CHAPTER 2
OVERVIEW OF INDIAN CELLULAR MOBILE SERVICE SECTOR

2.1 PREVIEW OF OVERVIEW CHAPTER
This overview chapter seeks to provide an in-depth understanding of the Indian cellular mobile services sector in terms of the strategic importance of this sector as also problem areas affecting this sector. With this purpose in mind, all environmental factors are investigated – the facts about the Indian cellular mobile services sector, the size and growth rate of the sector, reasons for growth, competitive dynamics, SWOT analysis, technological advancements, regulatory framework, investments and areas for growth.

2.2 INTRODUCTION TO INDIAN CELLULAR MOBILE SERVICE SECTOR (MOBILE PHONE SERVICE)

The telecommunications industry in India was liberalized in the early 1990s, paving the way for a significant influx of private investments in the industry. Since then, this industry has experienced an exponential growth and has now become the world’s most competitive and one of the fastest growing telecommunications market. While the Indian telecom industry has seen immense growth in all its three sectors-Internet, telephony, and broadcasting, it is the cellular mobile service (mobile phone service) sector that has seen the fastest growth of them all, leading to the cellular mobile service sector dominating in overall Indian telecommunications industry.

Liberalization has led to increased competition in cellular mobile service sector, resulting in continuously high investments in rapid technological advancements, so as to be one-up on competition and stay in the race. The dynamic competitive environment has also resulted in increased attention being paid to customer
acquisition activities (read advertising, sales promotions and lower prices) with companies constantly clamoring to get more and more customers so as to increase profitability through increased market share.

On the other hand, due to the heightened marketing activities, customers have become more knowledgeable and this has resulted in increasing demands of the customers. Customers are constantly on the lookout for better services at better (read lower) prices and with the mobile number portability in place, customers are finding it easy to switch whenever they are unhappy with the service quality of cellular services or even when they find a better deal elsewhere.

In such a dynamic environment, while cellular mobile service providers need to become increasingly customer oriented and competitive, they do not seem to have got it right completely and the sector is still plagued with problems of service quality complaints, ineffective customer service, and customer churn. The consequent revenue leakages, has put pressure on the profitability of the cellular mobile service providers.

With ever increasing competition, as more new entrants are expected to enter the fray, it is very important that cellular mobile service providers get their act together. Hence the quality of service provided will be a critical factor.

2.3 CLASSIFICATION OF TELECOM SECTOR IN INDIA

The following diagram gives a graphical representation of how the Indian telecom sector is broken up into wireless services, wire line services, internet services, VSATs and PMRTs. The focus of study in this thesis is wireless services (cellular mobile services), which as can be seen from the diagram below is further broken down into Data and Video, Voice and VAS.
FIGURE 2.1 – CLASSIFICATION OF TELECOM SECTOR IN INDIA

VSATs : Very Small Aperture Terminals ; VAS : Value Added Services ;

The strategic importance of the Indian Cellular Mobile Service (Mobile phone service) Sector can be seen from the facts below

2.4. FACTS ABOUT INDIAN CELLULAR MOBILE SERVICE SECTOR (MOBILE PHONE SERVICE)

1. The Indian Cellular Mobile Service Sector is today the world's most competitive and one of the fastest growing markets. It has grown from 5 million subscribers in 2001 to 846 million subscribers in 2011, by a factor of 160 times in just ten years.

2. It is also the world’s second largest telecommunication network in the world in terms of number of wireless connections after China. Furthermore, projections indicate that the total number of subscribers in India will exceed the total subscriber count in China in near future.

3. With 886.3 Million mobile phone connections (and only 28.89 million fixed line subscribers as of December 2013), mobile phone connections has dwarfed fixed line connections by 20:1. While the growth rate of wireless subscription has been phenomenal in the last two decades and is growing quarter on quarter, the wire line subscription is continually declining.
4. The overall tele-density in India is currently at 74.2% (Dec 2013). At the current tele-density, mobile phone penetration stands at more than one phone per household. The rural tele-density stands at 42.67%.

5. The monthly additions to mobile phone connections are 5.5 million users (Dec 2013).

6. The high growth rate makes the industry extremely attractive to enter and hence competitively dynamic with 15 players at last count and many more to come.

