

RESEARCH PAPER ON TELECOM SECTOR

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Introduction to the Indian Telecom Sector

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- ← As per the last few decades, the Indian Telecom Sector has emerged as one of the critical components of economic growth required for overall socio-economic development of the country as there is a positive correlation between the penetration of mobile services and internet on the growth of GDP of a country.
- ← Also, the World Bank believes that an increase in mobile and broadband penetration increases the per capita GDP by 0.81% and 1.38% respectively in the developing countries and developed countries. India being one of the developing countries saw exponential growth in telecom industries post liberalization, which helped the country for its economic development.

According to the EY (2011) Report

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- ▶ Indian telecom is an economic miracle in the making. They said that connecting such a vibrant economy of more than a billion people together and with the rest of the globe is an extraordinary achievement in terms of a nation's socio-economic development.



Industry after Jio

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- ▶ In September 2016, **JIO** launched its 4G services offering free data and voice services till 31 December, which was later extended till 31 March 2017. The share of customers using 3G and 4G services rose to 52% of the total subscriber base, up from 14% three years ago. **Jio** is now planning to become vendor neutral, disaggregate between hardware and software functions.

Effect on other companies

With the entry of JIO in the market, data volumes were sky-rocketing and this was aided by a sharp cut in tariffs and the result was net customer spend dropped by 41%. It forced competitors to lower their prices and drove category consolidation. This disrupted the whole telecom industry in India. Telecom companies are in losses because of the high operational and spectrum costs and low tariff worldwide costs, tough market competition, Low switching costs and mobile number portability. Also, the quick transition of technology from 2G to 3G now to 4G has led to reinvestment in new towers which resulted in high Capex cost.

Airtel being one of the competitor of Jio launched few similar packs at a reduced price and now India's telecom industry may be quickly moving towards a duopoly. Losses in the September quarter 2018 have cast a shadow on the operations of **Vodafone Idea**, India's third-biggest telecom firm.

Effect on other companies

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However, this did not stop the companies to offer courtesies like :BSNL- Free Roaming, TATA Docomo- Per Sec Charging, Airtel- Low-rate data pack and Reliance JIO- Everything free.

All this had made **customers** the absolute winners, due to their high bargaining power in the market. They are now enjoying the low tariffs rate be it for calling, data consumption or messaging.

Spectrum Allocation

- ▶ At the point when the cell phone was first propelled around two decades prior, very few imagined that such a massive and costly gadget would proceed to get one of the world's most irreplaceable methods of correspondence. In earlier point in time of life two technologies based on the different parts of the spectrum were used i.e. GSM and CDMA. This was not all, DOT (Department of Telecommunication) started auctioning for the spectrum for 2G and 3G servers in the range of 1959 – 1979 MHZ. Telecom Industries made a move towards S band and V band simultaneously. Later in time, DOT led auctions happen all over the country and for that, the country was divided into 23 circles which led to the permissions for 2 operators per circle. Government in the other end thought that Auction was not appropriate for allocating the spectrum and profound that they end up giving the allocations in much lower prices. Simultaneously the world has drifted towards 5G with Reliance Jio sweeping ahead to lead the industry to a Monopoly.

Telecom Regulatory Authority of India

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- ▶ **TRAI(Telecom Regulatory Authority of India)** has decided not to divide the spectrum to an Individual and would follow a holistic pattern of Allocating spectrum to the companies that are struggling to keep their head up above the water. Enabling 5G would require a massive makeover in infrastructure and need to set up a universal standard for seamless integration. Mitigation of high costs is also a question mark for the allocation. No to back door agreements with the telecom companies and government would be appreciated for the empowerment towards new revolution. Future Technology should be indigenized and spectrum allocation should be done on a way for the bright shine of knowledge to curb the way to futuristic world of 5G.



Network Slicing

- ▶ 5G networks, in combination with Network Slicing, permit business customers to enjoy connectivity and data processing tailored to their specific business requirements. Mobile communications provided by smart networks will enhance the efficiency and productivity of business processes and create more opportunities for operators to address Business to Business segments. When populated with values for all or a subset of the attributes, the generic slice descriptor can serve many purposes:

Infrastructure vendors can use the descriptor to define the service features of their slice.

Operators can exchange slice descriptors with their roaming partners facilitating the support of service continuity when moving between networks.

The slice buyer can use the descriptor as a reference for SLA/contractual agreements with the operator.

The generic slice template will also serve as the baseline for defining a set of standardized service/slice types.

Network Slicing

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- ▶ It is anticipated that through Network Slicing, mobile network operators will create a win-win situation where the network is used more efficiently and customers obtain the performance, functionality and operational control they require to serve their use cases. It is estimated that the use of 5G mobile technology in industry sectors that could not be addressed by 4G will be unlocked by 2025, with a targetable revenue opportunity in the region of \$300bn globally.

