



Challenges Faced By Telecom Sector in India

Dr. Amulya M.

Associate Professor, BIMS, University of Mysore, University Of Mysore, Mysore

Corresponding Author – Dr. Amulya M.

Email: amulya@bims.uni-mysore.ac.in

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Abstract:

The growth of India's telecom sector has been a remarkable journey that has transformed the country's communication landscape over the past few decades. The industry has evolved from a nascent and limited infrastructure to one of the largest and fastest-growing telecom markets in the world. Over the past few decades, it has undergone significant transformations, leading to widespread connectivity and economic growth. This sector plays a crucial role in connecting people, businesses, and government services across the vast and diverse landscape of India.

The increasing availability of affordable smartphones and data plans has fuelled a massive surge in internet usage across the country. This led to the proliferation of various internet-based services, such as e-commerce, digital payments, online entertainment, and social media, contributing to economic growth and digital inclusion. India's telecom industry continues to evolve, with ongoing advancements in technology such as 5G on the horizon. The rollout of 5G is expected to offer faster connectivity, improved reliability, and support for emerging technologies like the Internet of Things (IoT) and smart cities.

Keywords: Telecom, sector, 5G, India, Internet, Technology

Introduction:

According to the Indian Brand Equity Foundation (IBEF) - Currently, India is the world's second-largest telecommunications market with a subscriber base of 1.19 billion in December 2023 and has registered strong growth in the last decade and has registered strong growth in the last decade.

The telecom sector comprises of 3 divisions, namely – Mobile (wireless), Fixed-line (wireline) and Internet Services.

1. Mobile (wireless) comprises of establishments operating and maintaining, switching and transmission facilities to provide direct communication via airwaves
2. 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
3. Internet Services include Internet Service Providers (ISPs) that offer broadband internet connections through consumer and corporate channels

Overtime, all the 3 divisions have grown with an increasing subscriber base with the demand for internet services. A few statistics from the IBEF report which was sourced from TRAI include –

1. In India, the total subscriber base stood at 1.19 billion in December 2023
2. Tele-density stood at 85.2% in December 2023

3. The total number of internet subscribers reached 881.25 million in December 2023

This not only applies for the urban areas but can be seen in the rural areas as well.

Major Companies in the Telecom Sector based on market share –

Based on the data available for the December 2023, the following are the leading companies in the telecom sector:

1. Reliance Jio
2. Bharti Airtel
3. Vodafone Idea
4. BSNL
5. MTNL

Objectives of the study:

1. To analyse the Market of telecom companies in India.
2. To analyse the factors affecting the growth telecom sector in India.

Literature Review:

Rahul Venkatram, Xue Zhu, Dr. Shogo Mlozi 2012, An analysis of Factors Influencing the Telecommunication Industry Growth, The study examines The Telecommunications industry today is a key enabler of productivity across economies and societies. The Telecom industry is not only a significant contributor towards the economic activities of countries, but also towards the growth of other industries. In recent times, developing nations have witnessed significant transformation within this sector due to the impact it has had on their economies. The aim of this study is to research

the most influencing factors affecting the Telecommunication industry growth, by analyzing data for Indian Telecom industries. Some of the findings such as the contribution of Government policies and regulations to the revenue generated by Indian telecom companies were not only interesting observations but also thought provoking. **Aakash Agarwal¹, Kritika Sharma¹ and Vignesh Ramanan¹ 2021** Assessment of Telecom Industry in India – From 2007 to 2020, the study aims to analyze the past decade's events to understand the reasons behind the indebtedness of telecom operators and stress in the industry. The study showed that the government regulations facilitated high levels of competition, with over 16 operators in the industry at its height, which put pressure on the pricing power and profitability of the operators. . The government regulations permitted several operators to enter the market, set high reserve prices at spectrum auctions, and heavily taxed the industry. **R. Sudharsan & E. N. Ganesh 2022**

A Swish RNN based customer churn prediction for the telecom industry with a novel feature selection strategy, The study aims to analyze the ,Owing to saturated markets, fierce competition, dynamic criteria, along with introduction of new attractive offers, the considerable issue of customer churn was faced by the telecommunication industry. Therefore, this work proposes a novel framework to predict customer churn through a deep learning model namely Swish Recurrent Neural Network (S-RNN). The development of social media technology provides an excellent opportunity for companies to communicate with customers or potential customers .Swish RNN based customer CP is proposed for the telecommunication industry with a novel FS strategy. Data collection, preliminary pre-processing, filtering of state and area, grouping customers with state and area, FE, FS, classification, CP and retention process are the steps of the proposed approach. Next, the experimentation analysis is employed. In order to corroborate the proposed algorithm's effectiveness, the performance analysis together with the comparative analysis of the proposed and prevailing techniques is done concerning some performance metrics.

