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Telecom Industry in India: Evolution, Current Challenges & Future Road Map

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Abstract: Telecom industry is growing at a rapid pace in India. Today, India's Telecom sector stands second in the world in terms of market share. Contribution of mobile phone industry as a part of gross domestic product (GDP) of the country in 2014 has been to the tune of US$ 400 billion. Based on the data available from GroupeSpeciale Mobile Association (GSMA), this sector will create close to 4 million additional jobs by 2020.

While Telecom sector is witnessing spectacular growth, it is also facing some major hurdles both in the area of government regulations as also consistent demand from customers to enhance customer service.

Keywords: Telecommunications, 3G, 4G, Broadband, Tele-density, Network

Introduction

Telecom sector in India is over 165 years old. Introduction of Telecommunications in India dates back to 1851 when the first landlines were made operational by the government at a place near Kolkata. Telephone services were formally introduced in India in 1881 and were subsequently merged with the postal system in 1883. Post-Independence, Posts, Telephone and Telegraph (PTT)body was formed by nationalization of all telecommunication companies and its governance was under the Ministry of Communication.

Indian telecom sector was government-owned until 1984, post which the private sector was allowed to manufacture telecommunication equipment only. The industry evolved only after the Department of Post and Telegraph was separated in 1985 and a new Department of Posts and the Department of Telecommunications (DoT) was formed.

Tele-density of Indian telecom industry (wireless plus wire line) has grown from a low of 3.60% in March 2001 to 84% in March 2016. The mobile subscriber base (GSM and CDMA combined) has grown from under 2 mn at the end of FY 1999–2000 to 1033.63 mn at the end of March 2016. This substantial leap, both in terms of number of consumers as well as revenues from telecom services has contributed significantly to the growth of Indian GDP and also provided much needed employment.

"India is so big. Maybe in 10 years, we can have a factory in every state."

—TerryGou
Founder and Chairman, Foxconn

Data Sources and Methodology

This paper throws light on the evolution of telecom sector in India. Key focus is on providing and understanding the growth and challenges of telecom sector. For this purpose, secondary data has been collected through journals, websites, govt. reports etc. In addition, following key points were considered as a part of research methodology—supply, demand, barriers to entry, bargaining power of suppliers and customers and competition.

Objective of this Research

1. To evaluate and understand current set of challenges faced by Telecom industry in India;
2. To propose a future road map to overcome these challenges;
3. To submit the findings as an outcome of this research;

Accordingly key telecom players who are the market leaders, encompassing top private and public sector companies were selected.

The methodology adopted for research was analysis of data available on public domain network including research articles and private and government publications.

