CHAPTER – 1

INTRODUCTION

1.1 Introduction to Service Sector:

In the 21st century, the new economy is becoming increasingly customer centric. In the current marketplace, considerable attention has been paid to the concept of relationship between service providers and their customers (Barnes, 1997; Gwinner et al., 1998; Reynolds and Arnold, 2000), and this concept has been enthusiastically embraced by academics and practitioners (Beatty et al., 1996; Berry, 1995; Reynolds and Arnold, 2000). Both operationally and theoretically, the word relationship is poorly defined (Bagozzi, 1995). A relationship may be seen to exist in an operational context, where the relationship is created through a series of episodes, so that in the buying of a service at least two encounters are required before a relationship exists (Liljander and Strandvik, 1995; Storbacka et al., 1994). This position is further developed by Barnes (1997), who suggests that before a relationship may be said to exist, both parties must mutually perceive that the relationship exists and the relationship must be characterized by a special status. Relationships are, therefore, a series of transactions which build an awareness of a shared relationship through trust and commitment, among several other factors (Morgan and Hunt, 1994).

On the surface, there is considerable merit in the idea of a service company building relationships with its customers. It is in an attempt to increase the level of trust and commitment that customers feel towards the company (Sheaves and Barnes, 1996). The higher levels of trust and commitment, in turn, are associated with higher levels of customer retention and, inevitably, organizational profitability. However, there is little consideration given to what actually constitutes a relationship, and even less to how it is practiced in business and other organizations (Barnes, 1997; Sheaves and Barnes, 1996). It is plausible
that a certain interaction may be perceived by some people as a relationship, while others may perceive the same interaction to be merely an interaction, devoid of the elements that would make up a relationship (Bendapudi and Berry, 1997). Therefore, the concept of a relationship is highly subjective, and given the lack of a clear definition of a relationship, it may be useful to explore the various dimensions of a relationship and address their impact on the overall quality of a relationship.

**SERVICE SECTOR**

A service has been defined as, "any act or performance that one party can offer to another that is essentially intangible, and does not result in the ownership of anything..." (Kotler, 2004) Unlike physical products, service products cannot be seen, tasted, felt, heard, or smelled before they are bought (Parasuraman et al; 1985; Lovelock, 1981). Since services are intangible, consumers are often faced with not knowing what to expect of a service until they have consumed it, and hence perceive services as risky (Murray and Schlacter, 1990). Further, research has demonstrated that the need for trust arises in any situation characterized by a high degree of risk, uncertainty, and/or a lack of knowledge or information on the part of the interaction participants (Mayer et al., 1995). Thus, customers have an inherent need to trust in their service provider to deliver the desired service outcome.

Services sector is the fastest growing segment as compared to other sectors of the Indian economy. A major stimulus in this shift is the movement to information age spurred by invention of computer and advancements in telecommunications. As countries continue to shift from agricultural base to services orientation, the demand for services further holds huge potential.

Additional factors contributing to the growth of service sector are higher per capita income, increased time pressure, advances in product technology (Kurtz, 2002), spiraling competition,
rise of individualism (Seth & Seth, 2005) technological advances, globalization, (Balchandaran, 2004), competition, greater life expectancy and cost effectiveness drives (Rampal and Gupta, 2002) and growth of service chains and networks and service quality movement Thus, tremendous growth of services sector implies the role of marketing in terms of vast opportunities and implications, marketing opportunities arising from new technology, in franchising from fewer regulations and professional restrictions, in servicing physical goods and international markets (Lovelock, 1999).

**GDP of INDIA**

The GDP of India with regards to purchasing power parity is approximately 4.463 trillion dollars, which places it in the 4th position in the world. With regards to official exchange rate its GDP is close to $1.843 trillion. At the end of 2011 the real growth rate of India GDP was approximately 7.8 percent, which gives it the 15th rank from a global perspective. In 2010 this was almost 10.1% and in 2009 it was close to 6.8%. The per capita (PPP) GDP of India is approximately 3700 US dollars, which places it in the 163rd position from a global perspective. In 2010 this figure stood at almost $3500 and in the previous year this was at $3200.

**Service Sector in GDP**

The global recession only partially succeeded in slowing the Indian economy thanks to the robust growth in services at nearly 10 per cent in 2010-11 and 9.4 per cent this fiscal, says the latest Economic Survey. This apart, the northeastern states have powered the service sector growth, it adds. Tabled by finance minister Pranab Mukherjee in Parliament on Thursday, the survey says that the service sector has continued to remain the driving force for the Indian economy with growth higher by 10 basis points this fiscal over the previous year."The industry sector contributes nearly 26 per cent to India's gross domestic product (GDP).
However, maintaining the growth momentum, the service sector recorded expected growth rate to bottom out the industrial slow down across the globe," the survey says."The service sector along with the agricultural sector placed India in the top fastest growing economies of the world despite the Euro zone crisis and North American economic instabilities."

The survey clearly says the economy has successfully navigated the turbulent years of recent global economic crisis because of the vitality of the service sector and its prominent role in India's external economic interactions. The survey says the share of services in India's GDP has increased from 33.5 per cent in 1950-51 to 55.1 per cent in 2010-11 and to 56.3 per cent in 2011-12. If construction is included, the share increased to 64.4 per cent in 2011-12.

**TABLE: 1.1 Growth in GDP from 2004-05 to 2010-2011**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>GDP AT CURRENT PRICES</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-05</td>
<td>1805110</td>
</tr>
<tr>
<td>2005-06</td>
<td>2066611</td>
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</tr>
<tr>
<td>2009-10</td>
<td>3891769</td>
</tr>
<tr>
<td>2010-11</td>
<td>4591221</td>
</tr>
</tbody>
</table>

Source: RBI
Figure: 1.1 GDP of India at current prices

SOURCE: www.rbi.com

1.2 GLOBAL TELECOM INDUSTRY: AN OVERVIEW
GLOBAL ICT DEVELOPMENTS, 2001-2011

FIGURE 1.2: GLOBAL MOBILE CELLULAR SUBSCRIPTIONS PER 100 INHABITANTS

Mobile cellular:
Total mobile cellular subscriptions reached almost 6 billion by end 2011; corresponding to a
global penetration of 86%. Growth was driven by developing countries, which accounted for
more than 80% of the 660 million new mobile cellular subscriptions added in 2011. In 2011, 142 million mobile cellular subscriptions were added in India, twice as many as in the whole Africa, and more than in the Arab States, CIS and Europe together. By end 2011, there were 105 countries with more mobile cellular subscriptions than inhabitants, including African countries such as Botswana, Gabon, Namibia, Seychelles and South Africa. Countries where mobile cellular penetration increased the most in 2011 include Brazil, Costa Rica, Kazakhstan, Lao P.D.R. and Mali.

**FIGURE 1.3: MOBILE-CELLULAR SUBSCRIPTIONS PER 100 INHABITANTS, 2001-2011**

The developed/developing country classifications are based on the UN M49, see: http://www.itu.int/ITU-D/ict/definitions/regions/index.html

ITU Statistics (http://www.itu.int/ict/statistics)
FIGURE 1.4: Global mobile-cellular subscriptions, total and per 100 inhabitants, 2001-2011

GLOBAL MOBILE-CELLULAR SUBSCRIPTIONS, TOTAL AND PER 100 INHABITANTS, 2001-2011

Source: ITU World Telecommunication /ICT Indicators database

FIGURE 1.5 MOBILE-CELLULAR SUBSCRIPTIONS, BY LEVEL OF DEVELOPMENT

Total 719 million

Total 2.2 billion

Total 6 billion
FIGURE 1.6: PERCENTAGE OF WORLD'S POPULATION COVERED BY A MOBILE CELLULAR SIGNAL, 2003 COMPARED TO 2010

MOBILE BROADBAND:

By end 2011, there were more than 1 billion mobile-broadband subscriptions worldwide. Mobile broadband has become the single most dynamic ICT service reaching a 40% annual subscription growth in 2011. Although developing countries are catching up in terms of 3G coverage, huge disparities remain between mobile-broadband penetration in the developing (8%) and the developed world (51%). In Africa there are less than 5 mobile-broadband subscriptions per 100 inhabitants, whereas all other regions have penetration levels above 10%. By end 2011, there were more mobile-broadband subscriptions than inhabitants in the Republic of Korea and Singapore. In Japan and Sweden, active mobile-broadband penetration surpassed 90% by end 2011. In 2011, 144 million mobile-broadband subscriptions were added in the BRICS (Brazil, the Russian Federation, India, China and South Africa), accounting for 45% of the world’s total subscriptions added in 2011.

