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Indian Telecommunication Sector

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Chapter 4:
Indian Telecommunication Sector

4.1. Introduction:

Telecommunications infrastructure is an important tool for socio-economic development. It is one of the prime infrastructure services needed for rapid growth and development of various sectors of the economy (OECD, 2008). The growth in Information technology over the last decade has played an important role in the development of the telecommunication services in the economy. Thus it contributes to the growth in GDP.

Since 1991, a Telecommunications service sector has witnessed the most fundamental, structural and institutional reforms. Today, India is emerged as one of the fastest growing telecom markets in the world. From 2001 to 2012, the total number of telephone subscribers has grown at a Compound Annual Growth Rate (CAGR) of 35 percent. The comparable rates in the 1980s and 1990s were 9 percent and 22 percent, respectively (TRAI, 2012). However, the composition of the subscribers shows that mobile services subscribers have outplayed the other telecom services. The increase in teledensity has mainly been driven by the increase in mobile phones. This high growth rate has been achieved due to sharp fall in tariffs. The rapid growth in Indian
telecom services has encouraged major global manufacturers of telecom equipment like Nokia, Motorola, Ericsson, and Siemens to invest in India. The potential for growth in broadband and wireless internet services will be the next segment for the telecom service operators for investment and earning higher growth.

4.2. Economic reforms in Telecommunications sector in India:

Prior to liberalization, the telecom scene in India was far from enticing. Abysmally low tele-density, poor state of tele-infrastructure, restrictive portfolio of services and a highly bureaucratized structure characterized the government monopoly (Mittal and Ashraf, 2006). The GOI’s policy of economic liberalization in 1991 provided the real impetus for reform. This policy reflected a change in the mindset of policy makers, which led to a structural shift in the Indian economy. The policy makers were acutely conscious of the need to strengthen the infrastructure sector as it formed the backbone of the economy. The choice of the telecom sector for “show-casing” the policy shift reflected the importance the government attached to telecommunications as a common man’s tool for capacity building, as an important driver of economic and social change, and as a factor in building the international competitiveness of the country. The policy initiatives and the decisions of regulatory
institutions, which were set up in the wake of earlier reforms, had a wholesome impact on a telecom sector that subsequently witnessed exponential growth.

Historically, the reform process began in the 1980s with the entry in 1984 of private players in the manufacturing of customer premise equipment and corporatization of domestic telecom operations (i.e. MTNL) in two metros: Delhi and Mumbai; and the establishment of a corporation (i.e. VSNL) for international services in 1986 and of the Telecom Commission with full government powers in 1989.

The policy initiatives taken during the 1990s constituted the second, but the most important, stage of the reform process as the transition from monopoly to competition was accomplished during this period. This was done through three major policy initiatives beginning with the deregulation of the sub-sector of value added services in July, 1992, followed by the issuance of two major policy instruments: the National Telecom Policy, 1994 (NTP94) and the New Telecom Policy 1999 (NTP99).

4.2.1. NTP -1994

National Telecom Policy 1994 document represented the first attempt to codify policy objectives and provide a roadmap for telecom development in India. The policy document laid down specific
targets, such as making telephone service available on demand by 1997, coverage of all villages by 1997, provision of PCOs in urban areas for every 500 persons by 1997 and introducing all value added services available internationally, preferably by 1996. The resource gap estimated for realization of these targets was well over Rs. 230 billion and therefore the policy emphasized the involvement of the private sector and the need for private investment to bridge the resource gap. Hence, the policy for the first time allowed private companies registered in India to participate in the provision of basic telephone services subject to stipulated conditions.

Another important dimension of this policy document was its emphasis on protecting and promoting consumer interests and ensuring fair competition. The policy reflected an ambitious approach in setting the targets, but adopted a cautious approach in dealing with the issues of liberalization in the telecom sector.

The new paradigm in the telecom sector created interest worldwide and investors, both Indian and foreign, shown keen interest in being partners in telecom development. However, the implementation of the policy did not match the excitement it created and delivered mixed results. Physical targets were not achieved, particularly for rural telephony. Only about half of over 600,000 villages stood covered by
March 1999. And many of these telephones in rural areas failed to work properly for technology reasons (GOI, 2009).