Global Telecommunicati on Market

- ▶ It is valued at US\$ 2.4 Tn in 2019 and is expected to reach US\$ X.04 Tn by 2026. Value added service (VAS) are widely used by Chinese key players to boost their revenue, cost control and upgrade network to rank highly in current industry. The cellular global mobile connection was about 7.7 billion by mid-2018, where the GSM/EDGE family including EGPRS for data connectivity is the dominant Radio Access Network (RAN) in use. The number of 3G subscribers has risen since 2018 by 1.1 billion subscribers. HSPA subscriptions will peak by 2020 and will decrease past that point. The dominant 4G standard, LTE, is expected to reach 4.1 billion subscriptions by 2021.

Global Telecommunication Market

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- ▶ North America has lucrative growth during forecast period, considering advancement and top key players based in US and Canada are investing in huge infrastructure to take over communication market. On other side, Europe and Middle East, has turned negative for the first time in three years, due to part to leverage pressure from M&A. However, recently EE rolled out the UK's first 5G network, covering areas of London, Edinburgh, Belfast, etc., just beating its rival network Vodafone.
- ▶ Furthermore, Asia Pacific have stable growth opportunities because steady regional GDP growth and growing mobile data usage will support their overall credit quality. Asia Pacific is also leading telecommunication market taken by China and India at most, owing to number of end-user in this regions. For example, China Mobile Ltd (CHL), the leading provider in telecommunication in China, with more than 925 Mn customers at the start of 2019 is one of the top telecom company in the world. Verizon Communications, Inc., (VZ) is largest telecommunication company in United States.

Developments that happened at a Global Level

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Global IP traffic is forecast to grow to nearly 400 exabytes per month by 2022.

The telecoms operators spend billions on telecoms investments and with 5G now on the radar, CAPEX is also expected to grow slightly in the next few years.

The penetration rates of mobile broadband paints an interesting picture when comparing the developed markets to the emerging markets.

The satellite sector has grown significantly in recent years.

Over the next few years there is a slight growth predicted for overall global operators revenue

The Impact of AGR on Telecom Industries

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- ▶ The Department of Telecommunications is to be paid 8% Spectrum usage charges and License fees by Telecom Companies. These dues are termed as Adjusted Gross Revenue as in AGR.

For example: Airtel's sim card is used for calling and messaging. But, the same sim card is used to call a Jio operator. Airtel will charge something called Interconnect Usage charge-IUC. Airtel, cannot keep these charges though, as they'll have to transfer it to JIO. So, IUC is subtracted from Total Gross Revenue that ought to be paid to the government. This is AGR.

The Impact of AGR on Telecom Industries

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- ▶ There was a dispute between TELCOS and the government for the payment of AGR which dates back to 2007-2008. The companies which have been in the game for a longer time such as Airtel, Vodafone-Idea are facing bigger concerns with respect to paying the dues as opposed to a newer entry such as JIO. The dispute faced by both parties is: The DOT expected the TELCOS to pay revenue to the government from what it earned from its Telecom/Core services and Non-Telecom operations which include dividends, interest income or profit on sale of any fixed assets or investments, whereas TELCOS argued that revenue only from Core services ought to be considered. This has been a decade old battle that the Debt- Laden industry has had to face.

The Impact of AGR on Telecom Industries

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- ▶ Companies aren't paying their respective amounts as its huge. In October of 2019, Airtel owed the government 35,586 crores and Vodafone owed 53,039 crores, whereas JIO had to pay 194.7crores. They were given a deadline to pay off their dues by January of 2020 as per the orders by the supreme court. JIO was the only company that paid its dues as the amount was less and as it has been a newer company in the market. But the other Telecom operators have been filing for some concession. But they weren't allowed any as it could become a contempt of court. Deadlines for payment were set in January which was later pushed to March. Only partial payments have been made until now. On the 20th of July, the Supreme court by the petition of the DOT has allowed the companies to make their payments over a period of 20 years. This decision by the SC must have relieved the operators as it has prevented them to go into bankruptcy, loss of jobs. It has also prevented the market to become a monopoly or a one man's show which may or may not have benefited the common man.

The Risks that
Telecom Industry
India has been
facing so far

Lack of fixed line penetration

- ▶ India has very little penetration of fixed line in its network, whereas most of the developed countries have a very high penetration of fixed lines (telephone line that travel through a metal wire or optical fiber as part of a nationwide telephone network). So the downloading speed in India is 512 kbps compared to other nations who have touched the speed of 100 Mbps
- ▶ Private Service Providers when entered the sector, started deploying a network using cellular technology that has a limitation in terms of download speeds.
- ▶ Only around 25% of Towers in India are connected with fiber networks, whereas in developed nations, it is in excess of 70%.
- ▶ 5G Network requires towers to be connected to with very high-speed systems. Those high speeds are not possible on the present radio systems. But are possible on fiber system.