Source: ITU World Telecommunication /ICT
FIXED (WIRED) BROADBAND:

By end 2011, there were 590 million fixed (wired) -broadband subscriptions worldwide. Fixed (wired) broadband growth in developed countries is slowing (5% increase in 2011), whereas developing countries continue to experience high growth (18% in 2011). Fixed wired) -broadband penetration remains low in some regions, such as Africa and the Arab States, with 0.2% and 2% respectively by end 2011. In 2011, 30 million fixed (wired) -broadband subscriptions were added in China, about half of the total subscriptions added worldwide, and fixed (wired) -broadband penetration reached 12% in the country. Top performers – such as France, Denmark, the Netherlands, Norway, the Republic of Korea and Switzerland – had fixed (wired) -broadband penetrations above 35% by end 2011. Countries where fixed (wired) -broadband penetration increased the most in 2011 include Bahrain, Costa Rica, Ecuador, Mauritius and Uruguay. However, among these, only Bahrain and Uruguay surpassed the 10% fixed (wired) -broadband penetration by end 2011.

INTERNET:

The percentage of individuals using the Internet continues to grow worldwide and by end 2011 2.3 billion people were online. In developing countries, the number of Internet users doubled between 2007 and 2011, but only a quarter of inhabitants in the developing world were online by end 2011. The percentage of individuals using the Internet in the developed world reached the 70% landmark by end 2011. In Iceland, the Netherlands, Norway and Sweden more than 90% of the population are online. By end 2011, 70% of the total households in developed countries had Internet, whereas only 20% of households in developing countries had Internet access. Some outstanding exceptions include Lebanon and Malaysia with 62% and 61% of households with Internet respectively. Total international
Internet bandwidth increased seven-fold over the last five years reaching 76’000 Gbit/s by end 2011. This equates to 34’000 bit/s per Internet user worldwide. Major differences in Internet bandwidth per Internet user persist between regions: on average, a user in Europe enjoys 25 times as much international Internet capacity as a user in Africa.

1.3 GROWTH OF INDIAN TELECOM SECTOR: AN OVERVIEW

The Telecom sector continued to register an impressive growth in the year 2010-11. During the year, the number of telephone subscriptions increased from 621.28 million to 846.32 million, registering a growth of 36.22%. While the wireless subscription base increased by 227.27 million, the Wireline base recorded a decline of 2.23 million. The wireless segment continued to dominate with a total base of 811.59 million connections. The overall teledensity in the country registered an increase from 52.74 at the end of March 2010 to 70.89 at the end of March 2011. The rural Teledensity which as on 31st March 2010 was 24.29 increased to 33.79 at the end of March 2011, as compared to the urban teledensity of 119.77 and 157.32 respectively. However, the growth rate of subscribers in rural areas during the year was higher at 40.64 % compared to 34.11% in urban areas. The capital employed in the sector increased from Rs 2,86,837 crore in 2009-10 to Rs 3,37,683 crore in 2010-11 i.e. an increase of 17.73 % indicating a healthy growth of investment in the sector. The growth in subscriber base resulted in an increase in the gross revenue of telecom services as reported by the service providers for the year which increased from Rs 1,57,985 crore to Rs. 1,71,719 crore during the year, a growth of 8.69%. At the same time, the minutes of usage (MOU) per subscriber per month for GSM and CDMA registered a decline from 410 and 307 at the end of March 2010 to 349 and 263 respectively. The average Revenue per Minute (RPM) too decreased from Rs 0.57 to Rs 0.51(a fall of 10.5%) for GSM operators and from Rs 0.49 to Rs 0.47 (a fall of 4.1%) for CDMA operators. The Average Revenue Per User per month
(ARPU) which at the end of March 2010 was Rs 131 in case of GSM operators and Rs 76 for CDMA operators, decreased to Rs. 100/- and Rs.66/- per month for GSM and CDMA operators respectively at the end of the year 2010-11. India has seen rapid increase in number of players which caused the tariff rates to hit in all time low. This allowed the players to target the low income population increasing the market share. Due to unavailability of number of subscriber options for customers and varied tariff rates of each player, lead the customers to switch the providers. India's telecommunication network is the third largest in the world on the basis of its customer base and it has one of the lowest tariffs in the world enabled by the hyper-competition in its market. Major sectors of the Indian telecommunication industry are telephony, internet and broadcasting.

Spread of telecommunications in remote and rural areas has provided access to telecom services to hitherto unconnected population, making it possible to integrate them into the mainstream of socio-economic activities. Consumer protection has been a principal concern for TRAI. During the year 2009-10, TRAI issued the Regulations relating to Mobile Number Portability (MNP). The efforts of the Authority bore fruit during this year and MNP was introduced in the country from 20th January, 2011. This proved to be a major boon to the consumers.

Telephonic network in the country which is in an ongoing process of converging to Next Generation Network, employs an extensive system of network elements such as digital telephone exchanges, Mobile Switching Centers, Media gateways and Signalling gateways at the core, interconnected by a wide variety of transmission systems using media such as Optical fiber or Microwave radio relay. The access network which connects the subscriber to the core is highly diversified with different copper-pair, optic-fibre and wireless technologies. DTH, a relatively new broadcasting technology has attained significant popularity in the Television segment. Introduction to private FM has given a fillip to the radio
broadcasting in India. Telecommunication in India is assisted by the INSAT system of the country, one of the largest domestic satellite systems in the world. India possesses a diversified communications system that link all parts of the country by telephone, Internet, radio, television and satellite.

Indian telecom industry underwent a high pace of market liberalization and growth since 1990s and now has become the world's most competitive and one of the fastest growing telecom markets. India has the world's second-largest mobile phone user base with over 929.37 million users as of May 2012. It has the world's third-largest Internet user-base with over 121 million as of December 2011.

The industry is expected to reach a size of ₹344,921 crore (US$68.81 billion) by 2012 at a growth rate of over 26 per cent, and generate employment opportunities for about 10 million people during the same period. According to analysts, the sector would create direct employment for 2.8 million people and for 7 million indirectly. The total revenue of the Indian telecom sector grew by 7% to ₹283,207 crore (US$56.5 billion) for 2010–11 financial year, while revenues from telecom equipment segment stood at ₹117,039 crore (US$23.35 billion).

Telecommunication has supported the socioeconomic development of India and has played a significant role to narrow down the rural-urban digital divide to some extent. It also has helped to increase the transparency of governance with the introduction of E-governance in India. Government has significantly used the popularity of radio and television among rural people for many mass education programmes.

The telecom services have been recognized the world-over as an important tool for socioeconomic development for a nation. It is one of the prime support services needed for rapid growth and modernization of various sectors of the economy. Indian telecommunication sector has undergone a major process of transformation through significant policy reforms,
particularly beginning with the announcement of NTP 1994 and was subsequently re-emphasized and carried forward under NTP 1999 and now major revolution has been brought by NTP 2012. Driven by various policy initiatives, the Indian telecom sector witnessed a complete transformation in the last decade. It has achieved a phenomenal growth during the last few years and is poised to take a big leap in the future also.

1.4 TRENDS IN INDIAN TELECOMMUNICATION SECTOR (AS ON 31.12.2011)

- Indian Telecom market is one of the fastest growing markets in the world.
- With its 926.55 million Telephone connection, it is the second largest network in the world after China.
- It is also the second largest wireless network in the world.
- The country is poised to achieve 1 billion telephone connections.
- Wireless telephones are increasing at a faster rate. The share of wireless telephones is 96.47% of the total phones.
- The share of private sector in total telephones is 86.09%.
- Overall tele-density has reached 76.86%. Urban tele-density is 167.46%, whereas rural tele-density is at 37.52% which is also steadily increasing.
- Broadband connections increased to 13.30 million.

**TABLE 1.2: Major Highlights for Telecom Sector for February’12**

<table>
<thead>
<tr>
<th>S.No</th>
<th>Descriptive</th>
<th>Position at the End of</th>
<th>%age Growth during</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>March'11</td>
<td>January'12</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>8463.2</td>
<td>9361.2</td>
</tr>
<tr>
<td></td>
<td>W</td>
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<td>323.9</td>
</tr>
<tr>
<td></td>
<td>W</td>
<td>8115.9</td>
<td>9037.3</td>
</tr>
<tr>
<td></td>
<td>Publi</td>
<td>1260.0</td>
<td>1295.9</td>
</tr>
<tr>
<td></td>
<td>Privat</td>
<td>7203.2</td>
<td>8065.3</td>
</tr>
</tbody>
</table>
The key players in this sector are depicted in the figure:

<table>
<thead>
<tr>
<th>Source: <a href="http://www.dot.gov.in">www.dot.gov.in</a></th>
</tr>
</thead>
</table>

### 1.5 TRANSITION OF INDIAN TELECOM INDUSTRY

The history of the Indian Telecom sector goes way back to 1851, when the first operational land lines were laid by the then British Government in Calcutta. With independence, all foreign telecommunication companies were nationalized to form Post, Telephone and Telegraph, a monopoly run by the Government of India. The Indian Telecom Sector, like most other infrastructure sectors is controlled by the state. The Department of Telecommunications (DoT), reporting to the Ministry of Communications (MoC) is the key body for policy issues and regulation, apart from being a basic service provider to rest of country. By an act of Parliament, the Telecom Regulatory Authority of India (TRAI) was formed to be the regulatory agency. The key players in this sector are depicted in the figure:
Ministry of Communication: All the operations of this sector come under the purview of MoC. It is responsible for all major policy changes, planning, supervision, spectrum control, etc.