However, with regard to provision of PCOs, the progress was comparatively better and the number rose from 80,000 in March 1994 to 277,000 in March 1999. There was significant growth in the number of STD/ISD PCOs, which went up from 57,119 in March 1994 to 272,989 in March 1999. The STD/ISD PCOs were franchised, and provided opportunity for self-employment to unemployed youth, ex-servicemen and economically disadvantaged segments of the society.

In the introduction of private players in the mobile and the basic segments of the service, the rollout of private operators suffered considerable delay, particularly so in the case of basic service, largely due to controversies surrounding the bidding and selection processes for award of a license. As a result, by 1999 the private operators could introduce service in only two of the six circles for which basic service licenses were awarded. The picture was somewhat better for mobile services, as private mobile operators started operations in 1997. From a policy perspective, the noticeable delays and hiccups pointed to the need for greater transparency and clarity in the
licensing process and the terms of licenses, as well as for an independent regulator.

**4.2.2. NEW Telecom Policy-1999**

The New Telecom Policy 1999 responded to the far-reaching changes taking place in the telecom sector worldwide as well as to the inadequacies of NTP94. The NTP99 further liberalized the scope of cellular mobile service, fixed service, and cable service, including the terms and conditions of licenses and operational aspects. Interconnection had been a key concern among service providers and had given rise to many disputes.

Recognizing the importance of the issue, in NTP99 the GOI brought it within the ambit of policy. The NTP99 policy unequivocally asserts that interconnection shall be permitted between service providers in the mobile and basic service segments. This policy also covered issues in such other areas as the resolution of problems facing the existing operators, the restructuring of the Department of Telecommunications (i.e. creation of BSNL), spectrum management, universal service obligations and the role of the regulator. Free entry into basic telecommunications replaced duopoly.

The NTP-99 was amended in 2003 to permit a licensee to provide wireline and wireless services using any technology in a
predetermined license area after conversion to a Universal Access Service License (UASL).

4.2.3. Other Policy Initiatives:

4.2.3.1. Foreign Direct Investment (FDI) policy:

Another important policy initiative endeavored to promote FDI in the telecom sector, a measure considered necessary to augment the resources available to the sector. The new Policy permitted foreign ownership of up to 49% of a telecom venture, automatically, and up to 74% subject to certain conditionality. This was further relaxed and foreign ownership up to 100% is permitted in the telecommunications services. In the manufacture of telecom equipment, however, sole foreign ownership has been permitted, subject to sectoral requirements.

4.2.3.2. Telecom Regulatory Authority of India (TRAI):

In 1997, Government of India enact a law, the Telecom Regulatory Authority of India Act 1997 (TRAI Act 1997) leading to the establishment of an independent statutory Regulatory Authority for the telecom sector, with clearly defined functions, powers and responsibilities to encourage competition, ensure a level playing field, and promote and protect consumer interests. The Telecom Regulatory Authority
of India (TRAI) enjoyed wide-ranging functions and powers in the areas of its responsibility. These relate to and include ensuring technical compatibility and effective interconnection between operators and service providers; regulating revenue-sharing agreements among service providers; monitoring quality-of-service standards; ensuring compliance with license conditions; approving tariffs for telecom services; and protecting consumer interests. The TRAI is not entrusted with functions relating to licensing, standard setting and allocating spectrum, which are in the domain of the GOI. This Act initially had vested dispute settlement functions with the TRAI, but an amendment to the TRAI Act in 2000 divested TRAI of these functions.

4.2.3.3. Calling Party Pays (CPP) policy:

The Calling Party Pays policy was introduced in India in 2003. In this policy, the calling party was to bear the entire cost of the call. This policy is applicable to mobile to mobile calls as well as fixed line to mobile calls. Prior to this, the Receiving Party Pays (RPP) system was used where the subscriber used to pay for incoming calls from both mobile as well as fixed line networks. Thus introduction of Calling Party Pays policy has
greatly driven the growth in subscriber base in the mobile services in India.

4.2.3.4. Broadband Policy 2004:

The potential of broadband services in various applications like tele-education, tele-medicine, e-governance and entertainment has involuntary made the government to accelerate the growth of Broadband services. Therefore the Broadband policy has been introduced in 2004.

The internet and broadband penetration is lowest in India compared to other Asian countries. Therefore the policy makers foresee an accelerated growth in Internet penetration and PC through the technology options like Optical Fiber Technologies, Digital Subscriber Lines (DSL) on copper loop, Cable TV network, Satellite Media, Terrestrial Wireless and Other Future Technologies. The Policy highlighted on the use of copper loop for implementation of broadband services. The Broadband Policy also cited that Mahanagar Telecom Nigam Limited (MTNL) and Bharat Sanchar Nigam Limited (BSNL) would aggressively use their already existing broadband infrastructure to provide broadband services.