7. Total revenue of Indian telecom sector grew by 7% to Rs. 2832 billion (US $ 47 Billion) for 2010-11 while revenues from telecom equipment stood at Rs. 1170 billion (US $ 20 Billion).

8. Top 6 operators contribute 88/89% market share of wireless telephony: Bharti Airtel, Reliance Communication, Vodafone, BSNL, Tata and Idea. Market share of private operators is 88.26% while that of Public Sector Undertakings (PSUs) is 11.74% (Dec 2013).

9. India has the highest Minutes of Usage (MOU) per connection in 2010 at 4000 minutes per year per connection. India also has the highest total MOU at 3000 billion vs. 1450 billion MOU for USA and 150 Billion MOU for Germany. The current minutes of usage (MOU) per subscriber per month as of June 2013 is 388 minutes for GSM subscribers and 278 minutes for CDMA subscribers. Reason for high mobile usage is the low penetration and lack of sophistication of fixed line services in India when mobile phones first arrived.

10. The cellular mobile service sector in India is predominantly prepaid (>96%). Prepaid limits bad debt risk as operators get paid upfront before usage. However, Average Revenue Per User (ARPU’s) are higher for postpaid users. Postpaid services come with fixed monthly rental that gives higher ARPU every month. From operators’ point of view, while ARPU for prepaid is low, prepaid service, besides limiting bad debt risk, helps service providers create demand for telecom services among low income users which helps widen the customer base.
11. India primarily follows the GSM Mobile system, in the 900 MHz band. Recent operators also operate in the 1800 MHz band. 92% is the share of GSM and 8% is CDMA. There are 22 telecom circles in India.

12. **The churn rate of cellular mobile users (subscribers moving from one cellular operator to other cellular operators) in India is around 6% per month, which is one of the highest in the world.**

13. The reduction of tariffs however, had also brought down the Average Revenue Per User (ARPUs) of the cellular mobile service operators. Indian companies’ ARPUs are a fraction of comparable rates in developed countries. In 2009, Indian wireless ARPU averaged at $2.90 per month Vs $50 per month for USA, $22 per month for Germany and $58 per month for Japan. Even in developing countries like Brazil and Mexico, ARPUs averaged close to $13 and $14 a month respectively.

14. As per Telecom Regulatory Authority of India (TRAI) report of June 2010, the ARPU has been declining consistently from Rs.185 in June 09 to Rs.131 in March 2010 to 122 in June 2010 and was continually declining. Though now cellular service providers seem to have improved the ARPU in recent quarters to some extent (currently ARPU for GSM stands at Rs.111/- and that of CDMA stands at Rs.98/- as of June 2013), the control of churn and holding on to the current customers, continues to be important in a highly dynamic market.

15. India has the lowest call tariffs in the whole world, enabled by mega telephone networks and hyper competition. India has achieved the distinction of having the world's lowest call rates, the fastest sale of million mobile phones (1 week), the world's cheapest mobile handset (USD 19) and the world's most affordable color phone (USD 31).

16. The FDI inflow cap was 49% but was increasingly liberalized to 74% and now is 100%.

17. Of India’s 640 districts, 610 districts are covered by 3G services.
As the Indian cellular mobile service sector (mobile phone service) is poised to grow at an increasing rate, the cellular mobile service providers need to either maintain or increase service quality and consequently customer satisfaction. The sector being highly dynamic, continuous efforts in improving service quality and customer satisfaction are necessary.

Though companies are trying harder to meet with the Telecom authority Of India (TRAI) benchmarks on service quality and customer satisfaction they are still falling short on a number of Quality of Service (QOS) parameters laid down by the Telecom Authority Of India (TRAI) as is evident in the latest TRAI report (Apr –Jun 2013).

The performance of wireless service providers in terms of Quality of Service (QoS) during the quarter (Apr-Jun 2013) vis-à-vis that in previous quarter (Jan-Mar 2013) is depicted as under:

<table>
<thead>
<tr>
<th>Parameters showing Improvement in QoS</th>
<th>Parameters showing deterioration in QoS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• BTSs Accumulated downtime (not available for service)</td>
<td>• Metering and billing credibility -post paid</td>
</tr>
<tr>
<td>• TCH Congestion</td>
<td>• Metering and billing credibility-pre paid</td>
</tr>
<tr>
<td>• Worst affected cells having more than 3% TCH drop (call drop) rate</td>
<td>• Period of applying credit/waiver/adjustment</td>
</tr>
<tr>
<td>• Connection with good voice quality</td>
<td>• %age of calls answered by the operators (voice to voice) within 60 sec</td>
</tr>
<tr>
<td>• Point of Interconnection (POI) Congestion (No. of POIs not meeting the benchmark)</td>
<td>• Time taken for refund of deposits after closures.</td>
</tr>
<tr>
<td>• Resolution of billing / charging / validity complaints.</td>
<td></td>
</tr>
<tr>
<td>• Accessibility of call centre/customer care</td>
<td></td>
</tr>
<tr>
<td>• %age requests for Termination/Closure of service complied within 7 days.</td>
<td></td>
</tr>
</tbody>
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2.5 TELECOM CIRCLES IN INDIA- CELLULAR MOBILE SERVICE

- Divided into 22 circles. Each circle has licenses.
- Further divided into Metros & A, B and C category based on economic parameters and revenue potential

A category Circles: include Maharashtra, Gujarat, A.P, Karnataka, and Tamil Nadu.


C category Circles: include Himachal Pradesh, Bihar, Orissa, Assam and North Eastern States, Jammu and Kashmir.

- 4 Metros Circles : Delhi, Mumbai, Chennai and Kolkata. Metros account for 20.7% of total cellular mobile services market.

FIGURE 2.2 - TELECOM CIRCLES IN INDIA
2.6 REASONS BEHIND GROWTH OF INDIAN CELLULAR MOBILE SERVICE SECTOR

1. Lowest tariffs in the world (2–3 US cents).
2. Intense competition among operators leading to ever improving services and increasing penetration.
3. Cheap handsets availability. The world's cheapest mobile handset (USD 19) and the world's most affordable color phone (USD 31) is available in India. This has been made possible with handset manufacturing facilities set up in India.
4. Rising disposable incomes owing to increasing number of dual income families, rising employment opportunities, multinational jobs and salaries etc. Since liberalization, privatization and globalization (LPG), India has seen a sea change in the economic as well as social and cultural milieu.
5. Greater need for connectivity due to changing lifestyles and stresses as also professional demands. The changed economic scenario has also resulted in change in the professional demands in the job sphere with increased hours spent on the job, spent away from home and more travel on the jobs. Also, with increased threats to personal security owing to terrorist attacks, there is increased need felt to stay in touch.
6. Innovations like outsourcing of networks and sharing of infrastructure thus lowering operator costs.
7. Effective government regulations with many governmental bodies regulating the industry and sector.
8. Changes in Indian customer behavior -materialism and acquisitive behavior resulting in demand for latest status symbols like mobile phones.
2.7 SWOT ANALYSIS OF INDIAN CELLULAR MOBILE SERVICE SECTOR

Strengths

- Huge wireless subscriber potential.
- One of the fastest growing mobile markets in the world.
- Customers are ready to pay for cutting edge services.
- India possesses cheap labor to attract foreign investment in this sector.
- Telecom software, telecom professionals, telecom infrastructure and telecom services have been recognized by the government as the key players in shaping today’s economy.
- Revenue sharing strategies are leading to mergers and acquisitions, helping companies to enter new business opportunities and generate employment boosting the country’s economy.
- Government has relaxed rules for foreign participants.
- Lowest tariff rates in the world.

Weaknesses

- Market strongly regulated by government bodies & independent body like, the Telecom Authority of India (TRAI).
- Existence of entry barriers for private companies.
- High costs of services provision.
- Low income country like India cannot afford to replicate expensive telecom infrastructure.

Opportunities

- India as Asia’s third largest economy is adding at least >5 million new mobile phone users every month.
- Income levels in the rural areas rising due to robust agricultural output. Share of the rural market in the country’s mobile population is rising phenomenally
and is currently 40.2% (Dec 2013) of the total wireless subscribers from 16.61% in June 2009.

- Timely policy and regulatory initiatives taken by the government to encourage foreign players.
- Increased availability of bandwidth has opened it to new schemes making efficient usage of bandwidth, providing value added services and generating profits.
- Increasing foreign investment in the form of equity or technology.
- Telecom infrastructure is being considered as a critical factor in India’s economic development. Telecom infrastructure includes towers and the fiber network; demand for telecom towers is expected to continue to rise due to increasing penetration in rural areas, 3G services, expanding internet market and an increase in number of operators with pan-India operations.