Department of Telecommunications: DoT was formed in 1985 when the Department of Posts and Telecommunications was separated into Department of Posts and Department of Telecommunications. Till 1986, it was the only telecom service provider in India. It played a role beyond service provider by acting as a policy maker, planner, developer as well as an implementing body. In spite of being profitable, non-corporate entity status ensured that it did not have to pay taxes. DoT depends on Government of India for its expansion plans and funding. Its pivotal role in the Indian telecom sector has got diluted after formation of TRAI- Telecom Regulatory Authority of India.

Telecom Regulatory Authority of India: TRAI was founded to act as an independent regulatory body supervising telecom development in India. This became important, as DoT was a regulator and a player as well. Founded by an Act of Parliament, the main functions of the body was to finalize toll rates and settle disputes between players. An independent
regulator is critical at the present situation as the sector witnesses competition. The operations of this sector are determined as under the Indian Telegraph Act of 1885 – A document buried in the sands of time. The next major policy document, which was produced, was the National Telecom Policy of 1994, a consequence of the ongoing process of liberalization.

**The Telecom Commission:** The Telecom Commission was set up by the government of India vide Notification dated April 11, 1989 with administrative and financial powers of the government of India to deal with various aspects of Telecommunications. The Telecom Commission and the DoT are responsible for policy formulation, licensing, wireless spectrum management, administrative monitoring of PSUs, research and development and standardization/validation of equipment, etc. The multi-pronged strategies followed by the Telecom Commission have not only transformed the very structure of this sector, but also have motivated all the partners to contribute in accelerating the growth of the sector. The other entities in the sector under the control of MoC are the two public sector telecom equipment manufacturers, namely Indian Telephone Industries (ITI) and Hindustan Teleprinters Ltd. (HTL). Both these companies are facing financial problems because of product obsolescence, poor management and over staffing. Telecommunications Consultants India Ltd. (TCIL), another PSU was founded in 1978 to undertake consultancy services in the field of telecom.

1.5.1 **OBJECTIVES OF NATIONAL TELECOM POLICY 2012**

1. Provide secure, affordable and high quality telecommunication services to all citizens.

2. Increase rural teledensity from the current level of around 39 to 70 by the year 2017
and 100 by the year 2020.

3. Provide affordable and reliable broadband-on-demand by the year 2015 and to achieve 175 million broadband connections by the year 2017 and 600 million by the year 2020 at minimum 2 Mbps download speed and making available higher speeds of at least 100 Mbps on demand.

4. Enable citizens to participate in and contribute to e-governance in key sectors like health, education, skill development, employment, governance, banking etc. to ensure equitable and inclusive growth.

5. Provide high speed and high quality broadband access to all village panchayats through a combination of technologies by the year 2014 and progressively to all villages and habitations by 2020.

6. Promote innovation, indigenous R&D and manufacturing to serve domestic and global markets, by increasing skills and competencies.

7. Create a corpus to promote indigenous R&D, IPR creation, entrepreneurship, manufacturing, commercialization and deployment of state-of-the-art telecom products and services during the 12th five year plan period.

8. Promote the ecosystem for design, Research and Development, IPR creation, testing, standardization and manufacturing i.e. complete value chain for domestic production of telecommunication equipment to meet Indian telecom sector demand to the extent of 60% and 80% with a minimum value addition of 45% and 65% by the year 2017 and 2020 respectively.

9. Provide preference to domestically manufactured telecommunication products, in procurement of those telecommunication products which have security implications for the country and in Government procurement for its own use, consistent with our World Trade Organization (WTO) commitments.
10. Develop and establish standards to meet national requirements, generate IPRs, and participate in international standardization bodies to contribute in formulation of global standards, thereby making India a leading nation in the area of international telecom standardization. This will be supported by establishing appropriate linkages with industry, R&D institutions, academia, telecom service providers and users.

11. Simplify the licensing framework to further extend converged high quality services across the nation including rural and remote areas. This will not cover content regulation.

12. Strive to create One Nation - One License across services and service areas.

13. Achieve One Nation - Full Mobile Number Portability and work towards One Nation - Free Roaming.

14. Reposition the mobile phone from a mere communication device to an instrument of empowerment that combines communication with proof of identity, fully secure financial and other transaction capability, multi-lingual services and a whole range of other capabilities that ride on them and transcend the literacy barrier.

15. Encourage development of mobile phones based on open platform standards.

16. Deliver high quality seamless voice, data, multimedia and broadcasting services on converged networks for enhanced service delivery to provide superior experience to users.

17. Put in place a simplified Merger & Acquisition regime in telecom service sector while ensuring adequate competition.

18. Optimize delivery of services to consumers irrespective of their devices or locations by Fixed-Mobile Convergence thus making available valuable spectrum for other wireless services.

19. Promote an ecosystem for participants in VAS industry value chain to make India a
global hub for Value Added Services (VAS).

20. Ensure adequate availability of spectrum and its allocation in a transparent manner through market related processes. Make available additional 300 MHz spectrum for IMT services by the year 2017 and another 200 MHz by 2020.

21. Promote efficient use of spectrum with provision of regular audit of spectrum usage.

22. De-licensing additional frequency bands for public use.

23. Recognize telecom as Infrastructure Sector to realize true potential of ICT for development.

24. Address the Right of Way (RoW) issues in setting up of telecom infrastructure.

25. Mandate an ecosystem to ensure setting up of a common platform for Interconnection of various networks for providing non-exclusive and non-Discriminatory access.

26. Strengthen the framework to address the environmental and health related concerns pertaining to the telecom sector.

27. Enhanced and continued adoption of green policy in telecom and incentivize use of renewable energy sources for sustainability.

28. Protect consumer interest by promoting informed consent, transparency and accountability in quality of service, tariff, usage etc.

29. Strengthen the grievance redressal mechanisms to provide timely and effective resolution.

30. Strengthen the institutional framework to enhance the pace of human capital formation and capacity building by assessing and addressing educational and training needs of the sector.

31. Encourage recognition and creation of synergistic alliance of public sector and other
organizations of Department of Telecommunications (DoT). This should be achieved through appropriate policy interventions and support for optimum utilization of their resources and strengths in building a robust and secure telecom and information infrastructure.

32. Evolve a policy framework for financing the sector consistent with long term sustainability.

33. Put in place appropriate fiscal and financial incentives required for indigenous manufacturers of telecom products and R&D institutions.

34. Achieve substantial transition to new Internet Protocol (IPv 6) in the country in a phased and time bound manner by 2020 and encourage an ecosystem for provision of a significantly large bouquet of services on IP platform.

35. Strengthen the institutional, legal, and regulatory framework and re-engineer processes to bring in more efficiency, timely decision making and transparency.

36. Put in place a web based, real time e-governance solution to support online submission of applications including processing, issuance of licenses and clearances from DoT.

The Thrust Areas of NTP 2012

1. **Rural Teledensity** – To improve rural teledensity from the current level of around 39 to 70 by the year 2017 and 100 by the year 2020

2. **Broadband** – “‘Broadband For All” at a minimum download speed of 2 Mbps

3. **Domestic Manufacturing** - Making India a global hub

4. **Convergence** of Network, Services and Devices

5. **Liberalization of Spectrum** - any Service in any Technology

6. **Simplification of Licensing regime** - Unified Licensing, delinking of Spectrum from License, Online real time submission and processing
7. **Consumer Focus** - Achieve One Nation – Full Mobile Number Portability and work towards One Nation – Free Roaming

8. **Resale of Services**

9. **VOIP** – Voice over Internet Protocol

10. **Cloud Computing** – Next Generation Network including IPV6

The primary objective of NTP-2012 is maximizing public good by making available affordable, reliable and secure telecommunication and broadband services across the entire country. The main thrust of the Policy is on the multiplier effect and transformational impact of such services on the overall economy. It recognizes the role of such services in furthering the national development agenda while enhancing equity and inclusiveness. Availability of affordable and effective communications for the citizens is at the core of the vision and goal of the National Telecom Policy – 2012. NTP-2012 also recognizes the predominant role of the private sector in this field and the consequent policy imperative of ensuring continued viability of service providers in a competitive environment. Pursuant to NTP-2012, these principles would guide decisions needed to strike a balance between the interests of users/consumers, service providers and government revenue.