Evolution

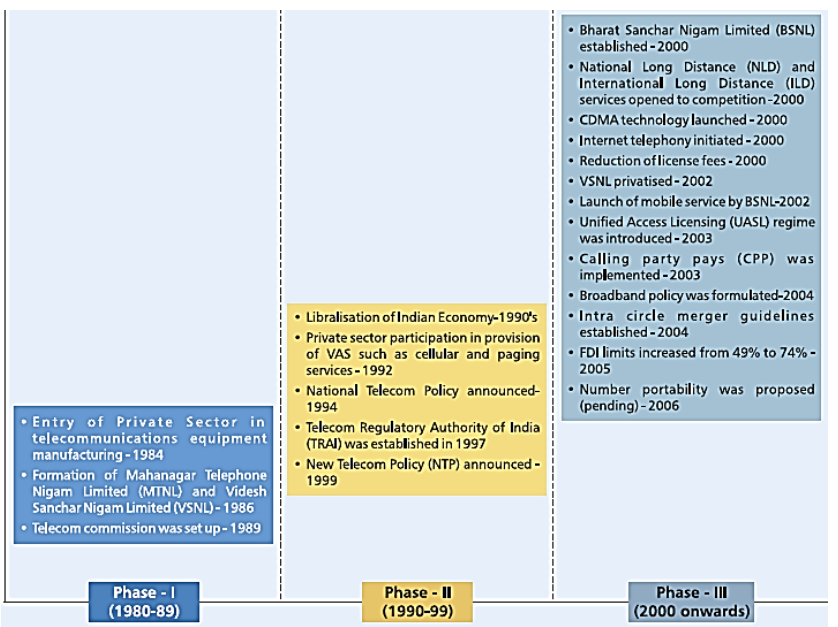

Fig. 1

Source: D&B Research

Until 1984, Telecom sector was owned by the government, subsequent to which private players entered the area of manufacturing. Although growth momentum in the first two phases was slow, divestment of VSNL in 2002 (phase III) saw entry of private players in the service provider domain.

Growth in the wireless sector (technology getting upgraded from 1G to 4G) has resulted in a significant boom in the data usability space, providing users with mobile broadband and fast speed data services.

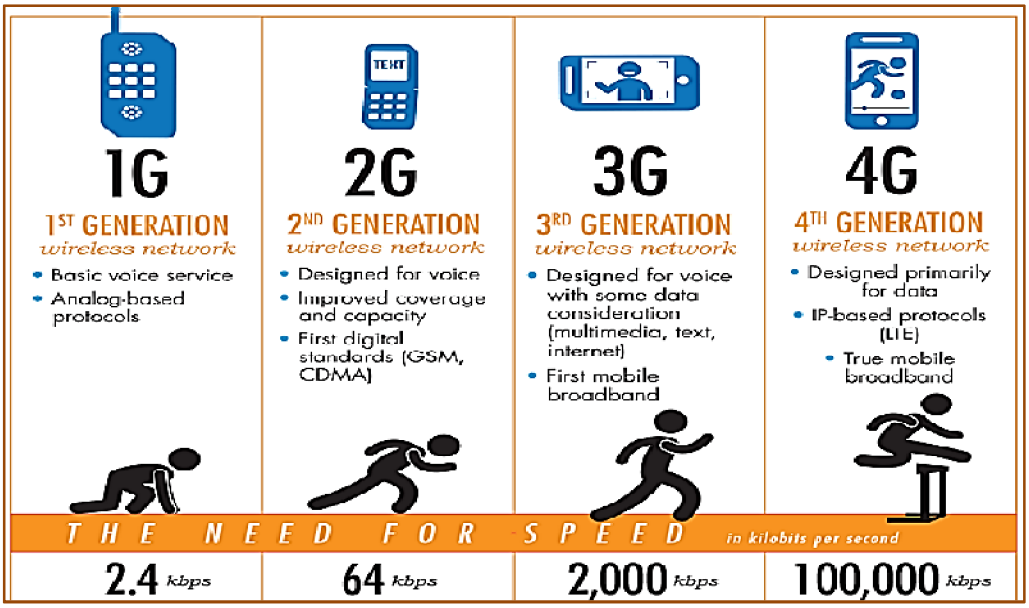

Fig. 2

Current Industry Structure

Rapidly growing telecom sector in India is being serviced both by players in private and public sector. Permission to private players has been given for all segments of the telecom industry, including ILD, NLD, basic cellular and internet. A diagrammatic representation of the structure of the telecom industry in terms of service providers is given below:

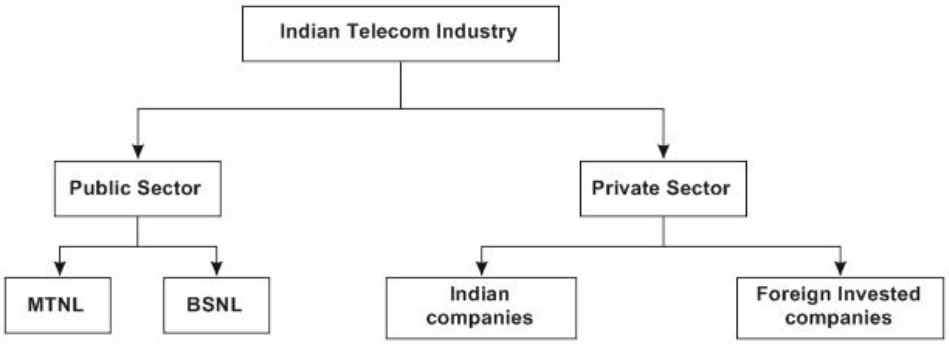

Fig. 3

Source: D&B Research

Indian Telecom Industry Framework

Current Indian Telecom industry framework has been bifurcated into:

1. Indian government bodies encompassing WPC, DoT, Telecom Commission and GoI Telecom & IT, and
2. Independent bodies constituting TRAI, TDSAT and AUSPI.

