



## India's Telecom Sector: Key Drivers & Challenges

*This editorial is based on "[Telecom sector must get a fair share](#)" which was published in Financial Express on 07/09/2024. The article highlights the debate over fair-share contributions from large traffic-generating platforms (LTGs) to telecom service providers (TSPs). It argues that LTGs, despite profiting from telecom infrastructure, should contribute to network costs to ensure affordable and sustainable digital connectivity.*

**For Prelims:** [India's telecom sector](#), [Telecom Service Providers](#), [Digital India program](#), [BharatNet](#), [Unified Payments Interface](#), [Adjusted Gross Revenue](#), [OTT platforms](#), [5G Spectrum Auction](#), [Prime Minister Wi-Fi Access Network Interface \(PM-WANI\)](#), [Bharat Net Project](#), [One Nation Full Mobile Number Portability](#),

**For Mains:** Major Growth Drivers of the Telecom Sector in India, Major Challenges Related to the Telecom Sector in India.

[India's telecom sector](#) is at a crucial juncture, grappling with the challenge of balancing network infrastructure costs and the explosive growth of data traffic. This surge is largely driven by **Large Technology Giants (LTGs)** whose services consume a significant portion of network bandwidth. The sector argues that while these **LTGs reap substantial profits from Indian users**, they contribute little to the underlying infrastructure that makes their services possible.

[Telecom Service Providers \(TSPs\)](#) are advocating for a fair-share mechanism, where LTGs would contribute to network costs proportionate to their data usage. This proposal has **gained traction globally**, with countries like **South Korea** seeing settlements between content providers and network operators, and the US considering legislation to address similar issues. As India aims to ensure **affordable digital connectivity for all**, it needs to work towards significant reforms in its telecom sector. These reforms should focus on creating a **balanced ecosystem where all players**, including LTGs, contribute fairly to the growth and sustainability of digital infrastructure, ultimately benefiting the Indian economy and its citizens.

### What are the Major Growth Drivers of the Telecom Sector in India?

- **Digital India Initiative:** The government's [Digital India program](#) has been a significant catalyst for telecom growth.
  - Launched in 2015, it aims to **transform India into a digitally empowered society**. This initiative has led to increased demand for internet services across urban and rural areas.
  - For instance, the number of internet subscribers in India surged from **88.1 crore in March 2023** to **95.4 crore by March 2024**.
  - Projects like [BharatNet](#), which aims to connect all **250,000 gram panchayats** with broadband, have further boosted rural connectivity, driving telecom expansion into

previously underserved areas.

- **Affordable Smartphone Penetration:** The availability of low-cost smartphones has significantly boosted telecom sector growth.
  - India's smartphone market shipped **146 million smartphones in 2023**. This growth has been fueled by **budget-friendly devices**.
  - Initiatives like **Google's Android One program** and the government's push for locally manufactured devices have further accelerated this trend, expanding the customer base for telecom services, **especially in tier 2 and tier 3 cities**.
- **5G Revolution:** The rollout of 5G services in India, which began in October 2022, is a game-changer for the telecom sector.
  - India has seen one of the fastest 5G rollouts in the world with the latest telecom technology reaching **738 districts and around 100 million as of December 2023**.
  - This technology is expected to enable new use cases in areas like **IoT, smart cities, and industrial automation**.
    - Global telecom industry body **GSMA** expects India to have **920 million unique mobile subscribers by 2025** which will include **88 million 5G connections**, creating new revenue streams for telecom companies.
- **Rise of Digital Payments:** The surge in digital payments has become a key driver for telecom growth.
  - **Unified Payments Interface (UPI)** transactions have grown **from 92 crore in FY 2017-18 to 8,375 crore in FY 2022-23**.
  - This shift towards digital transactions has increased the dependency on mobile internet, driving data consumption.
    - **Telecom companies** have capitalized on this trend by offering specialized data plans for financial services and partnering with fintech companies, creating new revenue streams and enhancing customer stickiness.
- **Over-the-Top (OTT) Content Boom:** The explosive growth of **OTT platforms** in India has significantly boosted data consumption.
  - The **Indian OTT streaming industry** is expected to grow to **USD 13-15 billion** over the next decade at a **CAGR of 22-25%**.
  - This growth has led to a surge in high-bandwidth activities like video streaming.
    - For example, **Hotstar reported 50.5 crore views during the IPL 2023 season**.
  - Telecom operators have responded by **offering bundled services with OTT subscriptions**, driving both customer acquisition and data usage, thus creating a **sybiotic relationship between content providers and telecom companies**.
- **Remote Work and Education:** The Covid-19 pandemic accelerated the adoption of **remote work and online education**, becoming an unexpected growth driver for the telecom sector.
  - This shift led to a **30-40% increase in data consumption across India**. Telecom companies responded by upgrading network capacities and offering **specialized work-from-home plans**.
  - The trend has **persisted post-pandemic**, with many companies adopting **hybrid work models**, ensuring sustained high demand for reliable, high-speed internet connectivity.