The Policy foresaw that the cable networks can be utilized to provide broadband connections because of their network. The
Policy also stated that to increase the broadband penetration in remote areas, technologies such as very small aperture terminals (VSAT) and direct-to-home (DTH) will be implemented aggressively.

4.2.3.5. Infrastructure sharing policy:

A recent development has witnessed active infrastructure sharing. Earlier only passive infrastructure sharing was allowed, permitting a new telecom operator to rent space on the tower belonging to another for deployment of its own equipment to support its rollout. With the new ruling on active infrastructure sharing, a new entrant can now rent all active electronics, switching, and circuits from another telecom operator that owns the passive and active infrastructure. The active sharing of infrastructure, however, excludes the sharing of spectrum. This ruling will help new operators to launch their services with lower upfront capital investment, resulting in improved viability and lower tariffs. The lower cost of providing service will encourage service providers to expand telecom services in rural areas without encountering the high costs that usually accompany the provision of telecom coverage in such areas.
4.3. Impact of economic reforms on Telecommunication Sector in India:

The reform in the sector has not only led to rapid growth but also facilitate variety of consumer benefits like lower tariffs as a result of unrestricted competition. A Telecom reform has witnessed a tremendous growth in the total number of telephone subscribers. From a meager 22.8 million telephone subscribers in 1999, it has grown to 951.34 million at the end of March, 2012. Indian telecom network has million connections as on 31st March 2012 having a dominant share of 96.62% wireless connections. Wireless connections rose from 35.61 million in 2004 to 919.17 million in March, 2012. The wireline connections started to decline from 40.92 million in 2003-04 to 32.17 million in March 2012.

![Chart 4.1: Growth of Telecom Sector](chart)

Source: TRAI quarterly report
4.4. Market share of wireline connections:

Wireline subscriptions increased from 2.3 million in 1981 to 32.71 million in 2000-01 to reach its peak at 42.84 million in 2003-04. Thereafter, it started registering negative growth as shown in the chart 4.1. By the end of March 2012, wireline subscriptions came down to 32.17 million. The competition has forced the landline services to become more efficient in terms of quality of services but still the mobile phone became a substitute to fixed line phone. The landline network quality has improved thanks to fiber optics network and landline connections are now usually available on demand.

Chart 4.2: Wireline subscribers as on 31st March 2012

Source: TRAI Quarterly report

The market share of wireline connections as on 31st March 2012 is shown in the chart 4.2. There is dominance of public sector enterprises in the wireline services. BSNL (70%) and MTNL (11%)...
together has 81% market share of 32.2 million telephone connections. The share of private sector giant Bharti Airtel has 10% market share followed by Reliance Communications and Tata Teleservices having 4% market share. The share of wireline is significantly reduced in last 8 years in account of substitute wireless services. The low cost of mobile phones and reduced call rates influence the subscribers to use wireless services.

4.5. Market share of wireless connections

The market share of various wireless telecom operators as on 31\textsuperscript{st} March 2012 are shown in the chart 4.3. Bharti Airtel is the market leader with 20% share followed by Reliance and Vodafone having market share of 17% and 16% respectively. The public sector companies BSNL and MTNL having market share of 11% and 1% respectively. The low market share of MTNL was due to limited operations in Delhi and Mumbai circle only.
The total subscriber base is 919.17 million subscribers as on 31st March 2012. The market leader Bharti Airtel (20%) has 181.28 million subscribers whereas Reliance (17%) and Vodafone (16%) have 153.05 million and 150.47 million subscriber base. The public sector companies BSNL (11%) and MTNL (1%) have 98.51 million and 5.83 million subscribers. The new operators Videocon and Unitech, who got license in the year 2009-10, had captured a significant market share of 1% and 3% respectively having 7.11 million and 22.79 million subscribers as on March 2012.

The share of mobile phones in total telecom connections is 96.62%. In India, more than 95 per cent of wireless connections are prepaid. There is a clear distinction between the Global System for Mobile Communications (GSM) and Code Division Multiple Access (CDMA) technologies. At the end of March 2012, GSM accounted...
for 88.56% of the wireless subscriptions and was growing at a faster rate.