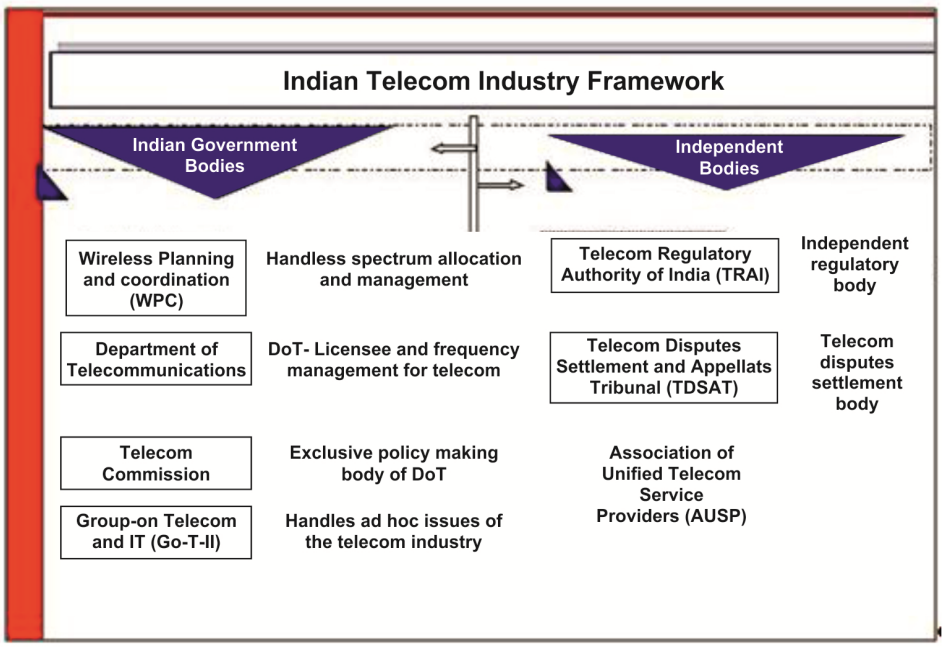

Fig. 4

Key Objectives

Indian Government Bodies (WPC, DoT, Telecom Commission and GoT Telecom & IT)

1. WPC (Wireless Planning and Coordination wing) is responsible for:
    - Spectrum Management pertaining to frequency.
    - Licensing of wireless stations.
    - Catering to the needs of all wireless users in India.
2. DoT (Department of Telecom)
    - Policyand coordination matters including licensing, relating to telegraphs, telephones, wireless, data and other forms of communication.
    - Framing of rules related to security of telecom networks and coordination with security agencies.
    - Spectrum management and spectrum allocation.
3. Telecom commission
    - Formulate policy.
    - Matters related to telegraphs, telephones, data services and forms of communication of similar nature.

Independent Bodies (TRAI, TDSAT)

1. TRAI
    - Prime objective of TRAI is to provide complete transparency in the policy environment which in turn will help provide unique opportunities to various telecom players.
    - TRAI provides recommendation on various policy matters and in addition also possesses regulatory and judicial powers.
2. TDSAT
    - TDSAT has been given exclusive powers to decide on any dispute between:
        - DoT (licensor) and licensee
        - Various service providers and
        - Multiple service providers and customers.

Key Telecom Players

- Players in the public sector: BSNL, MTNL
- Key players in the private sector: Reliance Telecom, Bharti (Airtel), Tata Telecom, Vodafone and Idea Cellular.