### 1.5.2 TELECOMMUNICATION SERVICES

Today tariff for telecommunication services in India is one of the lowest in the world. The Indian consumer has immensely benefited from such lower tariffs which has also been a major factor for explosive growth in the sector. Following is the list of services offered by both GSM and CDMA operators:

- Telephone services
- NSD/ISD services
• Computerized trunk services
• Pay phones
• National & international leased lines circuits
• Telex
• Telegraph services (manual & automatic)
• X-25 based Packer Switched Data Network (NET)
• Gateway Packet Switched Data Services (GPSS)
• Gateway Electronic Data Interchange Service (GEDIS)
• Gateway E-Mail and Store & Forward FAX Service (GEMS-400)
• Concert Packet Service (CPS)
• Satellite based remote area business message network
• Electronic Mail
• Voice Mail
• Audio-text
• Radio paging
• Cellular mobile telephone
• Public mobile radio trunked service
• Video-tex
• Video conferencing
• V-SAT
• Internet
• ISDN
• INMARSAT mobile service
• INMARSAT data service
• Home country direct service
• Intelligent Network (IN) services

1.5.3 REVENUE ANALYSIS

The Total Revenue of the Telecom Service Sector went up from Rs.157,985 cr. in 2009-10 to Rs. 171,719 cr. in 2010-11 indicating a growth of 8.69%. The corresponding figures of Revenue after adjustment of intra operator interconnection charges come to Rs.150, 660 cr in 2009-10 and Rs. 166,752 cr in 2010-11, showing a growth of 10.68% over the previous year. The revenue contribution from the public sector telecom companies in the 2010-11 was 20.37% (previous year 24.82%) and from private sector companies was 79.63% (previous year 75.18%). Table 2 below indicates the revenue contributions of the public and private sectors during 2009-10 and 2010-11.

TABLE 1.3: Revenue earnings of different telecom companies for 2009-10 and 2010-11.

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<thead>
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<th>Revenue of Telecom Service Sector(in crores)</th>
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<th>Column2</th>
</tr>
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<td></td>
</tr>
<tr>
<td></td>
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<td>2010-11</td>
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<tr>
<td>Revenue of Public Sector Companies</td>
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<tr>
<td>Totl Revenue</td>
<td>150660</td>
<td>166752</td>
</tr>
</tbody>
</table>

*SOURCE: www.dot.com*
FIGURE 1.8: Revenues of telecom service providers 2009-10 and 2010-11

1.5.4 TELE-DENSITY

The tele-density at the end of March, 2011 reached the mark of 70.89 as compared to 52.74 at the end of previous year, recording an increase of nearly 18.15. The trend of growth of teledensity since March 2006 is depicted in figure.

Trends in Tele-density

Tele-density is an important indicator of telecom penetration in the country. There has been phenomenal growth of tele-density in the country with the evolution of new wireless technologies.

The tele-density which was 18.22% in March 2007 increased to 70.89% March, 2011 and 76.86% in December'11. Thus there has been continuous improvement in the overall teledensity of the country.

The rural tele-density which was 5.89% in March 2007 increased to 33.83% in March, 2011 and 37.52% at the end of December'11.
The urban tele-density increased from 48.10% in March 2007 to 156.94% in March, 2011 and stands at 167.46% at the end of December'11.

**FIGURE 1.9: Rural, Urban and Total Teledensity (2007-2011)**

Source: dot annual telecommunication report

For economic and social development of rural areas, rapid increase in rural tele-density is of utmost importance. With the introduction of wireless phones in rural areas, there is increasing trend in rural tele-density also. As the urban areas have got largely saturated, private service providers are also looking for further opportunities in rural areas. All these factors have led to increasing trend in rural tele-density.

**1.5.5 Value Added Services (VAS)**

The mobile value added services such as m-banking, m-education, m-governance, m-health, m-agriculture, etc. has assumed significance in recent times due to the rapid growth in wireless subscriber base. Consequently, the mobile phones have transformed into a persuasive medium to deliver information services spanning various usage areas such as governance, commerce, agriculture, education and health. Thus, m-POWERING is playing
an instrumental role in bringing about empowerment to all strata of society by their delivery of services.

1.5.6 RURAL TELECOM

FIGURE 1.10: Market Share of service providers of rural wireless Subscriber base

1.5.7 THRUST ON BROADBAND & HIGH SPEED INTERNET

In contrast to the rapid growth in voice segment, the growth in the Internet and broadband connections was modest. While Internet subscribers increased from 16.18 million to 19.67 million during the year, the number of Broadband connections increased from 8.77 million to only 11.89 million. The slow growth of Internet and Broadband can be attributed to the fact that the predominant mode of providing Broadband connection was by using digital subscriber line (DSL) technologies over copper pairs, which are limited in number and geographical spread.

1.5.8 GROWTH IN TELECOM MANUFACTURING

Manufacturing
The exponential growth witnessed by the telecom sector in the past decade has led to the development of the telecom equipment manufacturing and other supporting industries. With the advent of next-generation technologies and operators looking to roll out 3G and broadband wireless access services, the demand for telecom equipment has increased rapidly. In an attempt to capitalize on this opportunity, the government is focusing on developing the domestic manufacturing industry. The Indian equipment manufacturing sector has come a long way in the past few years. From being an import-centric industry, it is slowly but steadily moving towards becoming a global telecom equipment manufacturing hub. In 2002-03, India produced telecom equipment worth Rs. 144000 million, which increased to Rs. 520000 million in 2010-11, registering a growth of 265 per cent. The country is not only emerging as a manufacturing hub but is also planning to increase its telecom exports. In the year 2006-07, India exported equipment worth Rs. 18980 million, which increased by over 730 per cent to Rs. 158380 million in 2010-11. The commendable growth of the mobile sector in India is yet to be followed in broadband sector. While the last few years were witness to mobile revolution, the next few years look even more exciting in the field of broadband and mobile value added service (MVAS). After two decades of strong growth in voice services, data services will be the next trigger for growth in the Indian telecom market for both the wire line and wireless segment. Data usage is expected to grow at a faster pace with 3G and BWA deployments. Increasing use of smart mobile devices like I-Phones are also expected to catalyze the data usage growth. The mobile value added services such as m-banking, m-education, m-governance, m-health, m-agriculture, etc. has assumed significance in recent times due to the rapid growth in wireless subscriber base. Consequently, the mobile phones have transformed into a persuasive medium to deliver information services spanning various usage areas such as governance, commerce, agriculture, education and health. Thus, m-POWERING is playing an instrumental role in bringing about empowerment to all strata
of society by their delivery of services. The exponential growth witnessed by the telecom sector in the past decade has led to the development of the telecom equipment manufacturing and other supporting industries. With the advent of next-generation technologies and operators looking to roll out 3G and broadband wireless access services, the demand for telecom equipment has increased rapidly. In an attempt to capitalize on this opportunity, the government is focusing on developing the domestic manufacturing industry. The Indian equipment manufacturing sector has come a long way in the past few years. From being an import-centric industry, it is slowly but steadily moving towards becoming a global telecom equipment manufacturing hub. In 2002-03, India produced telecom equipment worth Rs. 144000 million, which increased to Rs. 520000 million in 2010-11, registering a growth of 265 per cent. The country is not only emerging as a manufacturing hub but is also planning to increase its telecom exports. In the year 2006-07, India exported equipment worth Rs. 18980 million, which increased by over 730 per cent to Rs. 158380 million in 2010-11.

FIGURE 1.11: Telecom Equipment Production (2003-04 to 2010-11)
1.5.9 BROADCASTING SECTOR

The Broadcasting sector consists of Television and Radio Services. India has the world’s third largest TV market after China and USA. During the year 2010-11, the TV households in India have grown from 136 million to 143 million, which amounts to an increase in penetration of TV services from 58% to 61% in the Indian households. During this period, the Cable TV services, which form the largest part of the pay TV universe, has grown from around 88 million to around 92 million subscribers. The Direct to Home services (DTH), has witnessed substantial growth from 21.3 million to 35.56 million registered subscribers. During the same period, total number of registered TV channels grew from 524 to 649 including the pay channels whose number increased from 147 to 155.

1.5.10 Liberalization

The process of liberalization in the country began in the right earnest with the announcement of the New Economic Policy in July 1991. Telecom equipment manufacturing was delicensed in 1991 and value added services were declared open to the private sector in 1992, following which radio paging, cellular mobile and other value added services were opened gradually to the private sector. This has resulted in large number of manufacturing units been set up in the
country. As a result most of the equipment used in telecom area is being manufactured within the country. A major breakthrough was the clear enunciation of the government’s intention of liberalizing the telecom sector in the National Telecom Policy resolution of 13th May 1994.