![Chart 4.4: Growth of subscribers](image)

Source: Indiastat database

The chart 4.5 shows the growth of subscribers of wireless operators in India. The market leader Bharti has subscriber base of 3.07 million subscribers in March 2003 which has increased to 181.28 million in March 2012 at an average growth rate of 58%. Similarly in the case for Reliance and Vodafone the subscriber base increased from 0.54 million and 2.16 millions in March 2003 to 153.05 million and 150.47 million in March 2012 with an average growth rate on 46.69% and 45%. The subscriber base of public sector companies BSNL and MTNL are increased from 2.29 million and 0.35 million March 2003
to 98.51 million and 5.83 million in March 2012 with an average growth rate of 35.62% and 2.82% respectively.

4.6. Trend in Teledensity:

Teledensity is an indicator used for measuring the telecom penetration in the country. The introduction of new wireless technology such as GSM, WLL and CDMA cause the phenomenal growth in the total teledensity in the country. The teledensity has increased from 1.28 in 1995-96 to 78.66 on 31st March 2012, showing a CAGR of 29.77%. This is mainly driven by subscribers in urban area rather than rural area (Chart 4.5).

Source: Indiastat database

Initially, the urban teledensity has shown a tremendous growth. With the introduction of wireless services in rural areas the rural teledensity also help in rural teledensity. The rural teledensity which was 0.29 in
1995-96 has increased to 39.22 in March, 2012. The urban teledensity has increased from 3.95 in 1995-96 to 169.55 in March, 2012. Urban density was higher than rural density. During the period 1995-96 to March 2012, urban density increased at the CAGR of 26.21% while rural teledensity was grow at a rate of 36.59%. The policy makes efforts for expansion of mobile network in remote rural areas strengthen using various measures under Universal service obligation fund (USOF). Also the saturation in urban teledensity caused the private service providers to tap the opportunities in rural areas. All these factors have caused the increase in rural teledensity.

4.7. Internet services in India

The number of Internet subscribers increased from 0.95 million in March 2000 to 22.86 million in March 2012, grown at a CAGR of 27.7%. As of March 2012 this comprises of 13.81 million broadband (>=256 kbps) connections and 9.05 million narrowband (<256 kbps) connections.
Despite such impressive growth, the share of Internet users remains a negligible fraction of India’s total population. Lack of accessibility, lack of information, lack of literacy, inconsistent power supply, and high maintenance cost of personal computers (PCs) are some of the major reasons for this phenomenon.
The market share of internet service providers is shown in chart 4.7. BSNL holds 55.32% market share having 12.65 Million internet subscribers. It was followed by Reliance communications Infrastructure Ltd, MTNL and Bharti Airtel having share of 15.65%, 11.13% and 6.05% respectively. Top 10 internet services providers are having almost 95% market share.

Mobile broadband is getting increasingly popular in India especially for accessing broadband over the mobile phone. There were 448.89 million wireless subscribers in India who had subscribed to data services as of March 2012. This implies that 48.87% of total wireless subscribers were capable of accessing data services/Internet at the end of March 2012. This implies that mobile Internet access may have a substantial impact on Internet users in the country.

4.8. ARPU, ARPM and MoU of Indian telecom industry

Average Revenue per user (ARPU) indicates the average revenue that is generated per person or per subscriber. It shows the profitability of a firm. It is a powerful and extremely useful indicator of just how well a telecom company is accessing its customers’ revenue potential. In Indian telecom sector, the over the last few years increasing competition in the industry has resulted in a downward pressure on tariffs, which has translated into ARPU. The
Chart 4.8 shows the average revenue per user for the last eight years when the new operators are allowed in the Indian Telecom market.

As shown in the chart 4.8, the ARPU for GSM was Rs.362 while for CDMA operator it was Rs.256 in March 2005. The intense competition among Indian telecom operators, results in a price war which reduces the call cost per minute.

Source: TRAI quarterly report
The chart 4.9 shows the average call cost per minute. Average revenue per minute is reduced significantly from Rs.15.5 per call in March 1998 to Rs.0.301 paise per call in March 2012. This reduction in average revenue per minute is compensated by the increased minutes of usage (MoU) and growing subscriber base.
The chart 4.10 shows the increase in MoU of the Indian telecom industry. It is seen from the chart 4.3 showing the growth in subscribers that the subscriber growth is started to accelerate from 2006-07. The reason to this fast acceleration in subscriber growth is due to tariffs hitting the bottom and operators expanding their subscriber base.