Key Companies in the Market

	Company	Ownership	Presence
MTNL	Mahanagar Telephone Nigam Ltd (MTNL)	Government (56.3 percent)	Fixed line and mobile telephony (in Delhi and Mumbai), data and internet
BSNL Connecting India	Bharat Sanchar Nigam Ltd (BSNL)	Government (100 Percent)	Fixed line and mobile telephony (GSM-outside Delhi and Mumbai), data and internet in 22 circles
Reliance Communications Anil Dhirubhai Ambani Group	Reliance Communications	ADAG Group (approximately 67.9 percent)	Mobile (CDMA and Broadband
Airtel	Bharti Airtel	Bharti Group (45.7) Pastel Ltd (15.57 percent), LIC India (4.3 percent)	Broadand and mobile (GSM) in 22 circles
vodafone	Vadafone Essar	Vodafone (74 percent), Telecom Investment India (19.5 percent)	Broadband and mobile (GSM) in 22 circles

Fig. 5

While BSNL and MTNL are key government players based on customer size and revenue generated, Reliance, Idea Cellular and Vodafone are the key players in the private sector, considering the subscriber base and revenue earned.

National Telecom Policy 2012

Union Cabinet on May 31, 2012 approved the National Telecom Policy, 2012. Policy vision was, 'to provide secure, reliable, affordable and high quality converged telecommunication services

anytime, anywhere for an accelerated inclusive socio-economic development.' Key components of the policy are:

1. Broadband telephony for rural areas
2. Standardize Telecommunication Equipment from R&D and Manufacturing stand point
3. Licensing and Value Added Services (VAS)
4. Managing spectrum
5. Service quality
6. Data and network security.

