodafone Idea Limited	Aditya Birla Group and Vodafone Group partnership	Broadband and mobile (GSM) in 22 circles
 Jio	Reliance Jio Infocomm	Reliance Industries Limited.	Broadband and mobile

Source: Companies' websites, Moneycontrol

GROWTH DRIVERS



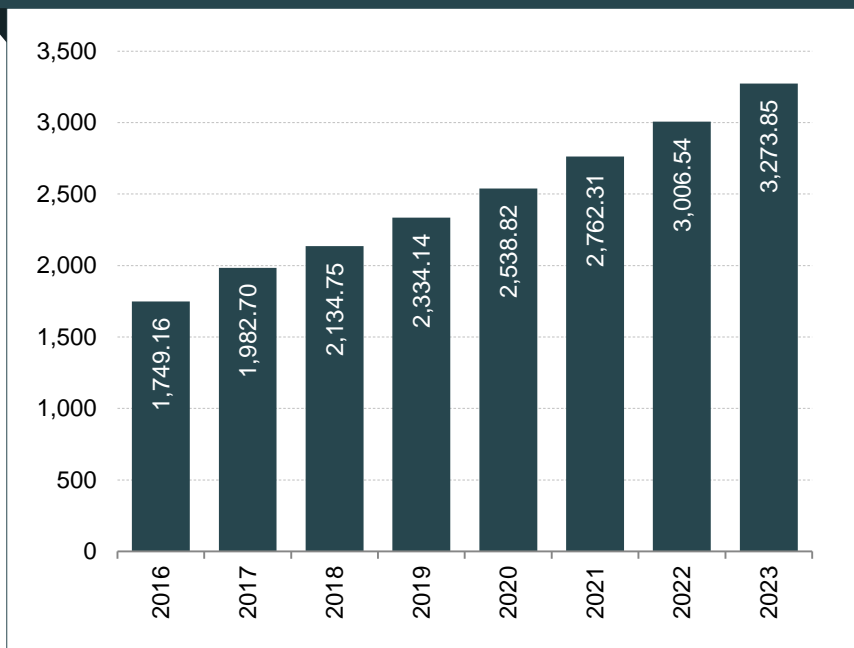
SECTOR BENEFITS FROM RISING INCOME, GROWING YOUNG POPULATION



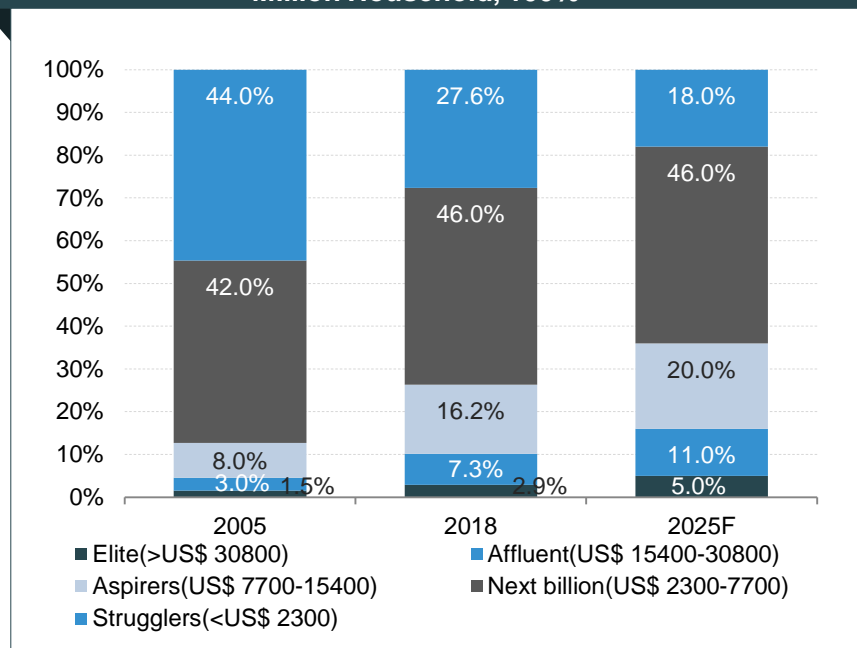
Note: FDI - Foreign Direct Investment, MOU - Minutes of Use per month and per subscriber, M&A - Mergers and Acquisitions

RISING INCOME AND GROWING RURAL MARKET FUELS DEMAND FOR TELECOM SERVICES

GDP per capita at current prices* (US\$)



**Indian residents shifting from low to high income groups (%)
Million Household, 100%^**



- 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 per cent 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)

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 per cent.
- The policy measures of TRAI have had a positive impact. Call-drops in the country decreased from 0.94 per cent in 2016 to 0.52 per cent in March 2018.