As shown in chart 4.10, the minutes of usage (MoU) is increased from 197 minutes per subscriber per month in 1999-2000 to 346 minutes per subscriber per month in the year 2011-12 before reaching the all time high MoU of 465 minutes per subscriber per month in 2006-07.

4.9. Private vs. Public share in Indian telecom sector

![Chart 4.11: Growing share of Private sector](chart)

Source: TRAI quarterly report
The impact of economic reforms like liberalization has been evident in the growing share of the private sector. The domination of private sector in the telecom sector has played an important role in the expansion of telecom services. The share of private sector in total telephone connections is reached to 86.31% as on 31st March, 2012 as against a mere 5% in 1999. As shown in chart 4.11, the share of private sector in 2003-04 was about 40%, which is now increased to 86% in 2010-12. This shows how seriously and aggressively private sector has participated in the Indian telecom sector.

4.10. Potential for future Growth
Indian telecom market still has a huge untapped potential. Teledensity still being 78.66% and rural teledensity at 39.22% shows that there is large population yet to have access to telecommunication, especially in rural India. The penetration of internet services is still very low compared to wireless services. With the introduction on broadband policy 2004 the internet penetration it is expected to increase.

4.11. Manufacturing in telecommunication sector:
The booming mobile telecom sector has increased demand for telecom equipment. Service providers need fixed and mobile switches, transmission equipment, fiber and copper cables, test equipment etc to fulfill the demand of the sector. Infrastructure
providers need fiber, duct and tower. There are 15 major players in this segment. Further, application developers need backend and platform systems. Lastly, network equipment and handset manufacturers need equipment for this dynamic sector.

Initially, the import of wireless core equipment is high, thus provided great opportunity for the manufacturing of telecom equipment in India. Post 1991, the liberalization of telecom equipment manufacturing sector allowed entry of renowned telecom companies in India. Today, India ranked fourth in telecom equipment manufacturing in the Asia Pacific region in 2009 and is expected to move to the third spot by 2014.

The Indian telecom industry manufactures a vast range of telecom equipment using state-of-the-art technology. Table 4.1 shows the status of the Indian telecom manufacturing sector for the period 2002–03 to 2009–10.

The production of telecom equipments in value terms has increased from Rs.488000 million during 2008-09 to Rs.510000 million during 2009-10. Notably, the telecom revenue of the manufacturing sector is much smaller than the services sector and has actually declined in 2009–10 on a year-on-year basis. Exports have shown steady increase between 2002–03 and 2009–10. Also, imports are more than exports.
signaling that India is importing a majority of its equipments. The factors such as government policies, large talent pool in R&D and low labor cost are helping the telecom manufacturing industry.

<table>
<thead>
<tr>
<th>Year</th>
<th>Telecom revenue</th>
<th>Total imports</th>
<th>Equipment production</th>
<th>Total exports</th>
<th>Exports as % of production</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002–03</td>
<td>45,672</td>
<td>NA</td>
<td>14,400</td>
<td>402</td>
<td>2.79</td>
</tr>
<tr>
<td>2003–04</td>
<td>14,000</td>
<td>NA</td>
<td>NA</td>
<td>250</td>
<td>1.79</td>
</tr>
<tr>
<td>2004–05</td>
<td>71,674</td>
<td>14,269</td>
<td>16,090</td>
<td>400</td>
<td>2.49</td>
</tr>
<tr>
<td>2005–06</td>
<td>86,720</td>
<td>27,010</td>
<td>17,833</td>
<td>1,500</td>
<td>10.64</td>
</tr>
<tr>
<td>2006–07</td>
<td>1,05,319</td>
<td>34,042</td>
<td>23,656</td>
<td>1,898</td>
<td>8.41</td>
</tr>
<tr>
<td>2007–08</td>
<td>1,29,083</td>
<td>41,600</td>
<td>41,270</td>
<td>8,131</td>
<td>19.7</td>
</tr>
<tr>
<td>2008–09</td>
<td>1,52,360</td>
<td>44,800</td>
<td>48,800</td>
<td>11,000</td>
<td>22.54</td>
</tr>
<tr>
<td>2009–10</td>
<td>1,57,985</td>
<td>60,300</td>
<td>51,000</td>
<td>13,500</td>
<td>23.44</td>
</tr>
</tbody>
</table>

Source: TRAI

In general, however, the manufacturing sector is hampered by poor research and development (R&D) in the area and sourcing of inputs, which are mostly imported. Further, most of the telecom products manufactured in India are basically assembled here with the Intellectual Property Rights (IPR) lying outside.