### 1.5.11 FOREIGN DIRECT INVESTMENT

Telecom Sector is considered to be one of the most attractive sectors for foreign direct investment. Today, telecom is the third major sector attracting FDI inflows after services and computer software sector. At present 74% to 100% FDI is permitted for various telecom services. This has helped the telecom sector to grow. Actual Inflow of FDI in Telecom Sector from April 2000 to September 2011 is US $12456 in million.

**TABLE 1.4: Inflow of FDI in Telecom Sector**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Sector/Activity</th>
<th>FDI Cap/Equity</th>
<th>Entry route</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Basic and cellular, Unified Access Services, National/International Long Distance, V-SAT, Public Mobile Radio Trunked Services (PMRTS), Global Mobile Personal</td>
<td>74% (Both direct and indirect foreign investment).</td>
<td>Automatic upto 49%. FIPB beyond 49%.</td>
</tr>
<tr>
<td>2</td>
<td>ISP with gateway, *ISP without gateway, Radio-paging, End-to-End Bandwidth provider.</td>
<td>74%</td>
<td>Automatic up 49%. FIPB</td>
</tr>
<tr>
<td>3</td>
<td>Infrastructure Provider providing dark fibre, right of way, duct space, tower (Category –I);</td>
<td>100%</td>
<td>Automatic upto. FIPB beyond</td>
</tr>
<tr>
<td>4</td>
<td>Manufacture of Telecom Equipments</td>
<td>100%</td>
<td>Automatic</td>
</tr>
</tbody>
</table>

Source: annual report dot

Actual Inflow of FDI in Telecom Sector from April 2000 to September 2011 is US $12456 in million. Cumulative FDI data for last five years and current year is as under:
1.5.12 STATUS OF TELECOM SECTOR

The growth pattern continued in telecom sector. There was phenomenal growth in the subscriber base in the telecom sector. At the end of the financial year 2010-2011, the subscriber base was 846.32 million, with mobile subscribers on their own surpassing the 800 million mark. The status of development of the various services of the telecom sector is outlined below. This rapid growth is possible due to various proactive and positive decisions of the Government and contribution of both by the public and the private sectors. The rapid strides in the telecom sector have been facilitated by liberal policies of the Government that provides easy market access for telecom equipment and a fair regulatory framework for offering telecom services to the Indian consumers at affordable prices. Presently, all the telecom services have been opened for private participation.
Telecom Regulatory Authority of India (TRAI)

The entry of private service providers brought with it the inevitable need for independent regulation. The Telecom Regulatory Authority of India (TRAI) was, thus, established with effect from 20th February 1997 by an Act of Parliament, called the Telecom Regulatory Authority of India Act, 1997, to regulate telecom services, including fixation/revision of tariffs for telecom services which were earlier vested in the Central Government.

TRAI’s mission is to create and nurture conditions for growth of telecommunications in the country in manner and at a pace, which will enable India to play a leading role in emerging global information society. One of the main objectives of TRAI is to provide a fair and transparent policy environment, which promotes a level playing field and facilitates fair competition. In pursuance of above objective TRAI has issued from time to time a large number of regulations, orders and directives to deal with issues coming before it and provided the required direction to the evolution of Indian telecom market from a Government owned monopoly to a multi operator multi service open competitive market. The directions, orders and regulations issued cover a wide range of subjects including tariff, interconnection and quality of service as well as governance of the Authority.

The TRAI Act was amended by an ordinance, effective from 24 January 2000, establishing a Telecommunications Dispute Settlement and Appellate Tribunal (TDSAT) to take over the adjudicatory and disputes functions from TRAI. TDSAT was set up to adjudicate any dispute between a licensor and a licensee, between two or more service providers, between a service provider and a group of consumers, and to hear and dispose of appeals against any direction, decision or order of TRAI.

The focus of the Telecom Regulatory Authority of India during the year 2010-11 was to restructure the policies and strategies in the Telecom as well as the Broadcasting sectors so as
to lay down a strong foundation for the future development of these sectors and also to empower and educate the growing body of telecom consumers.

The service sector growth worldwide has been phenomenal which is reflected in its increased contribution to Gross Domestic Product (GDP) as well as employment generation mechanism. Liberalization, Privatization and Globalization have brought unprecedented changes in the economic, trade, and industrial scenarios. India is fast moving from a protected economy to an open market economy and becoming integrated with the world economy. The change environment has exposed various organizations including the service sector to the challenges of competition, service quality, cost, and the competitive environment. It will help organizations to modernize. Some of those unable to cope with the changes may have to face the consequences of survival of the fittest.

According to a survey conducted by the Confederation of Industry Associated Councils (ASCON) in 2006, the three service sectors --- cellular phone, housing finance and IT services showed the highest growth rates recently. These services may change from time to time, but what is remarkable about their growth rates is that many are growing at more than 20 percent a year, which is far higher than the overall growth in the economy as a whole. Thus, among these sectors, telecom sector is likely to be the growth engine for the Indian economy.

India, like many other countries of the world, has adopted a gradual approach to telecom sector reform through selective privatization and managed competition in different segments of the telecom market. To begin with, India introduced private competition in value-added services in 1992 followed by opening up of cellular and basic services for local area to private competition. Private competition was also introduced in National Long Distance (NLD) and International Long Distance (ILD) telephony at the start of the current decade. The Indian mobile services industry is moving in full swing, be it investment, subscriber
base, technology or Value Added Services (VAS). Also the industry is coming up with innovative ways to lower their cost of operations. Apart from this, cut-throat competition in terms of technology as well as among the service provider has pushed the industry to innovate which has benefited the ultimate consumer. India has gone through a period of adjustment over the past many years. The Telecom Regulatory Authority of India (TRAI) was constituted in 1997. It acts as an independent regulator in this sector. Several progressive measures have been taken over the past few years. At the time of launch of GSM cellular service in the country, there were a number of impediments in the form of high handset costs, exorbitant tariffs, high initial entry/activation charges, Mobile Party Pays (MPP) regime etc. With the passage of time, these initial barriers have almost disappeared as on date. The most important of them that are considered to be landmarks in Indian Telecom history are given:

**TABLE 1.5: Major Developments in Indian Telecom Industry during 1986-2012**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>DEVELOPMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>Telecommunication sector in India liberalized to bridge the gap through government spending &amp; to provide additional resources for the nation’s telecom target. Private sector allowed participating</td>
</tr>
<tr>
<td>1993</td>
<td>The telecom industry gets an annual foreign investment Rs 20.6 million</td>
</tr>
<tr>
<td>1994</td>
<td>License for providing cellular mobile services granted by the government of India for the Metropolitan cites of Delhi, Mumbai, Kolkata &amp; Chennai. Cellular mobile service to be duopoly (i.e. not more than two cellular mobile operators could be licensed in each telecom circle), under a fixed license fee regime for 10 years.</td>
</tr>
<tr>
<td>Year</td>
<td>Event</td>
</tr>
<tr>
<td>-----------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>1995</td>
<td>Kolkata became the first metro to have a cellular network</td>
</tr>
<tr>
<td>1997</td>
<td>Telecom Regulatory Authority of India is set up</td>
</tr>
<tr>
<td>1998</td>
<td>Annual foreign investment in telecom stands at Rs 17,756.4 million.</td>
</tr>
<tr>
<td>1999</td>
<td>FDI inflow into telecom sector falls by almost 90% to Rs. 2126.7 million. Tariff rebalancing exercise gets initiated</td>
</tr>
<tr>
<td>1999 (MARCH)</td>
<td>National Telecom Policy is announced.</td>
</tr>
<tr>
<td>2000</td>
<td>FDI inflow drops further down to Rs 918 million coming</td>
</tr>
<tr>
<td>JAN 2001</td>
<td>Guidelines for opening up fixed line operations to unlimited competition; limited mobility permitted</td>
</tr>
<tr>
<td>JULY 2001</td>
<td>Policy for international long distance announced</td>
</tr>
<tr>
<td>2002</td>
<td>Privatization of VSNL</td>
</tr>
<tr>
<td>2004</td>
<td>Lowering of access deficit</td>
</tr>
<tr>
<td>2005</td>
<td>Introduction of revenue share regime</td>
</tr>
<tr>
<td>2006</td>
<td>Increase in FDI ceiling</td>
</tr>
<tr>
<td>2011</td>
<td>Introduction of MNP</td>
</tr>
<tr>
<td>2012</td>
<td>NTP 2012</td>
</tr>
</tbody>
</table>

Source: www.coai.com
In the pre-reform period, growth in telecom services was primarily driven by public sector monopoly, showing very marginal growth, as the incremental tele-density between 1948 and 1998, a 50-year period, was only 1.92%. Telecommunication development in the initial stage of the reforms process beginning with National Telecom Policy (NTP) in 1994, which provided for migration from fixed license fee to revenue share regime. Cost-Oriented Telecom Tariffs were also introduced by TRAI in 1999. From 2003 onwards, as a result of certain pragmatic decisions by the Government and the Regulator, viz., introduction of Calling Party Pays (CPP) regime, Unified Access licensing regime, lowering of access deficit coupled with introduction of revenue share regime triggered further growth. Introduction of MNP took Indian cellular industry to a great competition. The incremental growth in the ratio of total mobile subscribers as a proportion of the basic subscribers has been indicated in table below:

**FIGURE 1.14: Mobile Subscribers (GSM and CDMA) as % of Basic Subscribers in India:**

The wireless subscriber base was 811.59 million as on 31st March 2011 compared to 584.32 million as on 31st March 2010. It added 227.27 million subscribers in the financial year 2010-11 registering an annual growth rate of about 38.89%. The total subscriber base of
wireless services has grown from 98.77 million in March, 2006 to 811.59 million in March, 2011.

