



Survey Paper on Growth of Telecommunication Industry in India

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ABSTRACT-

This paper describes the growth of telecommunication industry in India, the telecommunications sector is expanding quickly and undergoing numerous changes. It has undergone a number of changes, which have intensified competitiveness in the market. Factors such as “Number of Subscribers”, “Technology Innovation” and “Government Regulation and Policies” were found to be the most influential and contributing factors towards the growth of the Telecom industry in India This paper describes the growth of India in telecommunication over the years.

Keywords- networks, telecom, jio, revenue, technology, development, innovation

Introduction

With 1.16 billion subscribers, India is the second-largest telecoms market in the world and has experienced rapid expansion in recent years. According to a report created by the GSM Association (GSMA) and Boston Consulting Group (BCG) in partnership, India's mobile economy is expanding quickly and will have a significant impact on the country's Gross Domestic Product (GDP). India eclipsed the US in 2019 to overtake it as the second-largest market for app downloads. The Indian telecom industry has undergone a significant transition thanks to a number of legislative and policy changes. With the entry of new companies, the industry is becoming more competitive day by day, and it has completely changed how we share information and communicate. This article makes an effort to capture the evolving situation of the Indian telecom sector. The study also aims to identify the important actors in the industry's change management methods.

The interaction between three variables—regulation, liberalisation, and technology—make this area a fascinating subject for research. Technology is constantly evolving and changing and regulatory environment. While Indian telecommunications businesses have begun investing outside of their home nation as they grow more buoyant and self-assured, consistent investment in Indian telecom manufacturing is still needed. Mobile phones are well-liked because of their individual, transportable, and digital characteristics, which allow people to continually be connected. Innovations are growing, particularly in the creation of mobile applications. The low cost of mobile devices in India and the creative low-cost communication network have made it easier for customers to enter the market. Mobile connections are more affordable than fixed line telephony from a supply perspective. The Indian economy depends increasingly on the telecommunications industry. It increases GDP and economic growth, brings in money for the government, and creates jobs. To put it simply, the telecom industry has a multiplier effect on the economy.

The second-largest telecommunications market in the world is in India. In September 2021, there were 1189.15 million subscribers overall. Teledensity for customers in rural areas increased from 58.96% in September 2020 to 59.33% in September 2021. This increase suggests that demand from the rural sector could be on the rise. From 1,148,58 million in September 2020 to 1166,02 million in September 2021, the total number of wireless or mobile telephone subscribers. In September 2021, there were 794.88 million active internet users worldwide. There were 24.29 million wired internet subscribers among this subscriber base, and 787.94 million wireless internet subscribers. In the first quarter of FY22, the telecom industry's gross revenue was Rs. 64,801 crore (US\$ 8.74 billion).

The growth and development of the telecommunication industry in India have been shaped by a robust regulatory framework. This section will delve into the key regulatory authorities governing the sector, such as the Department of Telecommunications (DoT) and the Telecom Regulatory Authority of India (TRAI). It will examine the policies and regulations implemented to promote competition, protect consumer interests, and ensure a level playing field.

The telecommunication industry in India is constantly evolving, driven by technological advancements and changing consumer needs. This section will explore the emerging trends in the industry, including the deployment of 5G networks, the rise of internet-based services, and the growth of digital payment systems. It will also discuss the challenges and opportunities presented by the increasing adoption of Internet of Things (IoT) devices and artificial intelligence (AI) applications.

The growth of the telecommunication industry in India has been remarkable, fueling the country's socio-economic development and digital transformation. This survey paper will conclude by summarizing the key findings and highlighting the future prospects of the industry. It will emphasize the importance of continued investment in infrastructure, policy reforms, and innovation to sustain the growth momentum and cater to the evolving needs of Indian consumers.

This survey paper aims to provide a comprehensive overview of the growth of the telecommunication industry in India. It will cover the historical background, major milestones, key players, regulatory framework, and emerging trends, offering valuable insights into the dynamic nature of the sector and its impact on the Indian economy and society.

Literature Survey

[1] India's telecom industry has expanded over the years and is currently the second largest. In the second half of 2021, Reliance Jio intends to introduce 5G. Since Jio's inception, India's adoption of Internet services has increased dramatically. India has the second-largest telecom sector in the country and the most affordable internet access for its citizens. There are currently 500 million active data users, and by 2024, it is predicted that there will be more than 800 million active users and the production of 1 billion smart phones. India is also pursuing its goal of giving citizens more digital power. We also have poor tower connection in many areas with only 25 % of the net is connected by fibbers. India needs to upgrade its telecom industry and provide net facilitates to all its people as the Internet is going to dominate the future. India's Telecom industry contributes to 6.5% of the GDP.