4.12. Foreign Direct Investment in telecom sector in India:

The economic reforms in one sector can facilitate growth in the other sectors also. This is evident from the reforms in financial
sector which has produced beneficial results in telecom sector. Reforms like allowing entry to the private firms has resulted in unprecedented growth in telecom sector. 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 investment has helped telecom sector to grow. The total foreign investment in telecom sector is around US $10 Billion.

The chart 4.12 shows the foreign direct investment in telecom sector. In 2008-09 and 2009-10, the flow of FDI is highest as the new technology was introduced and auction of 3G and BWA spectrum was started in these years. The total FDI equity inflows in telecom sector have been US$ 1665 million during 2010-11.
4.13. Public Sector Enterprises in Telecommunications sector:

MTNL and BSNL are the two premier PSE’s under the Department of telecommunications that caters to the growing requirements of telecom services. MTNL established in 1986 to provide and expand the telecommunication facilities in India's key metro cities - Delhi and Mumbai. MTNL has achieved a customer base of 11 million at the end of March 2012.

BSNL is the World’s 7th largest Telecommunications services providing company having services ranging from Wireline, CDMA wireless, GSM wireless, Internet, Broadband, Carrier service, MPLS-VPN, VSAT, VOIP services and IN Services telecom services in India. After separating from department of telecommunications in 2000 it has become one of the largest public sector service providers in the country serving 130 million subscribers including 98 million wireless customers (including CDMA and GSM) in March, 2012.

Rural telephony is one of the focus areas of BSNL. It has provided Village Public Telephones (VPTs) in 5.70 lakh villages and has 396.30 lakh telephones in the rural areas. BSNL has introduced broadband services from January 2005 and has provided around 12 million broadband connections till March 2012.
The Indian Telecom sector is a classic example of fruits of economic reforms. The Telecom sector in India has witnessed an incredible decade and continues to grow from strength to strength in coming years. The tremendous growth observed in mobile services is needed to be replicate in broadband services, where the penetration is still very low. Therefore the Broadband policy 2004 is framed to enhance the wireless broadband penetration across the country and help connect the remotest locations across India. Thus government is also supporting by various policy decisions in achieving their vision to provide telephone connection and broadband facilities on demand across the country and at an affordable price.

On 1\textsuperscript{st} April, 1986, the Government of India’s initiative to upgrade the quality of telecom services, expand the telecom network, and to introduce new services and to raise revenue for telecom development needs of India’s key metro cities of Delhi & Mumbai established a public sector enterprise naming Mahanagar Telecom Nigam Limited (MTNL). MTNL is the major provider of fixed-line telecommunication service in the two Metropolitan Cities of Delhi and Mumbai. MTNL offers mobile services in the city of Delhi including four peripheral towns Noida, Gurgaon, Faridabad
&Gaziabad and the Mumbai city along with the areas falling under the Mumbai Municipal Corporation, New Mumbai Corporation and Thane Municipal Corporation.

In more than two decades of its operations, there has been all-round development and growth and improved operational efficiency. Presently, MTNL is providing a host of telecom services that include fixed telephone service, GSM (including 3G services) & CDMA based Mobile service, Internet, Broadband, ISDN and Leased Line services., MTNL has been in the forefront of offering state of the art technology based telecommunications services to its customers at most affordable prices. MTNL has been the first to launch some of the latest telecom technologies in the country like ADSL2+ & VDSL2 in broadband, IPTV on MPEG4 technology, VOIP and 3G Mobile service.

MTNL is providing telecommunications beyond boundaries through its Joint Ventures and Subsidiaries. MTNL is present in Nepal through its Joint Venture United Telecom Limited (UTL) and in Mauritius through its 100% subsidiary Mahanagar Telephone Mauritius Limited (MTML).

The authorized capital of the Company is Rs. 800 crores. The Paid up Share Capital is Rs. 630 crores divided into 63 crore share of Rs. 10
each. At present, 56.25% equity shares are held by President of India & his nominees and remaining 43.75% shares are held by FIIs, Financial Institutions, Banks, Mutual Funds and others including individual investors. MTNL has been given Navratna status in 1997 and was listed in New York Stock Exchange in 2001.