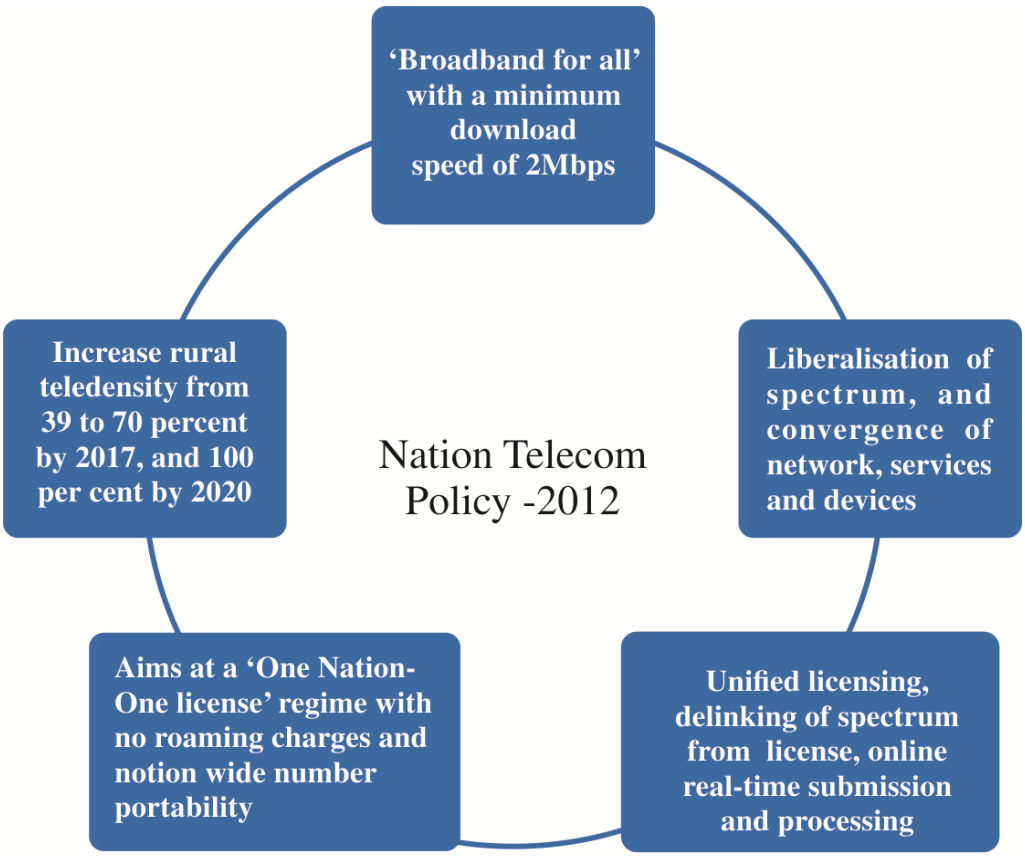

Fig. 6

FDI in Telecom

- Between April 2000 to January 2014, FDI inflow in telecom sector experienced an increase of 6% of the total foreign direct investments (FDI) amounting to US$ 59,796 million, as per report published by the Department of Industrial Policy and Promotion.
- During the period April 2014 to February 2016, FDI equity inflow in telecom sector increased to $4,091 million ($ 4.09 billion or approx. Rs 26,000 crores) which is more than double the amount in the corresponding period of previous two years, i.e. April 2012 to March 2014 ($1,611 million).

Substantial FDI inflows, emphasizes the importance of Telecom sector in the overall industrial growth in India and the need for further rationalization of existing Telecom policy.

Current Industry Status

Telecommunication sector has become an integral part of the Indian economy. While the industry is working under stringent regulations, latest government policies are providing this sector with good growth opportunities through reduced spectrum charges and flexible rate plans.

India stands second in terms of market size and third in terms of internet users in the world.

- India's telephone subscriber base has increased at the rate of 19.5% (CAGR), between FY 07–16
- Telephone subscriber base stood at 1,022.61 million in September 2015 and tele-density stood at 81% (refer table below)
- Revenue from mobile services market is likely to touch US$ 37 billion in 2017 which is a 5.2% (CAGR) growth during 2014–17, as per data provided by the research firm IDC. This is due to substantial increase in data consumption on handheld devices.

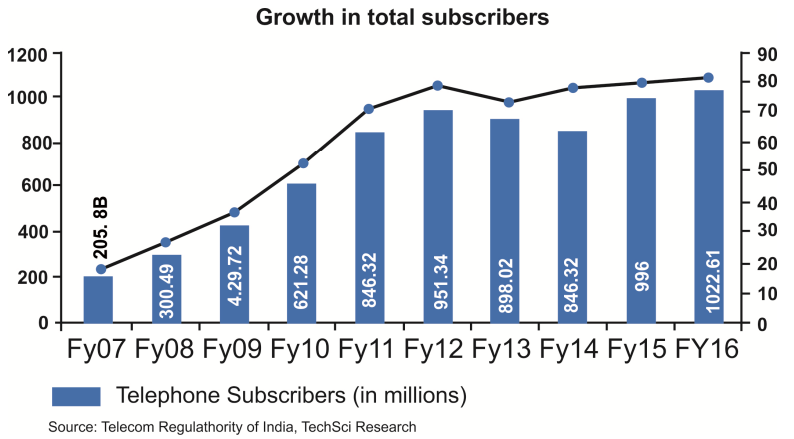

Fig. 7

With the growth in subscriber base, spectrum requirement increased. At Rs. 11,485 crore for 1 MHz, the 700MHz band was the most expensive on offer at the auction. At that price, it made a bidder liable to pay Rs. 57,425 Crore for 5MHz on a pan-India basis, and had the potential to fetch bids worth over Rs. 4 trillion.

Most analysts had expected telcos to avoid bidding for the band, given the steep price, the financial strain on the debt-ridden telecom industry and more intense competition following the entry of Reliance JioInfocomm Ltd.