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 better and effective compliance with the quality of service regulations and to protect the interest of the customers.

Relaxed FDI norms

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

Skill development

- 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 "Project Sangam" to help the Government train and assist people get jobs via professional networking websites like LinkedIn, which was acquired by the company last year.

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

Source: TRAI

STRONG POLICY SUPPORT CRUCIAL TO THE SECTOR'S DEVELOPMENT ... (2/3)

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.

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.

Reduction in license fees

- In January 2015, the Government recommended reduction in license fees of telecom operators by 6 per cent. Telecom operators currently pay 8 per cent 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.

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.

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

Source: TRAI

STRONG POLICY SUPPORT CRUCIAL TO THE SECTOR'S DEVELOPMENT ... (3/3)

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

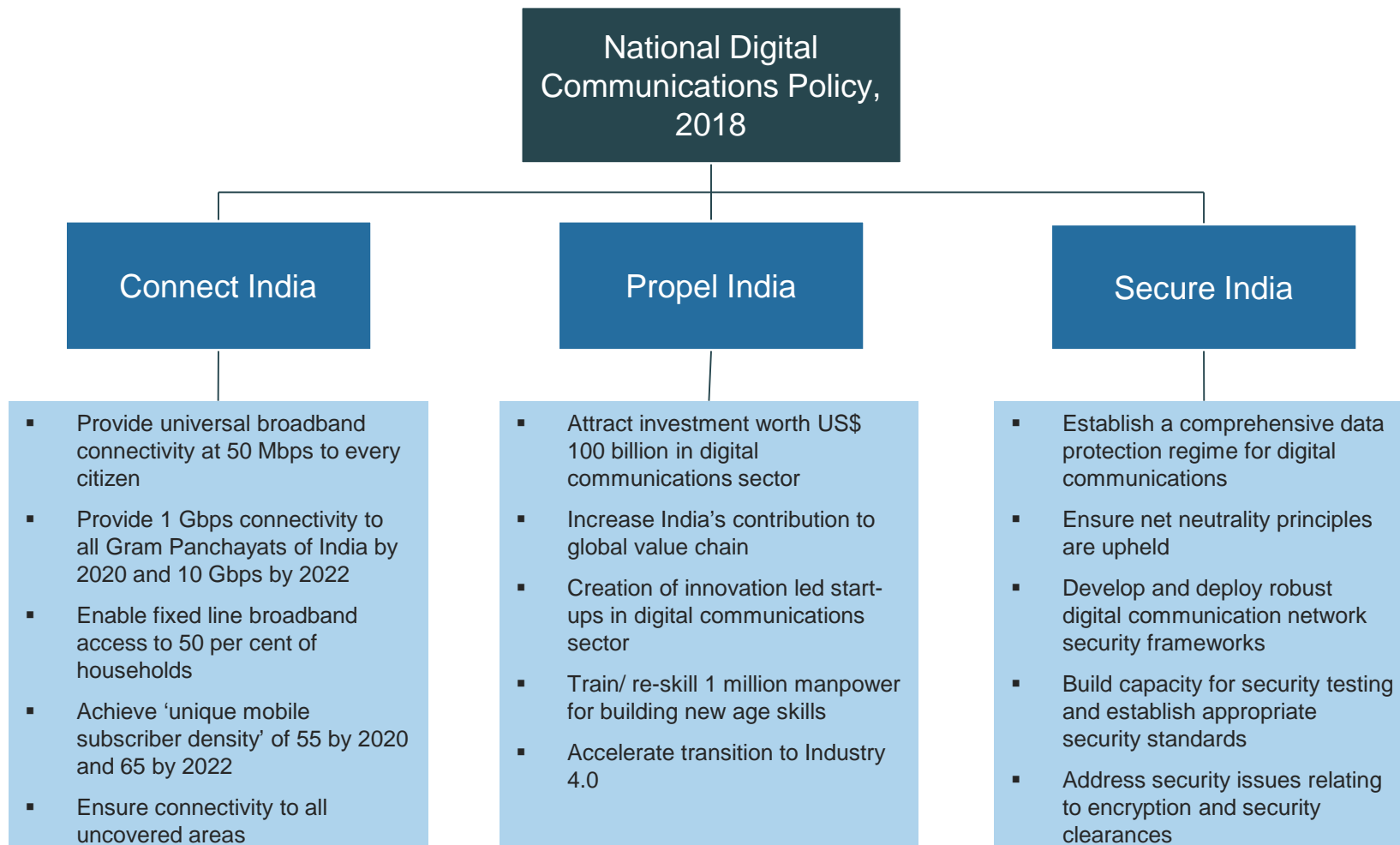
- In 2015, telecom authority issued this order mandating every DTH operator to specify the tariff for supply and installation of the customer premises equipment. DTH operator should specify the refundable security deposit, installation charges, monthly rental charge and activation.
- As of July 2019, India achieved 100 per cent 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



