

Impact of Technological Changes in Telecom Sector in India

Kapil Yadav, Shashank Tiwari* and Rajiv Divekar

Symbiosis International University's Symbiosis Institute of Management Studies, India;
shashank.destiny@gmail.com

Abstract

The rapid change in technology in Indian telecom sector has significantly impacted the operational aspect of telecom business. Coupled with increased competition and emergence of rural market, the telecom sector is faltering in its evolution. In this work we discuss, how addressing the challenges and opportunities of Indian telecom sector can lead to its holistic improvement.

Keywords: 2G, 3G, Indian Telecom Industry

1. Introduction

Telecom companies have been successful in past years through continuous improvements in their offerings and modulating the terms to gain advantage over competitors. The technologies normally have a flow path from developed markets to underdeveloped or developing markets which has a lag time. Now, with better connectivity and processes this lag time has constantly reducing featuring a global launch of technology than in segments. This has made the total business framework complicated. The Indian telecom sector however also faces the curse of corruption, mismanagement and rural markets which forms entire different set of business challenge and requires entirely different set of operating principles to sustain and succeed in longer run. We discuss key points which provide significant impetus to Indian telecom sector and also the barriers to carry forward the momentum. *The Regulations and Policy Considerations in Managing Businesses* Telecom regulations have really changed the way the companies operate right from the licensing policies to connection setup. A recent introduction of the Number Portability facility and regulations of changing operators at any point of time without changing the mobile number has stirred a series of business operational changes¹⁴. This has increased the expenses of companies on after sales services to many folds and companies will be focusing on greater presence across country.

The assumption that customers are reluctant to change their number thus keep going with the same operator has been challenged

The focus has again shifted to not on the number of connection but on the quality of service being provided

A large number of telecom companies will now have to cut down on large number of advertising that generates money for the company but gradually irritate the customer.

Small changes can bring huge changes in the entire setup and financial budgeting of the companies. This explains how volatile the telecom market is and the companies are fighting this on small margins. The cost involved in setting up any regulatory changes or contractual obligations are generally are very huge but the recovery time is very large. FDI in telecom sector has also influenced the decision making process in many companies as the barrier of financing is lifted with this and top management can undertake strategic decisions having long term returns³². In this sector, unless and until the entire infrastructure is not ready till then it is very difficult to understand the viability of its success^{15,31}. Not many pilot runs or tests are possible to forecast the success rate of any technology. As the needs of consumers vary from region to region and the time of launching the technology also decides the success. When the mobile phone coupled with FM radio started penetrating the market it was a success in the urban and semi urban but

*Author for correspondence

dint quite work in the rural sector due to the long and short wave technologies availability and support. The rural sector primarily gets only short waves but that is not supported in mobile phones. The rural population was introduced to the mobile phone concept later with no focus on this problem²³. Moreover the regulators are bribed to make policies conducive and benefiting to the companies meanwhile reduces the growth and the true cost of licensing is not extracted by the government. The Financial Action Task Force is an inter-governmental body. Its main task is to promote national and international policies for combating money laundering and also terrorist financing. Recommendations have been developed against the evolving threats to provide a basic framework of anti-money laundering measures. This has a primary implication in resources needed to develop the basic infrastructure needed to grow. A large number of regulations are not to aid the growth process but are more to restrict the growth. Some of the regulations are designed without any proper consideration of the real implications and how it will be monitored. Indian regulators do changes only when there is a major problem or default happens. There are very less regulations to mitigate any crises arriving due to non-compliance of policies. On the brighter side the Telecom Regulatory Authority of India (TRAI) in the last decade has not only helped the economy by connecting nation and the business houses. Some of the regulations have impacted the rapid growth that is observed in Indian economy. The growth in the telecom sector has been supplemented by the infrastructure support which has not grown at the same pace. However, as we discussed this growth has been achieved at the cost of climate, corruption and regulation biases. This industry has seen a great growth in the subscriber base with an increase in network coverage and a decline in tariff rates due to competition acting as catalysts. Expectations of investments to the tune of UD\$ 56.3 billion and the market will be more than UD \$ 101 billion in coming five to six years¹⁵.