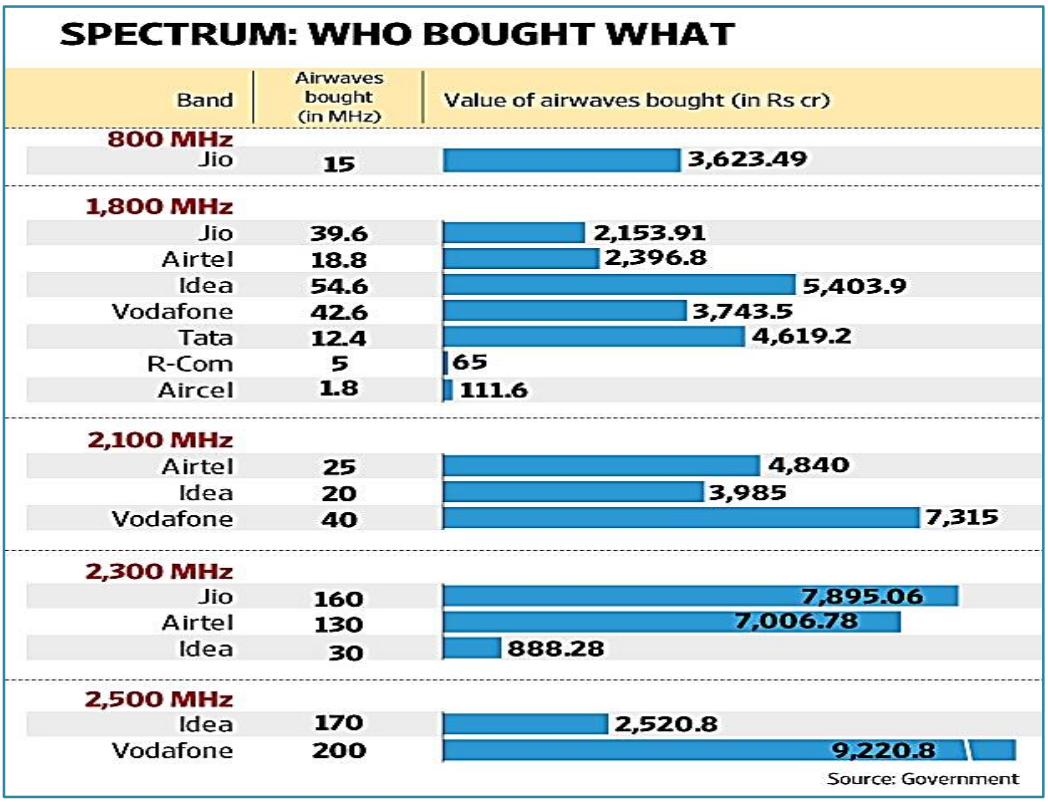

Fig. 8

Composition of Telephone Subscribers (FY 16)