Research methodology:

The study is descriptive in nature .secondary data is collected for the study. The sample of the study consists of telecom companies in India.

Growth Of The Telecom Sector:

The history of telecommunications in India dates back to the colonial era, with the establishment of the first telegraph line between Kolkata and Diamond Harbour in 1850. However, the industry truly started to take shape after India's independence in 1947 and the telegraph and telecommunications services were transferred to the Indian government.

In 1985, the Department of Telecommunications (DoT) was formed as a separate government department under the Ministry of Communications. It took over the responsibility of overseeing telecommunication services and infrastructure in the country. In 1986, the Mahanagar Telephone Nigam Limited (MTNL) was established under the ownership of the Department of Telecommunications, Ministry of Communications. Throughout the early 1990s, DoT held a monopoly on telecommunication services and infrastructure. The industry operated in a regulated environment with limited private participation.

Then, the Indian telecom landscape underwent a significant transformation with economic liberalization policies. In 1994, the government introduced a **National Telecom Policy, opening the industry to private players** and foreign investment. The policy aimed to provide telecommunication services to all regions of the country and promote technological advancements. This led to the introduction of mobile cellular services, breaking the monopoly. The industry witnessed intense competition, innovation, and rapid expansion of services.

The launch of mobile services brought about a revolution in the Indian telecom industry. Private operators like Bharti Airtel, Vodafone (now merged with Idea Cellular to form Vi), and Reliance Communications entered the market, driving down prices and making mobile phones accessible to a broader population. The 'mobile phone for every Indian' vision became a reality.

In 1997, the **Telecom Regulatory Authority of India (TRAI)** was established as an independent regulatory authority to oversee the telecommunications sector. TRAI was tasked with ensuring fair competition, protecting consumer interests, and promoting efficient utilization of telecom resources.

In 1999, the government announced a **New Telecom Policy (NTP)** to further liberalize and encourage private participation in the sector. This policy laid the groundwork for the transition from a monopoly to a competitive telecom landscape.

Later on, in the 2000s with the implementation of the New Telecom Policy, the entry of private players in the telecom market, lead to increased competition and innovation. This era marked the beginning of rapid growth in mobile and wireless communication services. The industry had seen several technological advancements, such as the **transition from 2G to 3G, and subsequently to 4G LTE networks**. This shift facilitated faster internet speeds, enabling the adoption of data-intensive applications and services like video streaming, online gaming, and mobile commerce.

The availability of affordable mobile phones and calling rates played a crucial role in

driving adoption, particularly among the previously underserved rural population. With a focus on expanding digital infrastructure, promoting e-governance, and enhancing digital literacy, the Indian government launched the 'Digital India' initiative, in 2015. This aimed to transform India into a digitally empowered society and knowledge economy and one of the key components of this initiative is the expansion of broadband connectivity across the country, even in remote areas. This effort has led to increased internet penetration and access to digital services

While the Indian telecom industry has experienced remarkable growth, it also faced challenges like fierce competition, regulatory complexities, and financial pressures. The

introduction of Reliance Jio in 2016 disrupted the market by offering high-speed data at significantly lower prices, triggering a wave of consolidation and pricing pressures on other operators. The telecom industry in India witnessed intense competition. Jio's disruptive pricing strategies led to a data revolution and reshaped the industry's landscape.

As of 2021, the Department of Telecommunications was restructured and renamed as the **Department of Telecommunications and Digital Communications (DoTDC)**. This change reflected the evolving nature of the industry, which had expanded beyond traditional telecommunications to encompass digital technologies and services.

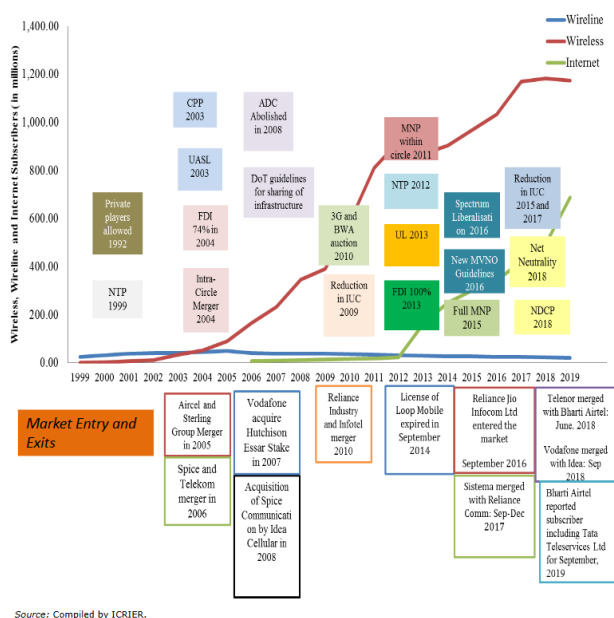


Figure1- A Decadal View of the Telecom Industry

Despite the significant growth, the industry faces challenges such as fierce competition, regulatory issues, spectrum allocation, and financial pressures. The industry's profitability has been affected due to the intense competition and tariff pressures.