2. Current Scenario

India today is the second largest telecom market with large consumer base in the world behind only China. India has liberal policy regime and the private sector's involvement have played an important role in the growth of this sector. The total number of telephones as on 31st April 2013 was 897.02 million. The internet consumer in the same

time on 31st March 2013 grew to 164.81 million with 7 out of every 10 users accessing net from their mobile phones, according to TRAI. This figure of internet users was 143.2 million in the last fiscal year^{15,31}. As of 31st March '13 the number of people using broadband services has increased to 15.05 million from 14.98 million which was the figure as of 31st Dec '12. The number of non-mobile internet users has had a growth rate of 0.16 %¹⁵. Liberalisation of Telecom sector has not only increased the growth but also helped in maximization of benefits for the consumer which was evident due to huge fall in the tariff rates. The rates have been a primary concern not only in calling but also for internet surfing. As the focus on internet is surfing and download speed which from companies' perspective require investments in internet and other infrastructure facilities and market competition to be able to sell and get returns on the investments. In simple terms, 'Teledensity' is a measure of number of phones per 100 individuals. This is a parameter to determine the rise of telecom facility and users which helps in understanding the areas where business can grow further. Teledensity in India has slid from being 76.86 % in Dec 2013 to about 73.16 % in April 2013 indicating the subscribers are reducing the number of connection primarily either because of inflation or due to hike in the tariff rates after the 2G scam¹⁵. The introduction of Smartphone and internet in telephony with sudden increase in competition among telecom players due to licensing liberalizations changed the telecom operations to a large extent. Also, 3G is turning out to the new way of life for the young generation. The tools like Data Envelopment Analysis (DEA)⁶ have been used to study the telecom business right from 1997. In the subsequent years the models has been improvised and have been used to analyze the cost and financial implications of any strategic steps taken by the company. Not only the company's employees need to adopt these changes happening in the system and the way they operated but the management also starts afresh to address various issues due to changes. A lot of change management initiatives drive this process of gradual adaptation^{24,28}

3. 3G Technology

One has been hearing a lot about 3G of late. This 3rd Generation of telecommunication technology or 3G as it is popularly called is not yet passed its infancy in our country. Given the huge size of India it will not be financially One

has been hearing a lot about 3G of late. This 3rd Generation of telecommunication technology or 3G as it is popularly called is not yet passed its infancy in our country. Given the huge size of India it will not be financially viable to provide universal coverage of 3G network. However it is slowly becoming available in more and more cities which is no surprise considering the fact that India is one of the fastest growing telecom markets in the world²⁶. Although 3G has been around only for a couple of years, it is possible for any new or existing customer to enjoy 3G services just by picking up a 3G compatible handset and a compatible SIM card from any of the many network service providers. So what is 3G and how does it work. The international body which regulates global telecommunications defines 3G as the third generation of mobile networking technology. 3G is not a single connection type and there are a lot of connection types which make up its broad definition. In most of the cases, in order to simplify, '3G' refers to the service type that lets data and voice both to be transmitted and received from a single device at the same time. The speed though will vary depending on the mobile handset in use, network one chose and the network coverage in the area. Theoretically, using the advanced HSPA (High Speed Packet Access) technology, the maximum download speed we can get in 3G is 14 Mbps^{15,22}. In reality however, the download speed would be much less due to network limitations and many other incalculable factors, but in general 3G allows advanced services such as video calling, mobile television and high speed internet on mobile handsets. All this technology is changing the operations of the telecoms. Earlier most of the revenue used to come from the voice services. Then there was SMS revolution and Value Added Services (VAS) came into picture. Soon VAS were accounting for a good amount of chunk of the revenues. But the greater and faster access to internet is creating challenges for the operators. These challenges are in the form of tariff-saving applications like Whatsapp, BBM etc. and free calling over the internet via Skype, Viber and the likes. Also most operators are challenged by the huge investments needed in 3G when 4G is knocking at the door. Many operators have the risk of investing into 4G infrastructure even without tasting a profit on 3G! In the US, T Mobile is fast positioning itself as "un-carrier" and changing the rules of the game by offering customers phone-upgrade option every six months, up from 24 months. The operators are rethinking their consumer