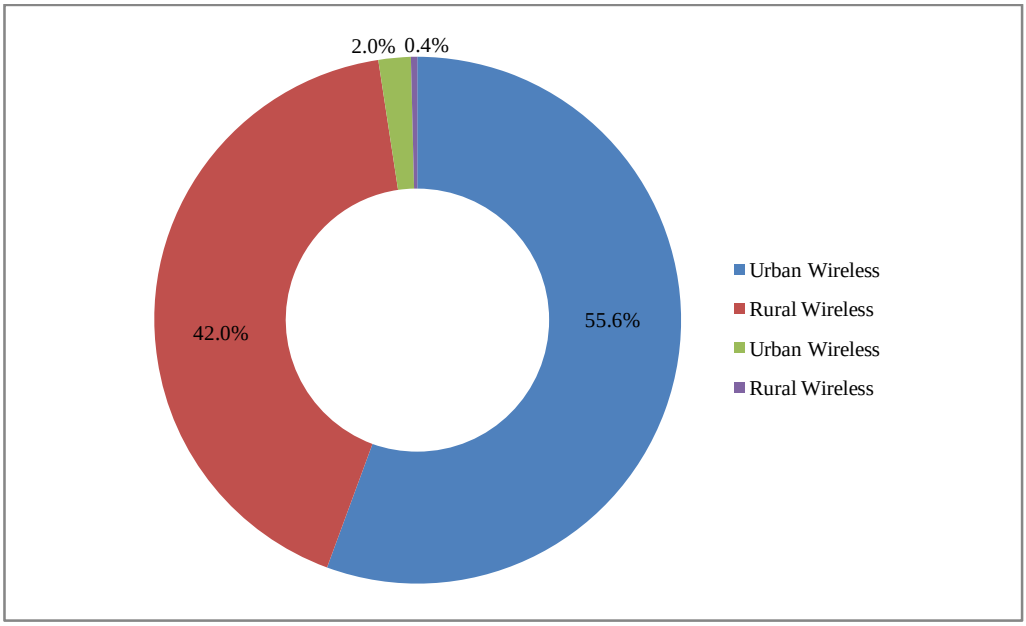

Fig. 9

Source: Telecom Regulatory Authority of India, Techsci Research

Current Challenges

Indian telecom industry has witnessed a sea change post-liberalisation. It has experienced substantial growth, primarily in the wireless segment in the last 5–7 years. New set of services ranging from voice and data services, Wi-max, VPN, bandwidth on demand to virtual private networks is transforming the way business is being conducted specifically in the service sector, i.e., IT, BPO and also the manufacturing sector. In the process, it has provided access to new technology to millions of people.

In order to make speedy progress, current set of challenges as listed below need to be addressed expeditiously:

- ***Substantial Investments in 4G Infrastructure***: Telecom operators have already incurred huge capex to roll out 4G infrastructure. Rolling out of 4G infrastructure is critical for higher Internet speed in India. It is estimated that 90% of the users in India will access the Internet through mobile by 2020.
- ***Lack of Telecom Infrastructure in Semi-rural and Rural areas***: Service providers have to incur huge initial fixed cost to enter semi-rural and rural areas. Key reasons behind these costs are lack of basic infrastructure like power and roads, resulting in delays in

rolling out the infrastructure. Lack of trained personnel to operate and maintain the cellular infrastructure is another challenge.

- ***Pressure on Margins Due to Stiff Competition***: With competition heating up post entry of Reliance Jio, other telecom players are feeling the heat of substantial drop in tariff rates both for voice and data (more significant for data subscribers). TRAI needs to fix a base price and help create a level playing ground for all players.
- ***Rapidly Falling ARPU (Average Revenue Per User)***: The heady days of rising ARPU (average revenue per user) are long over. But the ARPU decline now is sharp and steady, which, combined with falling profits and in some cases serious losses, is prompting the Indian telecom industry to look at consolidation as the only way to boost revenues.
- ***Delays in Roll Out of Innovative Products and Services***: Substantial delays in roll out of data based products and services are hampering the progress of telecom sectors. This is primarily due to the non-conducive environment resulting out of government policies and regulations.
- ***Limited Spectrum Availability***: Available spectrum is less than 40% as compared to European nations and 50% as compared to China. Hence, it is imperative that spectrum auctioning at sustainable prices is the need of the hour.
- ***Low Broad Band Penetration***: Low broadband penetration in the country is a matter of concern and the government needs to do a lot more work in the field to go up in the global ladder. As per white paper presented on broadband at the last ITU (International Telecommunication Union), broadband penetration in India is only 7%.

Opportunities

Companies should explore the potential business opportunities in the sector as mentioned below:

- ***Boost to Telecom Manufacturing Companies***: In line with the 'Make in India' theme, exemption from basic customs duty, countervailing duty and special additional duty has been withdrawn on chargers, adapters, battery, wired headsets and speakers for mobile phones. This will help the local manufacturers by making imports costlier. Correspondingly, to encourage local manufacturing, import duties on inputs that contribute into making of such parts and components have been removed.
- ***Continuous Enhancements to the Mobile Value Added Services (MVAS)***: To begin with VAS should cover utility services and opportunities are available in this area, specifically encompassing m-commerce, m-health, m-education, m-governance etc. Government has initiated the National e-Governance Plan, wherein many of the government services will be available to citizens online.