India's telecom sector is one of the largest but also among the fastest-growing networks in the world. The increase in subscriptions has been nothing short of dramatic. Despite this the companies in the sectors are facing challenges to survive in the market.

Based on the Market study by the Competition Commission of India, released on 22nd January, 2021 – In 1999, when the New Telecom Policy was announced, there were thirteen 2G technology-based private mobile service providers. By 2019, exits and consolidation had reduced the number of operators to eight.

This shows that there have been external factors which have contributed to the close of companies and hindered their survival in the market.

A few of the major factors are discussed below –

1. Entry of Reliance Jio in 2016 –

In September 2016, the market witnessed the disruptive entry of Reliance Jio in voice and data services using 4G technology. Data prices saw an immediate decline from Rs. 180 per GB in September 2016 to Rs. 160 per GB in December and a secular decline to Rs. 6.98 per GB in 2019. While growth has been robust, price competition has squeezed the bottom line for incumbent operators.

To face this challenge, in order to lower costs and improve survival, smaller players were acquired, while big operators merged. As of December 2022, the three major private sector operators, namely Jio, Airtel and Vodafone-Idea own almost 89% of the market share and Reliance Jio has managed to take the largest portion of the market share.

2. Decline in revenue despite growth markets and demand –

India being one of the largest markets for telecom, also happens to have emerged as the nation with the cheapest telecom tariff in the world. As industry prices, measured by average revenue per user (ARPU) fell, consumption of both voice minutes and GBs of data increased. The growth rates for data were substantially higher, reflecting **Commission of India** –

the low base. While Minutes of Use (MoU) increased at a CAGR of 12 per cent between 2014 and 2019, data usage per subscriber per month increased at a CAGR of 76 per cent during the same time.

This can be seen in the graph below which has been taken from the Market study by the Competition

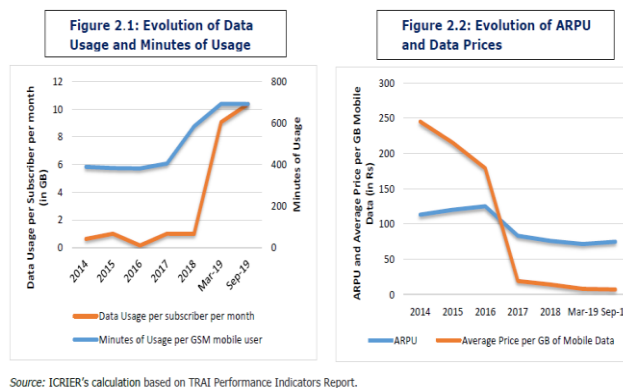


Figure 1 Evolution of Data Usage and Average Revenue per User (ARPU)

The above graphs clearly depict the same, where the consumption has increased and the revenue has decreased as a result of the lowered tariffs. In submissions made to TRAI, Airtel reported cost per GB to be Rs. 30 while Vodafone estimated it at Rs. 26.8 (excluding ROCE). The estimated realisation at Rs. 2.70 was thus below cost. Even with sufficient margins of error, there seemed to be a need to increase prices, for immediate industry viability and for longer term consumer interest.

3. Adjusted Gross Revenue (AGR) dues –

AGR stands for "Adjusted Gross Revenue," and it is a significant concept in the telecom sector, particularly in India. AGR is a metric used to calculate the license fee and spectrum usage charges that telecom operators owe to the government. Adjusted Gross Revenue (AGR) is the usage and licensing fee that telecom operators are charged by the Department of Telecommunications (DoT). It is divided into spectrum usage charges and licensing fees, pegged between 3 percent and 8 percent respectively.

As per DoT, the charges are calculated based on all revenues earned by a telecom companies – including non-telecom related sources such as deposit interests and asset sales.

In 2005, Cellular Operators Association of India move the Telecom Disputes Settlement and Appellate Tribunal (TDSAT) challenging the definition of AGR. While the DoT said that AGR includes all revenues (prior discounts) from both telecom and non-telecom services, the companies

argued that AGR should only comprise the revenue from core telecom services.