connectivity and plans. This strategy will see a churn in this sector of operations. Mobile operators in India have their own set of challenges: some on policy, some on philosophy. The Indian telecom sector has gone from near-death in the 1990s to pragmatic regulation and an outsourced business model for profitable growth, to new licences and hyper competition sparking price wars, and now regulation ambiguity. In the past decade and a half the call rates and investments have moved exponentially, though in opposite directions. The tactics tried by operators have varied starting from subsidies on handsets to expanding distribution to building services. This decade is about planning, managing and executing the ABCD of the telecom sector. a) A stands for **auction** of spectrum. Scarcity of spectrum, high prices, allocation and scams has divided the industry and as a result we do not have any private operator with pan India presence. While the 900 MHz spectrum has always been priced almost two times of the 1800 MHz one, the premium is not justified by market experience. The government stands to gain by auctioning spectrum and the operator loses if he doesn't bid for it^{31, 33}. Uncertainty on spectrum is ambiguity for the operators and ambiguity is not good for business. b) B stands for **borrowing**. Since the spectrum prices are unreasonably high the operators have no choice but to borrow in order to bid for and own spectrum. Many operators had very few liabilities and were debt-free a few years ago. Compare that with today when the total debt of operators in the industry stands at a total of about \$60 billion which is more than two years' revenues³³. Add to that the fluctuation of currency which paints a grim face of the industry because depreciation of rupee leads to increase in debt as half of this borrowing is in dollars. Many of the operators are left with no choice but to sell their stakes in order to repay the debts. The question to ask here is that is this kind of borrowing sustainable. c) C stands for consolidation. **Consolidation** takes place with clarity in policy. Most countries with consumer base of more than 100 million have at max 3 or 4 operators²². No single country has 13 operators which is the case in India. This has led to change in operational strategies as many operators are getting into sharing agreements to remain competitive. Sharing agreements come into picture for providing roaming services and towers. Expert opinion is that there is place for about five profitable operators in this decade. Helping hand has come from government in the form of 100% FDI in telecom¹⁴. d) D stands for **data**. ARPU (Average Revenue per User) in India

is about \$ 2.50. Of this \$0.50 comes from data and half of it, i.e. \$0.25 comes from SMS^{22,33}. There is lot of opportunity in getting the rural 2G using population to use data in the form of SMS and the urban 3G using population to consume more and more data. Video is one option which uses a lot of data. In fact 3G was launched in India with main emphasis on video-calling. Even among 2G consumers video streaming and downloading from sites such as Youtube is an answer. The recent revolution in handset technology has made this possible with Samsung and Apple leading the way. However the recent price wars in 3G will definitely hurt the profitability of the industry.

4. Growth Areas

There are four major growth areas. These are also the major verticals in telecom space:

- a) **Operator brands:** It's same as subscriber base. According to a research by Gartner in 2013¹⁴ the subscriber base is expected to rise by 9% this year to 696 million connections. The penetration of mobile service in India is 51% and by the year 2016 is suspected to rise to 72%¹⁴.
- b) **Handset brands:** The subscriber base will increase along with the growth in mobile handset markets. The market is flooded with handsets for all price ranges with presence of major global players. India has attained the position of second largest mobile handset market in the world and is further expected to grow from US\$5.7 billion in 2010 to US\$7.8 billion in 2016^{14,15}.
- c) **Retailer brands:** This pertains to mobile number portability as the base for assessment. Since MNP was introduced in India the numbers of requests have gone up from 89.70 million in March 2013 to 91.73 million subscribers in April 2013^{14,16}.
- d) **Application brands:** The existing size of the mobile VAS in the country is around US\$ 2.7 billion. Around 80% of these VAS comprise of applications like music, video, games etc. The Indian VAS industry may grow up to US\$ 10.8 billion by the year 2015 and the major portion of the development is expected to come from rural and semi-urban consumers^{14,32}. Considering all the verticals the operator must resist the temptation offered by the other verticals. Operator brands should become Master of one in which they are efficient and try not to be Jack of all trades. However, they should use these opportunities in these verticals by forging effective and long term partnerships with leading players in particular markets.

The telecom sector costs are humongous, and a lot is at stake. The whole system as it is stands right now in a grey zone and the challenge is to see through this haze and steer the ship to a safe harbour. This will need foresight and tireless efforts, especially in pricing and consumer relationship management. The big data revolution could well start and spur this sector in India^{10,17}.