- ***Expeditious Roll-out of 4G Services***: While Airtel had already completed roll-out of 4G services across 296 towns, Vodafone having completed roll out of its 4G services on a pan-India basis and Reliance Jio also entering the fray, has boosted the customer utilisation of high-end data products.
- ***Infrastructure Sharing***: Since telecom business is heavy on capex and as much as 40%–60% of the Capex is utilized for setting up and managing the Telecom infrastructure. With ARPU and revenue per tower declining over time, sharing of tower and other infrastructure is imminent. By sharing infrastructure, operators can optimize their capex, and focus on providing new and innovative services to their subscribers. In the long run, this is what will differentiate them from the competition.
- ***Availability of Affordable Smart Phones and Lower Tariff Rates***: With new players both domestic and international entering the Indian handset manufacturing market, cost of smart phones is dropping gradually. To add to this Reliance Jio has dramatically reduced the voice and data tariff rates as a result of which other players too are lowering tariff rates. Marked increase in Telecom subscriber base (expected to touch 5bn by 2020)

As per figures published by TRAI, India's telecom subscriber base, mobile and landline combined, touched the 1.18 billion mark at the end of February 2017. The market growth was propelled by the addition of 13.75 million mobile users during the month. The demand for once-popular landline phone has been dwindling as the cheap mobile handsets, coupled with falling tariffs and freebies, have led to an explosion in cell-phone connectivity.

- ***Rural Telephony–Connecting the Real India***: As per the data shared by the Telecom Minister Ravi Shankar Prasad, close to 55,669 villages in India are devoid of telephony services. The objective, under the National Telecom Policy, includes improving the rural teledensity to 70% by 2017 (stood at 42.4% in 2016), while 100 per cent penetration is aimed for 2020.

Issues	Opportunity
• Falling ARPU	• Rural Telephony
• Lack of Infrastructure	• 3G Services
• Rural Areas-Underpenetrated	• WiMAX
• Excessive Competition	• Value Added Service (VAS)
• Price War	• Infrastructure Sharing
• Spectrum Allocation	• Managed Service
• Lower Broadband Penetration	

Fig. 10

Source: D&B Research

Observations

Considering the immense potential for growth in terms of revenue and employment generation and enhanced customer experience through consistent improvement in technology, telecom players need to work aggressively on potential key areas of growth which are shared below as a set of observations:

- ***Growth in Embedded Devices***: Usage of embedded devices requiring mobile connectivity is growing exponentially. This will provide telecommunication companies chance to increase revenue.
- ***Quality of Service***: Service providers need to maintain their focus on providing high quality data and voice services that are reliable and affordable.
- ***IoT Expansion***: With expansion of IoT (Internet of things) and more streaming of content, data consumption will continue to grow.
- ***MVAS & Cloud Computing***: MVAS market in India is estimated to be worth USD$ 13.34 billion in 2015 as per IAMAI (Internet and Mobile Association of India) while that for cloud computing is estimated to be worth USD$ 1.08 billion as per research firm Zinnov.

Findings

It is evident that Telecom sector holds immense opportunities across entire India and below listed findings will help the industry take the speedy path towards growth:

- Penetration of rural markets (72% of population staying in rural areas) will be the key growth driver.
- National Telecommunication Policy 2012 proposes unified licensing, full MNP (Mobile number portability) and free roaming.
- Outsourcing non-core functions such as network maintenance, IT operations and customer service.
- Divestment of tower assets into separate companies will enable curb costs and focus on core operations.
- Introduce new and efficient technologies such as M2M and cloud computing.
- Benefits of industry status in line with other infrastructure sectors in the country to be implemented.
- Explore the option of revenue sharing agreement between Internet players and telecommunication companies.

- Rationalise taxes and levies in the sector.
- Reduction in license fees.
- Make more spectrum available for data usage. This can be achieved through enhancement in spectrum limit from 6.28MHz to 2x8MHz (paired spectrum), specific to GSM technology. This will be applicable to all areas excluding Delhi and Mumbai where it will be 2x10MHz (paired spectrum).
- Development of Telecommunication infrastructure.

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