**Growth of Telephones over the years**

The opening of the sector has not only led to rapid growth but also benefited the consumers through low tariffs as a result of intense competition. Telecom sector has witnessed a continuous rising trend in the total number of telephone subscribers. From a mere 22.81 million telephone subscribers in 1999, the number increased to 846.33 million at the end of March, 2011. The total number of telephones stands at 926.55 million at the end of December'11 showing addition of 80.22 million during the period from April to December'11. Wireless telephone connections have contributed to this growth as their number rose from 165.09 million in 2007 to 811.60 million in March, 2011 and 893.86 million at the end of December'11. The wire line connections have however, declined from 40.77 million in 2007 to 34.73 million in March, 2011 and 32.69 million in December'11.

**TABLE 1.6: Growth of telecom subscribers (March 2007-dec 2011).**

<table>
<thead>
<tr>
<th></th>
<th>Mar-07</th>
<th>Mar-08</th>
<th>Mar-09</th>
<th>Mar-10</th>
<th>Mar-11</th>
<th>Dec-11</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wireline</strong></td>
<td>40.77</td>
<td>39.41</td>
<td>37.97</td>
<td>36.96</td>
<td>34.73</td>
<td>32.69</td>
</tr>
<tr>
<td><strong>Wireless</strong></td>
<td>165.09</td>
<td>61.08</td>
<td>391.76</td>
<td>584.32</td>
<td>811.6</td>
<td>893.86</td>
</tr>
<tr>
<td><strong>Gross Total</strong></td>
<td>205.87</td>
<td>300.49</td>
<td>429.73</td>
<td>621.28</td>
<td>846.33</td>
<td>926.55</td>
</tr>
<tr>
<td><strong>Annual Growth %</strong></td>
<td>44.88%</td>
<td>45.96%</td>
<td>43.01%</td>
<td>44.58%</td>
<td>36.22%</td>
<td>9.48%</td>
</tr>
</tbody>
</table>

Source: www.dot.gov.in

**Wire line vs. Wireless**

The growth of wireless services has been substantial, with wireless subscribers growing at a compounded annual growth rate (CAGR) of 42.7% since 2007. Wireless has overtaken wire lines. The share of wireless phones has increased from 80.19% in 2007 to 96.47% in December'11. On the other hand, the share of wire line has steadily declined from 19.81% in
2007 to 3.53% in December'11. Wireless phones have increased as they are preferred because of their convenience and affordability. As a result, telephones today have come within the reach of the common man.

**FIGURE 1.15: Growth of telecom subscribers march 2007 – march 2011**

![Chart Title](chart1.png)

March 2007 March 2011

Source: www.dot.gov.in

**PRIVATE vs. PUBLIC**

The fruits of the liberalization efforts of the Government are evident in the growing share of the private sector. The private sector is now playing an important role in the expansion of telecom services. The share of private sector in total telephone connections is 86.09% as per the latest statistics available for December'11 as against a mere 5.35% at the end of March 1999.
The commendable growth of the mobile sector in India is yet to be followed in broadband sector. While the last few years were witness to mobile revolution, the next few years look even more exciting in the field of broadband and mobile value added service (MVAS). After two decades of strong growth in voice services, data services will be the next trigger for growth in the Indian telecom market— for both the wire line and wireless segment. Data usage is expected to grow at a faster pace with 3G and BWA deployments. Increasing use of smart mobile devices like I-Phones are also expected to catalyze the data usage growth.

**Subscriber base of wireless Operators (in million) as on 31st March 2011**

The wireless subscriber base was 811.59 million as on 31st March 2011 in comparison to the subscriber base of 584.32 million as on 31st March, 2010. It added 227.27 million subscribers in the financial year 2010-11 registering an annual growth rate of about 38.89%. The total subscriber base of wireless services has grown from 90.14 million in March, 2006 to 811.59 million in March 2011. Out of 811.59 million subscribers at the end of the financial year 2010-11, 698.37 million (86.05%) were GSM Subscribers and 113.22 million (13.95%) were
CDMA Subscribers. The subscriber growth of wireless services of both GSM and CDMA networks from March 2006 to March 2011 is depicted.

**FIGURE 1.17: Subscriber base of wireless Operators (in million) as on 31st March 2011**

In the wireless segment subscriber base of GSM reached the 698.37 million subscriber mark at the end of March 2011, as compared to 478.68 million as at the end of March 2010. It added around 219.69 million subscribers during the year, registering an annual growth of 45.89%. In terms of subscriber base and market share of GSM services, M/s Bharti with 162.20 million subscriber base remains the largest followed by M/s Vodafone,M/s Idea/Spice, and M/s BSNL with subscriber base of 134.57 million, 89.50 million and 86.27 million respectively. The market share of various GSM operators as on 31st March 2011 is displayed.
In Cellular CDMA Services, in terms of subscriber base and market share, M/s Reliance with 54.65 million subscriber base remains the largest CDMA operator followed by M/s Tata and M/s Sistema with subscriber base of 42.42 million, and 10.06 million respectively. The market share of different CDMA operators as on 31st March 2011 is shown in fig.

The subscriber base for Cellular Wireless services in different categories of service areas for the period March, 2006 to March, 2011 is indicated graphically. The total subscriber base for wireless services has registered an annual growth of 38.89% with the maximum growth of 42.21% observed in ‘B’ Circle during 2010-11.
The subscriber base of individual wireless service providers (both GSM & CDMA) from March 2006 to March 2011 along with their percentage growth over the financial year 2010-11 is given. The market share of different mobile operators as on 31st March 2011 is displayed.

Service Providers are categorized as per service into two parts --- Basic Service Providers and Value Added Service Providers. Basic service providers are those who provide mainly voice communication. The subscriber’s connection to the telecom network is called a Direct Exchange Line (DEL) and people use it for talking. Basic services can be differentiated as per call destination into domestic and international. Domestic calls, both local and long-distance are routed through cables and wireless links. International calls are routed overseas, mainly through satellite links. The international telecom service providers of various nations liaison with one another to ensure smooth operations and efficient call transfer. Major global telecom service providers, mainly private operators from the developed nations, determine
international call tariffs. Revenue sharing agreements exist between various international carriers. Value added service providers are those which provide services, such as cellular Telephony, paging, e-mail and VSAT network, which provide the subscriber greater ease of communication and enhance the utility of basic services network. After the liberalization of Indian telecom sector in 1994, the Indian cellular market witnessed a surge in cellular services. In cellular service there are two main competing network technologies: Global System for Mobile Communications (GSM) and Code Division Multiple Access (CDMA). With the advent of cellular phones doing double and triple duty as streaming video devices, pod cast receivers and email devices, speed is important to those who use the phone for more than making calls. CDMA has been traditionally faster than GSM, though both technologies continue to rapidly leapfrog along this path. In GSM phones, SIM cards are used. The removable SIM card allows phones to be instantly activated, interchanged, swapped out and upgraded, all without carrier intervention. The SIM itself is tied to the network, rather than the actual phone and the phones that are card-enabled can be used with any GSM carrier. DMA operators require proprietary handsets that are linked to one operator only and are not card-enabled. To upgrade a CDMA phone, the operator must deactivate the old phone then activate the new one and the old phone becomes useless.

1.5.13 LEADING PLAYERS OF INDIAN TELECOM INDUSTRY

- AIRTEL
- VODAFONE
- TATA TELESERVICES LTD.
- RELIANCE INFOCOMM LTD.
- BSNL
- IDEA CELLULAR
Bharat Sanchar Nigam Limited

Bharat Sanchar Nigam Limited (BSNL) was formed on 1st October 2000 by corporatization of the erstwhile Department of Telecom Operations and Department of Telecom Services. The company has taken over the erstwhile functions of the Department of Telecom in respect of provision of telecom services across the length and breadth of the country excluding Delhi and Mumbai. BSNL has a large base of skilled work force of around 2.71 lakh as on 31/12/2011 and is a 100% Govt. of India owned Public Sector Undertaking.