5. Future Outlook

The PSUs will always have an upper edge with regards to having high investments available and thereby reaching out to rural and remote consumers. But, the private players with having huge balance sheets are gradually penetrating in these markets and helping in expanding the consumer base. The internet based data services will gradually get more demand and thereby the basic infrastructure to support such services is going to become mandatory^{4,27}. Increasing number of alternatives and reduced tariffs have made the telecom services an exciting package for a normal consumer. Adding to that the penetration and density levels in urban areas already crossed 100%. Hence, in years ahead the growth will be majorly driven by the semi-urban and rural markets where tele-density is around 39.22%^{4,18}. The 2G licenses issued four years earlier in 2008 were cancelled by the Supreme Court in 2012. The TRAI has come up with regulations resulting in the 2G spectrum being priced at high prices^{13,14,31}. The operators have been opposing this move of rising prices according to them will put pressure on their already stretched balance sheets further. The events of cancellation and reallocation of spectrum led to the exit of 2 foreign operators from the country. The other operators too are thinking back on their investment plans and proposals in India. However, the regulators are still optimistic that foreign operators will still be interested in the growing market of India and the past will not be repeated^{15,32}. The operators' margins were very thin during FY¹². Due to cut-throat competition, tariffs had to be low and with the fear of losing customers they were sometimes lowered than other competitors. The operating margins will continue to be low on the back of high operating costs. This will most likely bring the balance sheets of the telcos under pressure. Many operators had taken lump sum loans to buy their 3G spectrums. More funds are needed now to again buy the 2G spectrum licenses^{14,31}. The margins are very low and debt to equity ratios high, so even the banks

have become sceptical about lending any more to the telecom companies. Therefore, most of them are searching for various options to raise funds one of which may be listing of previously unlisted subsidiaries. Lately, tariffs on some of the premium 3G services have been cut down. Most of the operators believe that the decline in tariffs would be followed by increase in volumes which would help boost 3G revenues. The customers in India are known to be price sensitive and therefore this move to cut prices is expected to generate growth for 3G in the coming years and the results are visible in many operators' business revenues. However, the predatory pricing, like there was for 2G, would be very harmful for the sector as it will cut the operating margins further. All this would eventually lead to tariff increase on the 2G side, it is still not clear if this move is made in the current fiscal year or not. 4G (LTE) has already entered Indian market. It is yet to be seen if it has the same impact on consumers as 3G or the market will behave more maturely and take its time to absorb the new technology. 4G is many times faster than 3G in terms of data transfer speeds. A simple comparison of this speed is given in the **Table 1**. New analytics solutions, multichannel metrics, and better collaboration tools will be crucial in 2013 going ahead, as enterprises feel the pressure to understand and pre-empt the needs from the always-connected customer. Vendors will need to step up and add these capabilities fast, or else risk losing business. Traditionally siloed applications like BI (business intelligence), performance management, Customer Relationship Management (CRM) and customer feedback will merge into Voice-Of-the-Customer (VOC) analytics suites that are going to aid companies view, compare and analyse data across different stages of the customer lifecycle^{4,8,10}. Hence, keeping a better track of the customers activity and provide customised solutions.

5. Conclusion

The telecom sector keeps reviving the business model on the basis of the technology and the consumer segment that it targets. However, major companies are trying to get their costs reduced and reach the breakeven point as soon as possible for any new technology. Life cycle of the products are constantly decreasing and pressurising companies to work on a JIT model, BI¹² and focus on forecasting ability that will decide the success in coming years^{13,31}.

The real problem in coming times will be of customer retention as consumer is becoming more aware with tools like portability helping them to act on if unsatisfied. Service industry in India has been growing at a rapid rate and the progress seen in this sector is an indicator to the fact that gradually services like telecom will only play a crucial role in deciding the economic stability. So, Customer Relationship Management (CRM) is going to be on high priority list with changes in the approach to various customers^{8,11}. The sector has to still penetrate the markets some of which is still untouched. This will be only done through innovative approach to the business models and the infrastructure reforms that will be helpful in fast and better service to the end users which is the prime motive. The growth in telecom sector is high and will accelerate the other sectors growth with huge potential market to tap in.

7. References

1. Cuwen P. Assessing the meltdown in the telecommunication sector. 2005.
2. Menon S. The role of diverse institutional agendas in the importation of convergence policy into the Indian communications sector. 2005.
3. Debnath RM, Shankar R. Benchmarking telecommunication service in India (An application of data envelopment analysis). *Benchmark Int J*. 2008; 15(5):584–98.
4. Anderson J. Developing a route to market strategy for mobile communications in rural India. *Int J Emerg Market*. 2008; 3(4):339–47.
5. Sutherland E. Corruption in telecommunications problem and remedies. Emerald Group Publishing. 2012; 14(1):4–19.
6. Nigam V, Thakur T, Singh VK, Singh RP. Benchmarking of Indian mobile telecom operators using DEA with sensitivity analysis. *Benchmark Int J*. 2012; 19(2):219–38.
7. Bhargava, Manish, Bhardwaj A, Rathore APS. Six Sigma Methodology Utilization in Telecom Sector for Quality Improvement- A DMAIC Process. *IJEST*. 2010; 2(12).
8. Haridasan V, Venkatesh S. CRM Implementation in Indian Telecom Industry – Evaluating the Effectiveness of Mobile Service Providers Using Data Envelopment Analysis. *IJBRM*. 2011; 2(3).
9. Bhattacharya M. IES Telecom Sector in India: Vision 2020. Department of Telecommunications, Ministry of Communications & IT, and Government of India. 2010.
10. Arora M. Role of CRM in the changing face of Indian telecom industry. *VSRD International Journal of Business and Management Research*. 2013 Apr; 3(4).