## What are the Major Challenges Related to the Telecom Sector in India?

- **Financial Stress:** As per ICRA, the telecom industry's total debt has shot up to **~Rs. 6.4 lakh crore** by 31st March, 2023.
  - This financial stress stems from **high spectrum costs, intense competition leading to tariff wars**, and substantial infrastructure investments.
    - For instance, Vodafone Idea owes **Rs 2.1 lakh crore debt to the government**.
  - The situation has led to **reduced capital expenditure, delayed 5G rollouts, and in extreme cases, market exits**.
- **Adjusted Gross Revenue (AGR) Dispute:** The AGR issue has been a persistent thorn in the side of Indian telecom operators.
  - The Supreme Court's 2019 ruling, which **broadened the definition of AGR to include non-telecom revenues**, resulted in a cumulative liability of **₹1.69 lakh crore for telecom companies**.
  - While the government has offered a moratorium and the option to convert dues into equity,

the issue continues to strain balance sheets.

- For example, The **Department of Technology** has calculated Airtel's historical AGR dues at **Rs 43,980 crore**, of which **only Rs 18,004 crore** has been paid.
- This ongoing financial burden hampers the sector's ability to invest in new technologies and infrastructure.
- **Infrastructure Gaps:** Despite significant progress, India's telecom infrastructure still faces a substantial urban-rural divide.
  - As of March 2023, **urban tele-density** stood at **133.81%**, while rural tele-density **reached only 57.71%**.
  - The challenges in rural areas include **difficult terrain, lack of consistent power supply, and lower return on investment**.
- **Spectrum Pricing:** High spectrum prices have been a significant hurdle for Indian telecom operators.
  - In the 2022 **5G spectrum auction**, while the government **earned ₹1.5 lakh crore**, operators argue that these **high costs impede network expansion and quality improvement**.
  - India's spectrum prices are among the highest globally. This issue not only affects the financial health of telecom companies but also **potentially slows down the adoption of new technologies like 5G**, impacting India's digital transformation journey.
- **Quality of Service:** Despite improvements, quality of service remains a persistent issue in India's telecom sector.
  - Recent TRAI data shows that major operators failed to meet benchmarks in areas like **call drop rates and connection success rates** in several circles.
  - Poor service quality leads to **customer dissatisfaction and churn**, impacting operator revenues.
- **Cybersecurity Threats:** As India's digital footprint expands, cybersecurity has become a critical concern for the telecom sector.
  - In 2022, India witnessed **over 13.91 lakh cybersecurity incidents**, as reported by **CERT-In**.
  - Telecom networks, being the backbone of digital infrastructure, are prime targets. The introduction of 5G technology, while promising, also expands the attack surface.
  - Such incidents not only lead to financial losses but also **erode customer trust**.
- **Regulatory Challenges:** The telecom sector in India grapples with a complex and sometimes unpredictable regulatory environment.
  - Issues like **frequent policy changes, multiple levies (license fees, spectrum usage charges, etc.)** create operational uncertainties.
  - For instance, the **long-pending issue of defining Over-The-Top (OTT) services** and their **regulation vis-à-vis traditional telecom services** remains unresolved.
  - In 2023, the debate intensified with telecom operators pushing for **'same service, same rules' principle**, arguing that OTT players benefit from telecom infrastructure without equivalent regulatory obligations.
    - This regulatory ambiguity affects long-term planning and investment decisions in the sector.

## What are the Major Government Initiatives Related to the Telecom Sector?

- **[Prime Minister Wi-Fi Access Network Interface \(PM-WANI\)](#)**
- **[Bharat Net Project](#)**
- **[One Nation Full Mobile Number Portability \(MNP\)](#)**
- **[The Telecommunications Act 2023](#)**: The newly enforced sections focus on optimal spectrum utilization through sharing, trading, and flexible use, along with **prohibiting unauthorized equipment that blocks telecommunications**.
  - It also updates criteria for appointing TRAI members, ensuring better governance and efficiency in the telecom sector.