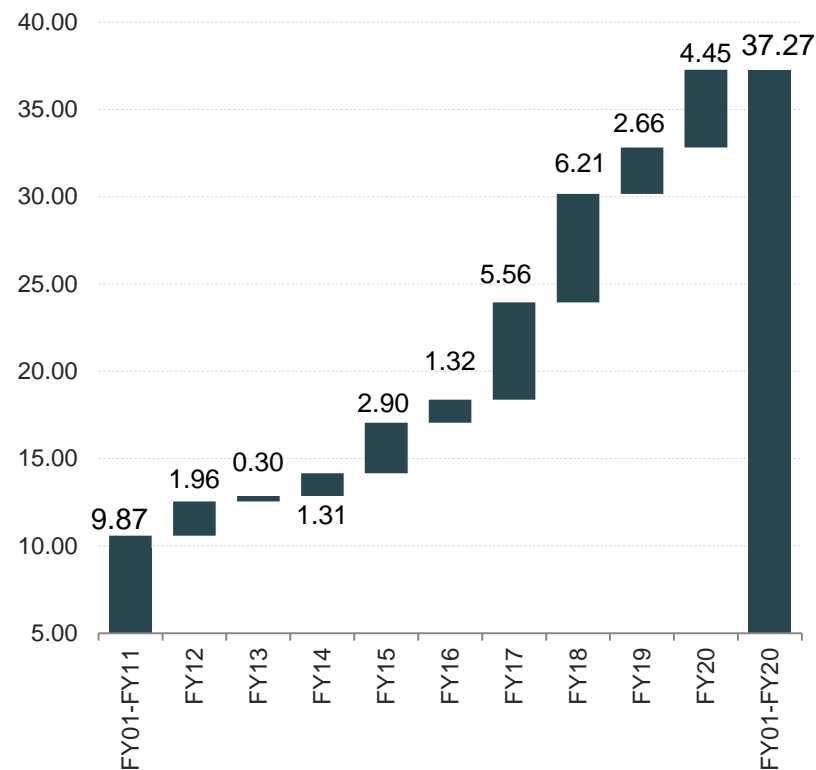
Note: Mbps – Mega bits per second, Gbps – Giga bits per second

Source: National Digital Communications Policy, 2018

FOREIGN INVESTMENT FLOWING IN ... (1/2)

- FDI inflow in telecom sector stood at US\$ 37.27 billion during April 2000-March 2020.
- During this period, FDI into the sector accounted for a share of nearly eight per cent of total FDI inflow into the country.
- In January 2020, Government of India allowed 100 per cent FDI in Bharti Airtel.
- In June 2020, Jio Platforms Ltd. sold 22.38 per cent stake worth Rs 1.04 trillion (US\$ 14.75 billion) to ten global investors in a span of eight weeks from separate deals involving Facebook, Silver Lake, Vista, General Atlantic, Mubadala, Abu Dhabi Investment Authority (ADIA), TPG Capital and L. Catterton. This is the largest continuous fundraise by any company in the world.

FDI inflow in telecommunication in April 2000-March 2020(US\$ billion)



Source: Department for Promotion of Industry and Internal Trade (DPIIT)

FOREIGN INVESTMENT FLOWING IN ... (2/2)

- Vodafone India and Idea Cellular merged into 'Vodafone Idea' to become India's largest telecom company as of September 2018.

Foreign investment in India

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

Notes: M&A - Merger and Acquisition, PE - Private Equity

Source: Thomson Banker, Deal Tracker, Grant Thornton

OPPORTUNITIES



OPPORTUNITIES ACROSS SEGMENTS IN THE INDUSTRY ... (1/2)

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 per cent users having 4G connection.^
- As of January 2019, Airtel becomes the first operator to launch high speed data service in Andaman and Nicobar Island.

Untapped rural markets

- By January 2020, rural tele-density reached 58.03 per cent, growing from 43.05 per cent as of March 2016.
- Rural wireless tele-density in the country increased to 57.76 per cent by January 2020 from 50.88 per cent in 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 673.39 million in January 2020.
- To encourage cash economy, Indian Government announced to provide free Wi-fi to more than 1,000 gram panchayats.

Note: ^Ericsson Mobility Report November 2018

Source: KPMG, TRAI

OPPORTUNITIES ACROSS SEGMENTS IN THE INDUSTRY ... (2/2)

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.