In a long-standing battle that started in 2005, from October 2019, the below series of developments are noticeable.

- In the verdict of October 2019, the Supreme court had given the telecom companies three months to clear their AGR dues
- In November 2019, telecom companies seek a review of the Supreme Court's previous ruling on the matter
- In January 2020 the companies missed the deadline for the payment of their AGR dues
- In July 2020, the Supreme Court denied reassessment of the dues
- In September 2020, the companies were asked to clear the dues in the next 10 years, while telecom companies such as JIO and Airtel were provided with an exemption of Rs 40,000 crore due to the DOT. As per Supreme Court, "Shared operator telecom companies cannot be saddled with the liability of past AGR dues." So, the JIO AGR dues were cleared completely
- In January 2021, BhartiAirtel filed a petition in the Supreme Court seeking a correction in the calculation of the dues
- In July 2021, Vodafone also petitioned for the same. On the Vodafone Idea AGR hearing date, both the petitions were dismissed by the Supreme Court
- On the 15th of September, 2021, Government has considered a relief package offering a moratorium of four years for all dues from the

telecom sector, approval for 100% FDI (foreign direct investment) through automatic route

The AGR case is a complicated and controversial problem with significant implications for the telecom business and the broader economic climate. The scenario highlights the requirement for governance and plan reform, for a stable business environment for the telecommunications sector. The Adjusted Gross Revenue (AGR) instance is one of the biggest legal conflicts for India's telecom industry.

Spectrum Acquisition –

Spectrum costs refer to the fees that telecommunication companies pay to acquire the rights to use specific portions of the electromagnetic spectrum for wireless communication services. The electromagnetic spectrum is a range of electromagnetic waves with varying frequencies and wavelengths. Different frequency bands are used for various purposes, such as radio broadcasting, television, satellite communication, and wireless communication.

In India, the government allocates spectrum to telecommunication companies through auctions. The cost of spectrum can vary based on factors like the frequency band, the amount of spectrum being auctioned, and the demand from telecom operators. Over the years, the Indian government has conducted several spectrum auctions, each targeting different frequency bands for various services like 2G, 3G, and 4G.

Spectrum auctions in India are conducted by the Department of Telecommunications (DoT). Operators participate in these auctions by bidding for spectrum blocks in specific frequency bands. The highest bidder wins the right to use that spectrum. The cost of spectrum can vary greatly depending on the frequency band and the level of competition among operators. Bands that offer better coverage or higher data capacity often attract higher bids.

The cost of spectrum in India has often been a topic of discussion due to the significant financial implications for telecom operators. The high costs associated with spectrum acquisition, along with regulatory requirements like Adjusted Gross Revenue (AGR) dues, have placed financial strain on some telecom companies. This has led to consolidation in the industry, with some companies merging or exiting the market.

4. Impact of COVID-19 –

The impact of COVID-19 on the telecom industry was both a boon and challenge.

There was an increased demand for data as people used their devices more for work, school, and entertainment. This put a strain on telecom networks as some companies have had to upgrade their networks to meet the demand.

The pandemic has accelerated the adoption of new technologies, such as 5G and cloud computing. Telecom companies have been investing heavily in these technologies in order to meet the growing demand for bandwidth and data.

The lockdown and social distancing measures have disrupted the supply chain for telecom equipment, leading to delays in network upgrades. This has been a challenge for telecom companies, as they have had to find ways to get the equipment to keep their networks running.

5. High Debt in companies –

One of the major noticeable figures in the calculation of financial ratios was the high debt of the companies. These can be attributed to the following reasons.

- Intense Competition that has resulted in lower tariffs and reduced profit margins for telecom companies
- High Spectrum Costs have caused strain a company's finances, especially when combined with other expenses
- High capex costs towards infrastructure investment towards building and maintaining cell towers, laying optical fibre cables, and upgrading technology to support higher data speeds and capacities
- Regulatory and Legal Issues such as disputes over license fees and spectrum usage charges which could have contributed and lead to additional financial burdens and uncertainties for telecom operators
- Debt-Financed Expansion plans might not have yielded expected returns, contributing to the accumulation of debt. These could also have been a result of financial mismanagement
- Operating costs rise with the growing economic factors. Within decline in revenue over the years, the funding for Operating costs, including employee salaries, energy expenses, and network maintenance, can significantly impact a telecom company's financial health

Conclusion:

These are a few of the major factors that have affected the telecom companies. Further in-depth analysis is required to identify the actual impact of each of these factors on the said companies. Along with this, other additional macro-economic factors and internal management decisions need to be taken into consideration and studied, which adds scope and a need for further analysis.

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