BSNL is a technology-oriented company and provides all types of telecom services namely telephone services on landline, WLL and GSM mobile, Broadband, Internet, leased circuits and long distance telecom Service.

The company has also been in the forefront of technology with 100% digital new technology switching network. BSNL's nation-wide telecom network covers all District headquarters, Sub-Divisional headquarters, Tehsil headquarters and almost all the Block Headquarters.

HIGHLIGHTS of 2011-12


- BSNL had 862.69 lakh GSM Mobile connections as on 31.03.2011. During 2011-12 (up to 31.12.2011), it has added 61.59 lakh GSM Mobile connections raising the GSM Mobile customer base to 924.28 lakh as on 31.12.2011.

- There were 55.65 lakh WLL connections as on 31.03.2011. The number of connections declined to 43.34 lakh as on 31.12.2011.

AIRTEL

With liberalization of the Indian economy in the early nineties the telecom industry was thrown open to the private sector. This saw the entry of a number of major players into the
services division. The Bharti group was one of the first to seize the opportunity provided by the government of India and established Bharti Tele-Ventures to provide the full range of telephony services for both mobile and landline connections. The company was started to promote investments in telecommunications services. Bharti Tele-Ventures was incorporated on July 7, 1995 as a company with limited liability under the Companies Act, for promoting telecommunications services. Bharti Tele-Ventures received certificate for commencement of business on January 18, 1996. The Company was initially formed as a wholly-owned subsidiary of Bharti Telecom Limited. Bharti Airtel Limited is a leading integrated telecommunications company with operations in 20 countries across Asia and Africa. Headquartered in New Delhi, India, the company ranks amongst the top 5 mobile service providers globally in terms of subscribers. In India, the company's product offerings include 2G, 3G and 4G services, fixed line, high speed broadband through DSL, IPTV, DTH, enterprise services including national & international long distance services to carriers. In the rest of the geographies, it offers 2G, 3G mobile services. Bharti Airtel had over 246 million customers across its operations at the end of February 2012.

- 3rd largest in -country wireless operator in the world.
- Largest private integrated Telecom Company in India.
- 5th largest mobile telecom operator in the world.
- Amongst the largest providers of passive infrastructure (by towers) India.
- Airtel continuously consolidating its market leadership position despite intense competition.
- Airtel ranks 1& 2 in 16 circles in terms of number of subscribers.
- Over 65% of net additions coming from B&C circles (rural India).
TATA TELESERVICES LTD.

Communications is among the Tata Group's larger investments, with over $7.5 billion already committed. The Group's objective is to provide end-to-end telecommunications solutions for business and residential customers across the nation and internationally. The Group's communications activities are currently spread primarily over four companies-Tata Teleservices Limited, its associate Tata Teleservices (Maharashtra) Limited, Tata Communications (erstwhile VSNL) and Tata Sky. Together, these companies cover the full range of communications services, including:

- **Telephony Services**: Fixed and Mobile
- **Media & Entertainment Services**: Satellite TV
- **Data Services**: Leased Lines, Managed Data Networks, IP/MPLS VPN, Dial-up Internet, Wi-Fi and Broadband
- **Value-added Services**: Mobile and Broadband Content/Applications, Calling Cards, Net Telephony and Managed Services
- **Infrastructure Services**: Submarine Cable Bandwidth, Terrestrial Fiber Network and Satellite Earth Stations and VSAT Connectivity

TATA TELESERVICES LIMITED Profile

Tata Teleservices Limited, along with Tata Teleservices (Maharashtra) Limited, serves over 85 million customers in more than 450,000 towns and villages across the country, with a bouquet of telephony services encompassing the GSM, CDMA and 3G platforms, offering Mobile Services, Wireless Desktop Phones, Public Booth Telephony and Wireline Data Services across one unified and integrated brand-Tata DOCOMO.

Tata Teleservices Limited (TTL) spearheads the Tata Group's presence in the telecom sector. Incorporated in 1996, TTL is the pioneer of the CDMA 1x technology platform in India and
embarked on a growth path after the acquisition of Hughes Telecom (India) Limited [renamed Tata Teleservices (Maharashtra) Limited] by the Tata Group in 2002. It launched mobile operations in January 2005 and today enjoys a pan-India presence through existing operations in all of India's 22 telecom Circles. The company is also the market leader in the fixed wireless telephony market and also enjoys leadership position in the enterprise space.

Tata Teleservices Limited has established a significant presence in the GSM space, despite having entered the market less than three years ago in a joint venture with NTT DOCOMO of Japan, and offers differentiated products and services under the Tata DOCOMO brand name. Tata DOCOMO arises out of the Tata Group's strategic alliance with Japanese telecom major NTT DOCOMO in November 2008. Tata DOCOMO has a pan-India license to operate GSM telecom services-and has also been allotted spectrum in 18 telecom Circles. The company rolled out GSM services in all of these 18 telecom Circles in the quick span of just over a year and is today one of India's best-recalled private telecom operator brands.

Tata DOCOMO marks a significant milestone in the Indian telecom landscape, and has already redefined the very face of telecoms in India, being the first to pioneer the per-second tariff option-part of its ‘Pay for What You Use' pricing paradigm. Tokyo-based NTT DOCOMO is one of the world's leading mobile operators-in the Japanese market, the company is the clear market leader, used by nearly 55 per cent of the country's mobile phone users.

Tata Teleservices Limited was also the first Indian private telecom operator to launch 3G services in India under the brand name Tata DOCOMO, with its 3G launch in all the nine telecom Circles where it bagged the 3G license in November 2010. In association with its NTT DOCOMO, the Company finds itself favorably positioned to leverage this first-mover advantage.
TTL also has a strategic partnership agreement with retail giant Future Group to offer mobile telephony services under the brand name-T24-on the GSM platform. The exciting new brand was unveiled last year and the company first launched GSM operations in the city of Hyderabad. It has since launched T24 GSM services in all 18 Circles where TTL has a GSM license.

In December 2008, TTL announced a unique reverse equity swap strategic agreement between its telecom tower subsidiary, Wireless TT Info-Services Limited, and Quippo Telecom Infrastructure Limited-with the combined entity kicking off operations with 18,000 towers, thereby becoming the largest independent entity in this space-with the highest tenancy ratios in the industry. Today, the combined entity-which has been re-christened as VIOM Networks-has a portfolio of nearly 40,000 towers.

➢ VODAFONE

**Vodafone Group Plc** is a British multinational telecommunications company headquartered in London, United Kingdom It is the world's second-largest mobile telecommunications company measured by both subscribers and 2011 revenues (in each case behind China Mobile), and had 439 million subscribers as of December 2011.

Vodafone owns and operates networks in over 30 countries and has partner networks in over 40 additional countries. Its Vodafone Global Enterprise division provides telecommunications and IT services to corporate clients in over 65 countries. Vodafone also owns 45% of Verizon Wireless, the largest mobile telecommunications company in the United States measured by subscribers.

Vodafone has a primary listing on the London Stock Exchange and is a constituent of the FTSE 100 Index. It had a market capitalization of approximately £89.1 billion as of 6 July
2012, the third-largest of any company listed on the London Stock Exchange. It has a secondary listing on NASDAQ.

Products promoted by the Group include Vodafone live!, Vodafone Mobile Connect USB Modem, Vodafone Connect to Friends, Vodafone Passport, Vodafone Freedom Packs, Vodafone at Home, Vodafone 710 and Amobee Media Systems.

In October 2009, it launched Vodafone 360, a new internet service for the mobile, PC and Mac. In February 2010, Vodafone launched world's cheapest mobile phone known as Vodafone 150, will sell for below $15 (£10) and is aimed at the developing world. It will initially be launched in India, Turkey and eight African countries including Lesotho, Kenya and Ghana.

RELAINCE INFOCOMM

Reliance India Mobile service was commercially launched in the top 111 cities in May 2003, and will cover the rest of 686 towns and cities in the coming months. The service is at present supported by over 250 retail stores in 111 cities. Reliance Infocomm is the only private service provider with licenses to operate in 18 telecom circles that together cover almost 95 per cent of India's population. Its first service, Reliance India Mobile, garnered over one million subscribers even before the commercial launch on May 1, 2003.