## What Measures can be Adopt to Revamp India's Telecom Sector?

- **Rationalizing Spectrum Pricing:** Implement a more balanced spectrum pricing model to **reduce financial burden on telcos.**
  - For instance, adopt a **revenue-sharing model for spectrum fees** instead of upfront payments.
  - Introduce longer payment periods, like **20 years instead of the current 10-16 years.**
  - This could **free up capital for infrastructure investment.** For example, if implemented, this could potentially **reduce the spectrum cost burden by 30-40%** for operators, enabling them to invest more in network expansion and quality improvement.
- **Infrastructure Sharing Incentives:** Introduce stronger policy incentives for infrastructure sharing among telcos.
  - Implement a **tax rebate system for companies engaging in active infrastructure sharing.**
  - Create a centralized database of **shareable assets to facilitate easier collaboration.**
  - For instance, the [Tower and Infrastructure Providers Association \(TAIPA\)](#) estimates that infrastructure sharing can reduce capital expenditure **by up to 60%.** This approach could significantly accelerate 5G rollout, especially in semi-urban and rural areas.
- **Rural Connectivity Fund:** Establish a dedicated **Rural Connectivity Fund**, similar to the [Universal Service Obligation Fund](#), but with more efficient utilization.
  - Allocate a **% of AGR from telcos specifically for rural infrastructure development.**
  - Implement a public-private partnership model where the government provides **land and right-of-way, while telcos deploy infrastructure.**
- **Regulatory Sandbox for Innovation:** Create a regulatory sandbox to allow telcos and tech companies to **test innovative services and business models with regulatory flexibility.**
  - Set up a committee comprising **TRAI, DoT, and industry representatives to oversee this sandbox.**
  - Allow trials for emerging technologies like **network slicing, edge computing, and IoT applications** without immediate regulatory constraints.
  - For example, this could facilitate the **testing of localized 5G applications in manufacturing or agriculture**, potentially leading to new revenue streams for telcos and innovative solutions for various sectors.
- **Skill Development Initiative:** Launch a comprehensive skill development program in collaboration with the telecom industry to address the talent gap.
  - Partner with universities to introduce **specialized courses in 5G, IoT, and AI for telecom.**
  - Introduce tax incentives for companies investing in employee upskilling. This initiative could help bridge this gap and boost innovation in the sector.
- **Green Telecom Policy:** Implement a comprehensive Green Telecom Policy to promote sustainable practices in the sector.
  - Set targets for **renewable energy adoption in telecom infrastructure** - aim for significant % of tower energy consumption from renewable sources by a target year.
  - Mandate energy-efficient equipment in networks. For example, **Airtel** has already committed to reducing its carbon footprint by **50% by 2031.**
  - A sector-wide push could lead to significant environmental benefits and operational cost savings for telcos in the long run.
- **Simplified Licensing Regime:** Streamline the current multi-license system into a unified license framework.
  - Implement an online single-window clearance system for all telecom-related approvals.
  - This could **potentially reduce operational costs for telcos by 15-20%** and attract more foreign investment in the sector.
  - For instance, countries like **Singapore with simplified licensing** have seen higher FDI in telecom.
- **Data Localization Support:** Develop a supportive framework for data localization in the telecom sector.
  - Offer **tax incentives for telcos setting up local data centers.** Collaborate with the IT Ministry to create a network of tier-2 and tier-3 city data centers.
  - This initiative could not only **enhance data security but also create new revenue streams for telcos.**
  - For example, **Jio's partnership with Microsoft for data centers** could be a model for other telcos to follow, potentially generating additional revenue.



## Conclusion

India's telecom sector stands at a pivotal moment, requiring comprehensive reforms to address financial challenges, regulatory complexities, and infrastructure gaps. By **rationalizing spectrum pricing, promoting infrastructure sharing, and fostering innovation** through regulatory sandboxes, the sector can unlock its full potential. Government initiatives like the **Telecommunications Act 2023**, along with a focus on green practices and rural connectivity, will ensure sustainable growth.

### **Drishti Mains Question:**

The telecom sector plays a pivotal role in India's digital growth. Analyze the key challenges faced by the telecom industry in ensuring sustainable growth and affordable services.

## UPSC Civil Services Examination, Previous Year Question (PYQ)

**Q. Which of the following is/are the aims/aims of the “Digital India” Plan of the Government of India? (2018)**

1. Formation of India's own Internet companies like China did.
2. Establish a policy framework to encourage overseas multinational corporations that collect Big Data to build their large data centers within our national geographical boundaries.
3. Connect many of our villages to the Internet and bring Wi-Fi to many of our schools, public places and major tourist centers.

**Select the correct answer using the code given below:**

- (a) 1 and 2 only
- (b) 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**Ans: (b)**