High Right-of-Way (ROW) cost

- ▶ The state governments charge a huge amount for permitting the laying of fibre etc. (A right of way is a type of easement that allows a person to pass through another's land)

Initiatives by Government

- ▶ In 2017, Department of Telecom (DoT) came up with a gazette notification, advising the state governments to give quicker ROW permission and charge very little amount to service providers. Though, only some states responded, leaving this to be one of the pressing issues.

Current System of Tariffs

- ▶ A telecommunications tariff is an open contract between a telecommunications service provider and the public, filed with a regulating body such as state and municipal Public Utilities Commissions and federal entities such as the Federal Communications Commission (FCC). Such tariffs outline the terms and conditions of providing telecommunications service to the public including rates, fees, and charges.
- ▶ And major telecom Operators are reporting losses and financial stress due to current system of tariffs. The Indian Telecom market is dominated by 3 Operators – Reliance JIO, Airtel, and Vodafone Idea. These three Telecom operators own 89.6% of the total subscriber market share as of March 2020. The Government-owned BSNL is the only other player present in the market with a significant 10.1% share. One operator, even has recently announced bankruptcy . This shows that the current tariff system is not financially viable for telecoms

Ineffective digital growth

- ▶ According to 'Digital Transformation for 2020 and Beyond' a global telecommunication survey conducted by EY, digital business models and services remain at the top of the strategic priorities list for telecom industry leaders. However, generating growth from these services remains a growing concern that is still unaddressed to date. Most of the early players are operating on adjacent markets such as financial services, thus remaining small-scale, yielding ambiguous results.

Security Breaches

- ▶ The consumers concerns about the use of their online data are continuing to increase. With digital trust now a white-hot issue for consumers and enterprises, data protection has become the top priority. According to a 2018 report by Efficient IP, a network security and automation company, the sector is one of the worst at tackling cyber threats. In 2018, 43% of telecom organizations were victimized by DNS-based malware and 81% took three days or more to apply a critical security patch.

Failure to prioritize workforce planning

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- ▶ While operators recognize that a shortage of digital skills presents challenges in their organizations, the talent agenda is still starved of airtime as a strategic priority.

Failure to adapt to changing regulatory frameworks

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- ▶ Telecoms is increasingly finding itself at the heart of governments' industrial policies, creating new demands on operators. It's vital for them to map out, balance and navigate this changing landscape of national and international regulation and policy

Insufficient engagement with industry verticals and public sector

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- ▶ Governments worldwide now see fibre and 5G as instrumental in driving the move to a digital society. And telecoms is increasingly viewed as an enabler of digital transformation among private sector enterprises across many vertical industries. These factors point to a need for the companies to engage proactively with both the public sector and different industries — but to date the level of engagement has remained limited

Future of Telecom Industry

- ▶ The Revenue from the telecom equipment sector is expected to grow to US\$ 26.38 billion by 2021. The number of internet subscribers in the country is expected to double by 2021 to 829 million and overall IP traffic is expected to grow four-fold at a compound annual growth rate of 30 per cent by 2021. The trends which support the growth are as follows :

Future of Telecom Industry

- ▶ **Internet of Things (IoT):** Telecoms use the Internet of Things (IoT) to deliver a collection of products and services that bring additional value to their existing networks. Example- Sensors attached to the towers help us to note the speed and frequency and convert them into virtual data which then is used by the company to evaluate the changes.
- ▶ **Artificial Intelligence (AI):** Every telecom uses artificial intelligence to improve its customer service primarily by using virtual assistants and chatbots. AI can help telecoms identify and react to problems as well as propose the right service at the moment based on analyzing customer data. Example- Chatbot used to handle online queries of customers. Vodafone saw a 68 percent improvement in customer satisfaction after introducing its chatbot TOBI.
- ▶ **Cloud Billing Platform and cloud computing:** Cloud Computing providers allow telecom companies to focus on important business elements without having to concentrate resources on IT, server updates, and maintenance issues. Example- Platform-as-a-service (PaaS) is a type of cloud computing offering in which a service provider delivers a platform to clients, enabling them to develop, run, and manage business applications without the need to build and maintain the infrastructure such software development processes typically require.

Risk Controls that must be taken

- ▶ Government should enforce:

Stricter guidelines for Quality and Availability of service. So, that the Data access is uninterrupted.

Strong consequences framework for any breaches, making telecom company and Over-the-top(OTT) app provider's accountable for such breaches.

- ▶ Skill development programme's must be initiated by the government. Through new Education Policy which talks about Skill Development, more vocational courses on Digital enforcement must be enforced.
- ▶ Telecom Company should start looking beyond prepaid and post-paid subscribers and see enterprise as a very critical vertical for future growth including communications between "Machine to Human", "Human to Human" & "Human to Machine".