11. Kumar P. Impact of Business Intelligence Systems in Indian Telecom Industry. *Bus Intell J.* 2012 Jul.
12. Joshi RB. Telecom Sector: Outsourcing Network Operations. IIM Ahmedabad Publication; 2009.
13. Bourreau M, Dogun P. Regulation and Innovation in Telecom Industry. Forthcoming Telecom Publications in France, A preview. 2001.
14. Corporate catalyst; India: A brief report on telecom sector. 2013 Aug.
15. Jain R. A review of the Indian Telecom sector. *India Infrastructure Report*, Chapter 8. 2001.
16. Lim S, Cao G, Das CR. A unified bandwidth reservation and admission control mechanism for QoS provisioning in cellular networks. *Wireless Comm Mobile Comput.* 2004; 4:3–18.
17. Hodges RL. Telecommunications: Drivers for change. *NTQ.* 1995; 3Q95.
18. Pennings J, van Kranenburg H, Hagedoorn J. Past, Present and Future of the Telecommunications Industry. 2005 May.
19. Telecom Diary. Let's talk Telecom, 2012 Sep; 01(01).
20. Seth A, Momaya K, Gupta HM. Managing customer perceived service quality for cellular mobile telephony: an empirical investigation. *VIKALPA.* 2008 Jan-Mar; 33(1).
21. Deloitte, Technology Media and telecommunication predication 2013. A comprehensive study. 2012.
22. Singh K, Saeed M, Bertsch A. Key Factors Influencing Employee Response toward Change: A Test in the Telecom Industry in India. *Journal of Management Policy and Practice.* 2012; 13(3).
23. Pande M, Patel N. Telecom Technology Transfer in Rural India: A Study with Respect to Marathwada Region in Maharashtra. *The IUP Journal of Infrastructure.* 2011; IX(4).
24. Mittal SK, Momaya KS, Sushil S. Longitudinal and Comparative Perspectives on the Competitiveness of Countries: Learning from Technology and the Telecom Sector. *JCC: The Business and Economics Research Journal.* 2013; 6(2).
25. Chhibber N. Enhancing Developmental Opportunities by Promoting ICT Use: Vision for Rural India. *I-WAYS, Digest of Electronic Commerce Policy and Regulation.* 2004; 27:190–196. IOS Press.
26. Dwivedi H, Sharma L. Leadership through Innovation and Creativity in Marketing Strategies of Indian Telecom Sector: A Case Study of Airtel Using Factor Analysis Approach. *Int J Bus Admin.* 2011 Nov; 2(4).
27. Chwee-huat T. Singapore Telecom: From Public to Private Sector. *International Journal of Public Sector Management.* 1992; 5(4).
28. Henten A, Samarajiva R, Melody W. Designing next generation telecom regulation: ICT convergence or multi-sector utility?. *The Emerald Research.* 2003; 5(1):26–33.
29. Whalley J, Curwen P. Unravelling complex organisational structures among mobile operators. *The Emerald Group Publishing Limited.* 2013; 15(4).
30. Jain D, Banwet DK. Unravelling complex organisational structures among mobile operators. *J Model Manag.* 2013; 8(3).
31. Ernst & Young; Enabling the next wave of telecom growth in India: Industry inputs for National Telecom Policy 2011. FICCI Publication; 2011.
32. Fathima A, Ahmed B, Kumar S. FDI in Indian Telecom Sector a Perspective. *Int J Sci Eng Tech.* 2013 Oct; 2(10). (ISSN: 2277-1581).
33. Available from: http://articles.economictimes.indiatimes.com/2013-07-30/news/40895212_1_13-operators-spectrum-mhz