[2] The paper examines the obstacles of theorising financialization and implementing it in underdeveloped nations by conducting an empirical study of financialization in India. This article then compares the traits of financialization in India with those in other emerging nations using the case study of the Indian telecommunication (telecom) sector as a starting point. The primary role of finance in the telecom sector has changed from facilitating business to making telecom companies investable financial assets that could be bought and sold for profit. This sector's key institutions, policies, and practises are mapped using the case study to show how this has happened.

[3] This paper states due to the expansion of the mobile service industry, practically every area of the economy, including finance, banking, hotels, and other companies, has experienced significant development in recent years. Reliance Jio has attracted a sizable client base in terms of subscribers since its launch in Madhya Pradesh. The Madhya Pradesh-based telecom service providers get uneasy as a result. Customer happiness becomes crucial for service businesses to be competitive as the industry develops. It is essential to examine client sociodemographics in order to assess customer satisfaction. Therefore, this research article makes an effort to examine consumer satisfaction levels using a variety of demographic factors.

[4] This study addresses the impact of mobile phone services on traditional services as well as the widespread adoption of digital technology. The websites and annual reports of the telecom industry serve as secondary data sources. It is an exploratory research case study that uses PESTLE analysis to demonstrate how mobile phone services have supplanted traditional telephone services. According to the report, India has largely become a digital country as a result of technological improvements and internet services like data packs and broadband connections. With connectivity, affordability, and technological advancement, mobile phone services and the telecom sector in India have been important to this shift.

[5] According to the new legislation in India, it is the duty of every corporation to provide the stakeholders with the necessary information anytime they so want. Since the Indian economy experienced a fiscal imbalance in 1991, Indian businesses have pushed for excellent corporate governance. The purpose of this essay is to examine the corporate governance disclosure practises used by the top five Indian telecom corporations. Five-year annual reports of the chosen five organisations have been analysed for the study, and an assessment model has been used to gauge the corporate governance disclosure practises. Companies with good corporate governance are those with the highest average corporate governance disclosure scores, and vice versa.

[6] This paper case synopsis or overview the average revenue per user has decreased over a three to four-year period, and most commercial telecom service providers in India have reported significant losses and unpaid adjusted gross revenue (AGR) obligations. Due to intense competition in the market, calling and data rates are extremely low. In terms of market share, Bharti Airtel benefited from being first to market, but since JIO entered the market in 2016, there has been a price war among the service providers. As a result, service providers have asked the government for a rescue package and Mr R.S. Sharma, Chairman of the Telecom Regulatory Authority of India (TRAI), to set a ceiling on calling rates.

[7] Over the previous two decades, the industry had seen the development, ascent, and dominance of companies from the private sector. The lowering average cost to subscriber per gigabyte of data and the declining average revenue per user (ARPU) in the mobile telephony segment were symptoms of the fierce competition in the market that had sparked price wars among established companies. Following its ruling on Adjusted Gross Revenue (AGR) in October 2019, the Supreme Court of India ordered the market participants to pay 1,470 billion as payment for their licence fee and spectrum usage charges. Two major players, Vodafone Idea and Bharti Airtel, were jointly responsible for 60% of the aforementioned obligation. Already, these businesses' profitability and liquidity were being strained by declining sales. Their difficulties were made worse by the AGR responsibility.

[8] The evolution of buyer-supplier relationships in the telecom industry is examined in this article. The story extolling the trustworthy and cooperative relationships between Telia, the Swedish public telephone operator (PTO), and Ericsson, the equipment provider, has dominated the literature on telecoms in Scandinavia. Beginning in the 1970s, the Norwegian PTO Telenor deviated from this course and was a pioneer in favouring competitive tenders and arm's-length relationships with its suppliers. According to the report, Telenor's nationality and history had a big influence on its corporate strategy. The piece also looks at why some company narratives endure while others are unknown. According to one research, shareholder-friendly narratives suffer from a disadvantage because they emphasise self-interest and financial gain rather than societal principles.