Reliance Infocomm Ltd. is a member of Reliance group, India's largest business enterprise and amongst the top 500 enterprises in the world. The Reliance Group founded by Dhirubhai H. Ambani (1932-2002) is India's largest business house with total revenues of Rs 80,000 crore (US$ 16.8 billion), cash profit of over Rs 9,800 crore (US$ 2.1 billion), net profit of over Rs 4,700 crore (US$ 990 million) and exports of Rs 11,900 crore (US$ 2.5 billion). The group's activities span exploration and production (E&P) of oil and gas, refining and
marketing, petrochemicals (polyester, polymers, and intermediates), textiles, financial services and insurance, power, telecom and Infocomm initiatives. Reliance emerged as India's Most Admired Business House, for the second successive year in a TNS-Mode survey for 2002. Business Today, based on a study by AT Kearney, has adjudged Reliance Industries Ltd. as the best managed company in India.

**Reliance Communications Ltd.** (commonly called RCOM) is an Indian broadband and telecommunications company headquartered in Navi Mumbai, India. RCOM is the world's 15th largest mobile phone operator with over 150 million subscribers and India's 2nd largest telecom operator in India, only after Bharti Airtel. Established on 2004, a subsidiary of the Reliance Group. The company has five segments: Wireless segment includes wireless operations of the company; broadband segment includes broadband operations of the company; Global segment include national long distance and international long distance operations of the company and the wholesale operations of its subsidiaries; Investment segment includes investment activities of the Group companies, and Other segment consists of the customer care activities and direct-to-home (DTH) activities.

▶ **IDEA CELLULAR**

In 2000, Tata Cellular was a company providing mobile services in Andhra Pradesh. When Birla-AT&T brought Maharashtra and Gujarat to the table, the merger of these two entities was a reality. Thus Birla-Tata-AT&T, popularly known as Batata, was born and was later rebranded as IDEA.

Idea's subscriber base as at the end of August 2011 according to the statistics, is totaling to 98,441,714 or 16.09% (Approx.) of the total mobile connections in India.
Idea leads all other telecom operators in India in the MNP (Mobile Number Portability) race, with a net gain of 10, 31, 380 subscribers as on 31 August 2011.\cite{13}

Idea also leads all other competitors in having the most active subscriber base, scoring highly on the VLR statistics. Visitor Location Register (VLR) is basically a temporary database of the subscribers who have roamed into the particular area, which it serves. Each base station in the network is served by exactly one VLR; hence a subscriber cannot be present in more than one VLR at a time.

**Idea Cellular**, usually referred to as **Idea**, is an Indian mobile network operators based in Mumbai, India.

### 1.5.14 SWITCHING BEHAVIOUR IN TELECOM SECTOR

Telecommunication markets have changed dramatically in recent years. Customers in many countries who used to have only one service provider now have a wide variety to choose from. The fight to attract and keep customers has resulted in the development of relationship marketing strategies. The telecom companies are developing a mix of relationship-marketing tools to establish and build profitable customer relationship. With the concept of relationship marketing, we focus on the need for companies to be market oriented by building up the ability to manage networks, relationships and interactions (Gronroos, 1983; Gummesson, 1987). In other words, the main thrust has been on expanding the relationship with existing customers. It has been fully accepted in marketing literature that long-term customers are more profitable than short-term customers (Reichheld and Teal, 1996; Johnson, 1998). The evolution of the competition forces firms to cope with an increasing difficulty in the management of technological options and market relations. In telecommunication industry, technologies are in continual development; market relations are frequently threatened by new
or more aggressive competitors. In this situation, the behaviour of entrepreneurs and managers is turned in search of new models to manage market relations, suitable for operating with success in face of continual change and a high level of uncertainty.

**Switching Behaviour**

Customer switching has become a critical issue facing mobile service firms. Customer switching refers to migration of users from one provider to another. In most service contexts, customer switching is associated with negative consequences such as declining market share and poor profitability (Keaveney, 1995). Switching assumes additional significance in mobile context as it has become widespread among mobile users. To control switching, mobile service providers are increasingly relying on contracts that would lock-in customers for a definite time period. However, with changing competitive dynamics, contracts are not being favored by many users (Braff and Laogue, 2004). Therefore, it becomes important to understand the fundamental drivers of switching behavior.

“Customer retention is very difficult in a market that is highly competitive and it takes more than just advertisements and incentives,” explains Vodafone Director (marketing and new business) Harit Nagpal. According to him, there are four factors that make customers stick to a service provider: A good network, service recovery, technology and great value for money (Byravee Iyer / Mumbai March 3, 2009).

In the last few years, the demand for mobile telecommunication services has grown exponentially (Bloom, 2005). The growth in consumers' use of mobile services has been accompanied by an increase in the sophistication of mobile technology devices (Bal Subramanian et al., 2002). Mobile users increasingly use these devices not only for voice communications, but also for computing purposes including internet access, e-mail, text and multimedia transmissions (Jarvenpaa & Lang, 2005). Surging demand for mobile services
and proliferation of service offerings has resulted in rampant switching behavior among mobile users. This has resulted in intense competition, severe price wars, promotion campaigns, attractive calling plans, and a host of customer retention strategies among mobile service providers. There is an emerging, yet growing body of research on user behavior in mobile environments. Several scholars have examined users' intentions to adopt and use mobile services (Bruner and Kumar, 2005; Kim et al., 2005; Lu et al., 2005). Although these studies shed light on specific factors that influence the adoption of mobile services, there is only limited understanding on post-adoption attitudes such as switching behavior.

Our study addresses this important gap. In this research, our goal is to examine the switching behavior of mobile users. We seek to identify key user-related constructs that influence customer churn. Specifically, we examine if relational investments made by mobile users in a user-provider relationship and user demographics influence their switching behavior. This research is an initial, exploratory study that seeks to understand the influence of key user-related factors on mobile users' switching behavior.

The present study has been carried out with an objective to examine the role of switching behaviour of Indian telecom users. Mobile user switching has become a critical issue facing mobile service providers. Drawing upon the literature on relationship marketing and switching costs, we examine if the relational investments, service quality and customer satisfaction of mobile users in a user-provider relationship and demographics influence their switching behavior.

A) Customer Satisfaction

Oliver (1980) defines that “Customer satisfaction is a summary psychological state when the emotions surrounding disconfirmed expectations are coupled with the consumer’s prior feelings about consumption experience”. According to Churchill and Surprenant (1982), “Customer satisfaction is an output, resulting from the customer’s pre-purchase comparison
of expected performance with perceived actual performance and incurred cost. There have been many studies on customer satisfaction over the years. However, Parasuraman et al. (1994) have put forward the simple and clear definition for satisfaction. They suggest that satisfaction is influenced by service quality, product quality and price. They researched satisfaction on a transaction level, implying that the overall satisfaction is a function of transactions.

B) Service Quality

Service quality has been described as a form of attitude, but not an equivalent to satisfaction that results from the comparison of expectations with performance (Parasuraman et al., 1988; and Bolton and Drew, 1991). Perception of service quality could occur at multiple levels in an organization – for example, with the core service, physical environment interaction with the service providers, etc. (Bitner and Hubert, 1994). Customer expectations and perceived performance of services have been found to be the main antecedents of perceived service quality.

Responsiveness

Assurance

Customer Perceived Network Quality

Pricing Structure

Value Added Services

Convenience

C) Users' relational investments

Relational investments refer to investments that are specific to the user-provider relationship (e.g., learning about products, services, procedures, transactions, proprietary systems etc) (De Wulf et al., 2001). These investments influence customers' perceptions of the costs of
switching between providers. Switching costs include economic costs as well as range of non-economic costs related to searching, learning, cognitive and emotional adjustments that are incurred as a part of the switching process (Klemperer, 1995; Burnham et al., 2003). Further, since the investments are specific to the relationship, they are lost when the relationship is terminated (Klemperer, 1995). Relational investments increase switching costs and discourage users from migrating to a different provider, thus enhancing loyalty. Studies have shown that loyal customers tend to spend more and bring a steady stream of future customers by spreading positive word of mouth (Reichheld & Teal, 1996). Based on prior research in service marketing (Gwinner et al., 1998; Bolton & Lemon, 1999; Keaveney & Parthasarathy, 2001; Tellis, 2002), we assess relational investments of mobile users through three constituent variables: (i) service usage, (ii) duration of user-provider relationship, and (iii) service bundling.

D) User demographics

Recent research on mobile computing suggests user demographics to play a dominant role in influencing mobile user behavior. Lu et al. (2005) argued for looking beyond behavioral beliefs and examining personal traits and user attributes to better understand mobile user behavior. Individual user demographics have been found to influence user attitude towards mobile services (Okazaki, 2006). Studying Singaporean mobile users, Gilbert & Han (2005) found user characteristics to be prominent in influencing mobile consumers' behavior. Based on these prior studies, we focus on two specific demographic variables (age and gender) and examine their possible association with switching behavior of mobile users.