**Threats**

- High level of risk, uncertainty and cost associated with cellular mobile services sector.
- Weak intellectual property rights (IPR) protection.
- Software and digital content piracy.
- Political instability.
- Cost of handset also acts as deterrent to opting for the service.
- China’s liberalization and its fast growing economy may prove to be a hindrance for India.
- Mobile phone user’s rate hitting a saturation point in big cities.
2.8 DIFFERENT TECHNOLOGIES USED BY CELLULAR MOBILE SERVICE PROVIDERS

A) 2G and 3G

2G network is narrow band wireless digital network. It provides clarity to voice and circuit switching, roaming facility is also available. 3G networks are introduced to overcome the limitations of 2G and 2.5G. It is a wide band wireless network which increases clarity, packet switching and video enabled calls. 3G technology requires a bandwidth of 15 to 20 Mega Hertz whereas that required for 2G technology is around 30 to 200 Kilo Hertz. This explains the difference between these technologies and the huge bandwidth required for 3G mobile phones.

The next generation of mobile technology would be 4G: co-existence of both CDMA and GSM technology in core band.

Applications of 3G spectrum: The potential of 3G is to bring about a convergence of voice, data (high-speed) and the myriad of user-friendly services popularly referred to as ICE (information, communication and entertainment).

For the consumer

1. Video streaming, downloading music tracks.
2. TV broadcast: Mobile TV in which television channels can be viewed through mobiles.
3. Faster internet on mobile, fast communication, MMS.
4. Useful in e-learning.
5. Video calls/telephony.
6. Video on demand in which a provider sends movie to subscribers’ mobile phone.
7. Enhanced gaming (3D games), chat, and location services.
8. Receive emails.
For business

1. High speed teleworking / VPN access: to provide remote offices or individual users with secure access to their organization's network.

2. Video conferencing in which subscribers can see and talk to each other through mobile phones.


5. Tele medicine in which a medical provider gives advice to isolated subscribers (rural).

6. Local services including weather, traffic etc.

B) CDMA Technology

One of the basic concepts in data communication is the idea of allowing several transmitters to send information simultaneously over a single communication channel. This allows several users to share a bandwidth of frequencies. This concept is called multiplexing. CDMA employs spread-spectrum technology and a special coding scheme (where each transmitter is assigned a code) to allow multiple users to be multiplexed over the same physical channel.

C) Future Technology: 4G

One standard known as IEEE 802.16e (belonging to the Mobile WiMax family) is now commercially available and is a precursor to 4G. It is a comprehensive IP SOLUTION on “Anytime Anywhere” basis. BSNL has license in India. To make India a leader in telecom technology TeNet created CeWiT(Centre of Excellence in Wireless Technology) to do research in 4G.
2.9 POLICY AND REGULATORY FRAMEWORK GOVERNING INDIAN CELLULAR MOBILE SERVICE SECTOR

**Indian government bodies:** They formulate various policies and pass laws to regulate the telecom industry in India.

- Wireless Planning and Coordination (WPC): Handles spectrum allocation and management.
- Department of Telecommunications (DoT): Licensee and frequency management for telecom. It is the main governing body for the industry.
- Telecom Commission: Exclusive policy making body of DoT
- Group on Telecom and IT (GoT-IT): Handles ad hoc issues of the telecom industry

**Independent bodies:** They undertake various research activities and monitor the quality of service provided in the Indian telecom industry. They also provide various recommendations to improve the status of telecom operations in India.

- Telecom Regulatory Authority of India (TRAI): Telecom Regulatory Authority of India (TRAI) assists the Government of India (GoI) to take timely decisions and introduce new technologies in the country.
- Telecom Disputes Settlement and Appellate Tribunal (TDSAT): Telecom disputes settlement body
2.10 INVESTMENTS IN THE TELECOM SECTOR

Despite the global economic slowdown in 2008–09, the telecom sector is one of the highest Foreign Direct Investments (FDI) attracting sectors in India. At present 74 to 100 per cent FDI is permitted for various telecom services.