[9] Purpose of this study uses interpretative structural modelling (ISM) to identify potential barriers to telecom services and build links among them in the Indian telecom industry. Additionally, this study uses MICMAC analysis to determine the telecom barriers' driving and dependent forces. In order to build the contextual relationship among the identified barriers of telecom services, a panel of specialists from the telecom business and academics were consulted. The ISM was then employed to do so. The ISM findings are fed into a MICMAC analysis, which further categorises identified barriers according to their driving and dependent powers.

[10] In India, the telecommunications sector is expanding quickly and undergoing numerous changes. Telecommunications are becoming a crucial component of India's economic infrastructure because to globalisation. Taking into account both fixed and mobile phone subscribers, India has the second-largest telecommunications network in the world. It has undergone a number of changes, which have intensified competitiveness in the market. This study examines current developments in the Indian telecommunications industry. The report will give readers a thorough understanding of current market trends and assist in highlighting changes in the telecommunications sector. The research is supported by secondary data.

[11] In India, the telecommunications sector is expanding quickly and undergoing numerous changes. It has undergone a number of changes, which have intensified competitiveness in the market. The significant policy changes in the Indian telecommunications industry are described in this article. The

article also analyses the new strategies that Vodafone and Airtel, two major market players, have implemented. The report will give readers a thorough understanding of current market trends and assist in highlighting changes in the telecommunications sector.

[12] This study examines the telecommunications sector, which has economies of scale, a natural monopoly, and monitoring challenges. The analysis of economic and technological trends revealed that the sector's future growth will be influenced by the following factors: rapid technological advancement to foster value transfer, industrial integration to foster business competition, and user engagement to fuel the experience economy.

[13] The Telecom Regulatory Authority of India oversees this sector by creating a legal framework and an atmosphere that is conducive to its effective operation. Due to its quick development and fierce competition with the telecom industries of other industrialised nations, India's industry is currently the second largest in the world. Customers in both urban and rural parts of India can readily get the telecommunication services provided by this industry at reasonable pricing. The telecom infrastructure of India uses cutting-edge technology that is unmatched worldwide. The history and growth of the Indian telecommunications industry have been highlighted in this research study. The current state of the Indian telecom industry is described in the article.

[14] The telecom industry is thought to be the backbone of the digital wave that propels our nation forward in recent years. Reasons for this include affordable tariffs, increased accessibility, increasing 4G and 5G coverage, shifting subscriber consumption patterns, and a supportive regulatory environment. According to data, the industry is expected to contribute 8% of India's GDP in 2022, up from 6.5%, and to add over 4.5 million employment by 2023. According to the government's recent reforms, the industry is upbeat as it enters the new era and is anticipating a successful conclusion in the impending mega-auction for 5G spectrum.

[15] The Indian telecom sector's rapid expansion has made it a significant factor in India's development. India started off with a gradual approach to restructuring the telecom industry. Gradually, privatisation was implemented, starting with value-added services, then cellular and basic services. To handle competition in an impartial manner, the Telecom Regulatory Authority of India (TRAI), an independent regulatory organisation, was founded. This essay examines the private sector companies in India's telecommunications industry's profit margins. The first of its three sections covers the introduction and research technique. The study of profit margins for gross profit, net profit, and net profit after tax is covered in the second section. Conclusions, recommendations, and conclusions are covered in the third section.

[16] In the business at its peak, there were over 16 operators, which, according to the report, was made possible by government rules. This increased competition put pressure on the operators' pricing power and profitability. Due to overbidding brought on by high reserve prices during spectrum auctions, the industry's debt increased dramatically. Profit margins for the operators were reduced by taxes and levies. It is not surprising that the sector was under extreme stress given the debt servicing responsibilities. Reliance Jio's services, which were supplied for almost no cost, sparked a wave of industry consolidation. There are now four operators in the sector out of over sixteen. Since the sector's current stability is precarious, each regulation or policy must be carefully considered before being put into effect.