Growth in MVAS and cloud computing

- Indian Mobile Value-Added Services (MVAS) industry is expected to grow at a CAGR of 18.3 per cent during the forecast period of 2015–2020 and reach US\$ 23.8 billion by 2020.

Telecom equipment market

- Telecom equipment market is expected to reach US\$ 30 billion by 2020.

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.
- This has enabled non-smartphone users to go cashless.
- Value of Unified Payments Interface (UPI) transactions crossed 1 billion-mark and witnessed transaction value of Rs 2.06 lakh crore (US\$ 29.47 billion) in March 2020.

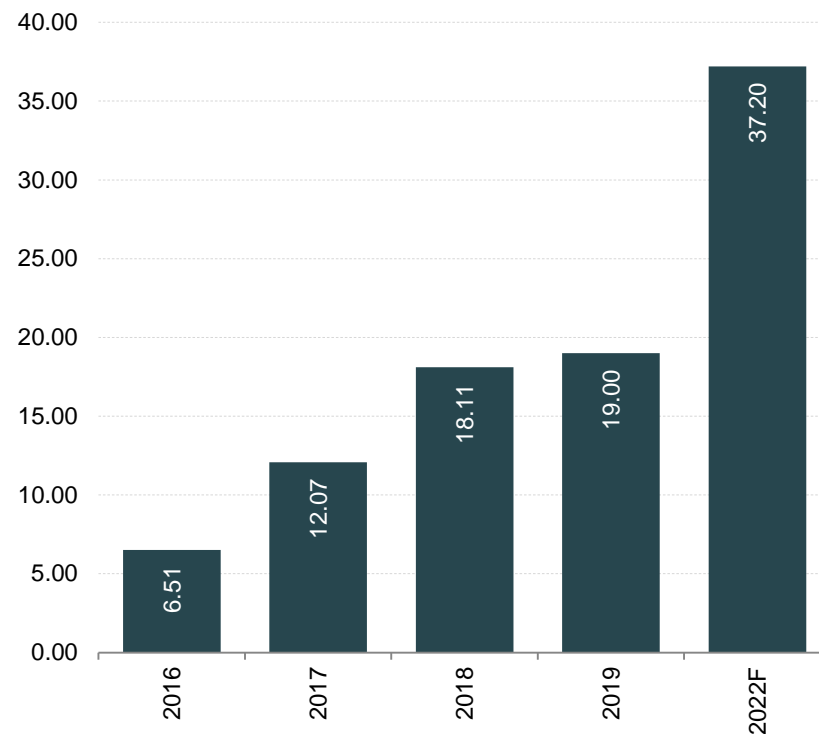
*Notes: VAS - Value-Added Services, NTP - National Telecom Policy, * - as per IDC, ^ - as per Electronics Industry Associations*

Source: Press Information Bureau, Government of India

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 per cent growth in app downloads in the past three years.
- Indian users spent around US\$ 370 million through app stores in 2019.
- Moreover, during Q12019, India became the world's fastest-growing market for mobile applications. The most downloaded app was TikTok, a short video creation app, that added 88.6 million new users in Q12019.
- 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.

App downloads^ in India (in billion)



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



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/>

Association of Competitive Telecom Operators (ACTO)

Address: 601, Nirmal Tower, 26, Barakhamba Road, Connaught Place, New Delhi – 110 001, India
Tel.: 91 11 43565353 / 43575353
Fax: 91 11 43515353
E-mail: info@acto.in
Website: www.acto.in

Internet and Mobile Association of India (IAMAI)

Address: F-36, Basement, East of Kailash, New Delhi – 110 065, India
Tel: 91 11 46570328
E-mail: kalyan@iamai.in
Website: www.iamai.in

Cellular Operators Association of India

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USEFUL INFORMATION



- 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
- INR: 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

Exchange Rates (Fiscal Year)

Year INR	INR Equivalent of one US\$
2004-05	44.95
2005-06	44.28
2006-07	45.29
2007-08	40.24
2008-09	45.91
2009-10	47.42
2010-11	45.58
2011-12	47.95
2012-13	54.45
2013-14	60.50
2014-15	61.15
2015-16	65.46
2016-17	67.09
2017-18	64.45
2018-19	69.89
2019-20	70.49

Exchange Rates (Calendar Year)

Year	INR Equivalent of one US\$
2005	44.11
2006	45.33
2007	41.29
2008	43.42
2009	48.35
2010	45.74
2011	46.67
2012	53.49
2013	58.63
2014	61.03
2015	64.15
2016	67.21
2017	65.12
2018	68.36
2019	69.89

Source: Reserve Bank of India, Average for the year

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