The Indian telecom industry has always attracted foreign investors. In fact, the cumulative FDI inflow, during the August 1991 to March 2007 period, in the telecommunication sector amounted to USD 3,892 million. It is the third largest sector to attract FDI in India in the post-liberalisation era. FDI calculation takes into account radio paging, cellular mobile and basic telephone services in the telecommunication sector. The telecom sector has recorded FDI inflows worth over US$ 8 billion between 2000 and 2010. The Government of India has permitted 100 percent FDI in manufacturing of telecom equipment in India.
2.11 FUTURE GROWTH AREAS FOR TELECOM OPERATOR COMPANIES

1. **Virtual Private Network (VPN)**
   It is a private data network that provides connectivity within closed user groups via public telecommunication infrastructure. Competition is likely to heat up in the VPN segment as Department of Telecommunications (DoT) has relaxed the norms for private players.

2. **Mobile Virtual Network Operators** (e.g. Virgin) have launched telecom services. These operators do not have infrastructure of their own.

3. **Infrastructure sharing**
   To reduce their network deployment costs, many service providers are considering infrastructure sharing which offers the following advantages:
   - Improved service quality.
   - Increased affordability for customers.
   - Faster roll out of services in rural and remote areas.
   - Significant reduction in initial set up costs.
   - Increased environmental aesthetics.
   - Lower operating costs for service providers.

4. **Managed services**
   It is another segment that is attracting telecom companies. On account of the rapidly growing subscriber base, service providers find it difficult to manage their infrastructure and network management operations. In such cases, they completely or partially outsource their infrastructure or network management operations.
5. **Enterprise Telecom Services**

It includes key services, such as voice over Internet protocol (VoIP), dedicated telecom communication systems; IT infrastructure enabled unified communication services, etc. Telecom service providers are increasingly targeting enterprises by providing dedicated services and are expected to witness major developments in near future.

6. **3G**

The 3G spectrum is among the major investment opportunities and growth drivers of the telecom industry.

- The immense potential for 3G is reflected by the 30–40 percent annual growth in Value-Added Services.

- Cell phone manufacturers have developed USD 100 priced 3G handsets for the Indian market.

- India expects to replicate its 2G growth in 3G services.

7. **WiMAX**

WiMAX has been one of the most significant developments in wireless communication in the recent past. Since this mode of communication provides network access in inaccessible locations at a speed of more than 4 Mbps, it is expected to be a major factor in driving telecom services in India, especially wireless services. Thus, it will lead to the increased use of telecom services, Internet, value-added services and enterprise services. WiMAX is expected to accelerate economic growth and assist in providing better education, healthcare and entertainment services.

- Aircel is the pioneer in WiMAX technology in India.

- The state-owned player, BSNL, aims to connect 74,000 villages through WiMAX.

- Bharti, Reliance and VSNL have acquired licenses in the 3.3GHz range to utilize the opportunities offered by this domain.
8. **Value Added Services (VAS)**
   The VAS industry is currently focussing on the entertainment sector, such as the Indian film industry and cricket; however, there is scope for growth in other avenues as utility-based services, such as location information and mobile transactions.

9. **Rural telephony**
   As the government targets to increase rural tele-density, rural telephony will require major investments. This segment will boost the demand for telecom services, equipment, internet services and other value-added services; thereby, offering great market opportunities for telecom players. The rural tele-density is much lower compared to national average.
   
   In 2008-09, rural India outpaced urban India in mobile growth rate. Rural tele-density almost doubled from 8.73% in June 2008 to 15.35% in June 2009. In the last few years, rural telecom market has been a significant contributor to Indian telecom industry growth.

10. **Mobile Number Portability (MNP)**
    This has been implemented in India in November 2010. This technology allows mobile subscribers to change their operators without the need to change their mobile numbers. This has brought a number of changes in the industry. Earlier users were averse to change their operators because of the number change. With the available flexibility, operators have to substantially improve their services or risk losing from their subscriber base. All this has resulted in efficiency improvements and improved network connectivity.

From the above, it can be seen that while the Indian cellular mobile service providers have a lot of opportunities and growth potential, they face a number of significant challenges.
2.12 CONCLUSIONS FROM OVERVIEW CHAPTER

In conclusion, from the above understanding of the Indian cellular mobile service sector through the delineation of the facts about the industry, competitive dynamics, reasons for growth, SWOT analysis, technological advancements, government’s encouraging policies, growing investments in the telecom sector and increasing growth opportunities, this researcher felt that the Indian cellular mobile service sector is an extremely interesting sector to study.