Analysis

In the past two decades, the rate of growth of the telecom sector, in particular the telecom services, has expanded its significance to the broader economy. The percent of the total GDP for communications services (excluding postal and other services) has climbed from 0.96 in 2000-01 to 3.78 in 2009-10. The contribution of the telecommunications sector to GDP, tax revenue, and employment can be used to assess its significance for the Indian economy. There is evidence from studies that mobile phones increase GDP. Wireless broadband is also expected to have a very good future influence. In addition, the sector brings in tax money for the government. In 2010, the Government of India received more than Rs 100,000 crore from the 3G spectrum auction and the bid amounts for broadband wireless access licences, or almost 1% of the GDP. According to employment statistics, the percentage of people employed in the transport, storage, and communication sectors increased from 3.7% in 1999-2000 to 3.8% in 2004-2005. Throughout the 2000s, BPO (Business Process Outsourcing) employment grew at rapid rates. Both directly and indirectly, the mobile phone business supported 3.6 million jobs. In the IT-BPO sector, there were 2.2 million direct employees in 2008-09, with 1.9 million working in Tier 1 cities and 0.17 million in Tier 2/3 cities. In Tier 1 cities, the IT-BPO sector indirectly supported 7.3 million jobs during the same time period.

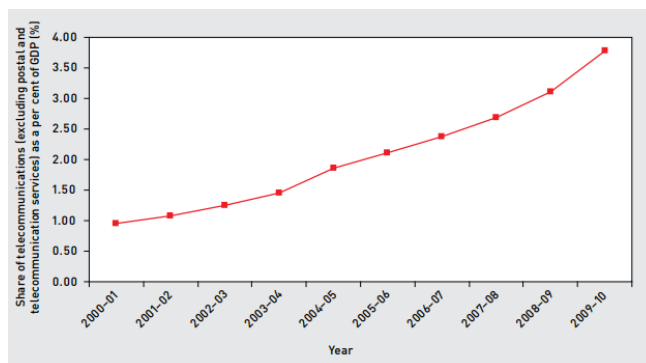


Fig 1 Share of Telecommunication as percent of GDP

In terms of current market currency rates, India provides the cheapest data globally. According to a mobile data pricing issued by the UK-based cable.co.uk that used 6,313 data plans from 230 different countries, the cost per GB of data in India is estimated to be USD 0.16. India has lower tariffs than several other nations, including Brazil, Russia, China, Canada, the EU, and the US, even at Purchasing Power Parity (PPP) currency rates. One GB of data costs, on average, USD 12.37 in the USA, USD 23.39 in Russia, USD 41.45 in China, USD 14.35 in Canada, and USD 7.86 in Brazil in PPP terms. The mobile data revolution in India was characterised by inexpensive data pricing, although the majority of carriers struggled with high costs and technological advancement. Latecomer Jio provided an entirely 4G service at substantially lower prices. Others, trying to catch up, constructed 4G on top of ageing

networks. The digital divide in India is being closed as a result of incentives being offered by carriers like Airtel and VIL for high-value recharges and for activating data in rural areas due to market saturation. Currently, Vodafone-Idea has the biggest percentage of rural users, but Reliance Jio is getting closer thanks to its free 4G Jio feature phone promotion.

Operators	Mar-16	Sep-16	Mar-17	Sep-17	Mar-18	Sep-18	Mar-19	Sep-19	Mar-20
Airtel	194	188	158	145	116	101	123	128	154
Vodafone Idea Ltd. (VIL)						92	89	108	109
Idea	179	173	142	132	105				
Vodafone	177	171	142	132	105				
Jio				156	137	132	126	120	131

Source: Cellular Operators Association of India (COAI).

Fig 2 Average revenue per user across operators

The Indian telecoms sector has caught the government's interest since the 1980s. A growing share of the plan outlay was devoted to this area. Unfortunately, that was insufficient to reduce the number of phones on the waiting list. The industry has transformed as a result of the introduction of cell phones and industrial liberalisation. Private investment has outpaced public sector investment in this industry during the past ten years. India's percentage of foreign investment has a murky past. The Indian telecoms business attracted considerable FDI in 2001–2002, but this was followed by a dramatic decline. After a comeback in 2005–2006, there was a drop, which was followed by another significant revival in 2008. The telecom industry generates significant revenue, which attracts foreign investors.

Conclusion

The mobile phone sector contributed Rs 145 billion annually to the government coffers in the form of licence fees, spectrum fees, import tariffs, taxes, and other levies. In 2010, the government received more than Rs 1,00,000 crore, or around 1% of GDP, from the 3G spectrum auction and the bid amounts for Broadband Wireless Access licences. Between 2002 and 2009, the government received Rs 25,331 crore as Universal Subscriber Levy. In conclusion, there is a correlation between teledensity and GDP, employment, and tax revenue.

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