The mission of MTNL is “To provide in its area of operation in a leading way world class telecom service which are demanded, keeping always the customer’s delight as its aim, so that it continues to be the premier Indian Telecom Company”.

The journey of MTNL and technology in Indian telecom sector has been tremendous. The first mover in introduction of technology has sustained MTNL in the most competitive industry in the world. The introduction of 3G in GSM or broadband services are the indications which shows how responsive MTNL to the changing market dynamics.

4.14.1. Network Infrastructure of MTNL

In more than two decades of its operations, MTNL is growing rapidly by modernizing the network, incorporating the State-of-the-art technologies and a customer friendly approach. There has been all-round development and growth and improved operational efficiency. Presently, MTNL is providing a host of
telecom services that include fixed telephone service, GSM (including 3G services) and CDMA based Mobile service, Internet, Broadband, ISDN and Leased Line services.

<table>
<thead>
<tr>
<th>Name of the items</th>
<th>Delhi</th>
<th>Mumbai</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Exchanges</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wireline Exchanges</td>
<td>358</td>
<td>218</td>
<td>576</td>
</tr>
<tr>
<td>GSM MSCs</td>
<td>6</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>CDMA MSCs</td>
<td>2</td>
<td>5</td>
<td>7</td>
</tr>
</tbody>
</table>

| N/w Switching Capacity  |       |        |       |
| Fixed Line              | 2771995 | 2570947 | 5342942 |
| GSM (Trump + Dolphin)   | 3025000 | 3025000 | 6050000 |
| CDMA                    | 550000  | 542230  | 1092230 |
| Total Switching Capacity| 6346995 | 6138177 | 12485172 |
| **Total DELs**          | 4448993 | 4841134 | 9290127 |
| BTS (GSM)               | 1100 (2G) | 1010 (2G) | 2110 (2G) |
|                         | 762 (3G) | 724 (3G) | 1486 (3G) |
| Broadband capacity      | 786192  | 845908  | 1632100 |

Source: Annual reports of MTNL

4.14.2. Subscriber base of MTNL

MTNL is providing vast number of services to the subscriber base. The major services of MTNL are Landline, mobile (GSM) and broadband service. As on 31\textsuperscript{st} March 2012, the mobile service has largest subscriber base of 5585082 customers. The landline and broadband services has 3457729 and 1040191 subscribers respectively. The other subscriber base is shown in the table below.
### Table 4.3: Subscriber base of MTNL as on 31st March 2012

<table>
<thead>
<tr>
<th>Name of the items</th>
<th>Delhi</th>
<th>Mumbai</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landlines (Wireline)</td>
<td>1563034</td>
<td>1894695</td>
<td>3457729</td>
</tr>
<tr>
<td>FWT</td>
<td>26833</td>
<td>81334</td>
<td>108167</td>
</tr>
<tr>
<td>Trump</td>
<td>2457678</td>
<td>2516125</td>
<td>4973803</td>
</tr>
<tr>
<td>Dolphin</td>
<td>294084</td>
<td>317195</td>
<td>611279</td>
</tr>
<tr>
<td>GSM (Trump + Dolphin)</td>
<td>2751762</td>
<td>2833320</td>
<td>5585082</td>
</tr>
<tr>
<td>CDMA</td>
<td>107364</td>
<td>31785</td>
<td>139149</td>
</tr>
<tr>
<td>Internet customers (Dial Up)</td>
<td>20421</td>
<td>879044</td>
<td>899465</td>
</tr>
<tr>
<td><strong>Broadband customers</strong></td>
<td><strong>476127</strong></td>
<td><strong>564064</strong></td>
<td><strong>1040191</strong></td>
</tr>
<tr>
<td>IPTV customers</td>
<td>13308</td>
<td>4149</td>
<td>17457</td>
</tr>
<tr>
<td>VOIP customers</td>
<td>2193</td>
<td>1847</td>
<td>4040</td>
</tr>
<tr>
<td>Pay Phones</td>
<td>60972</td>
<td>97998</td>
<td>158970</td>
</tr>
<tr>
<td>Sanchar Haats/ CSCs</td>
<td>88</td>
<td>89</td>
<td>177</td>
</tr>
</tbody>
</table>

Source: www.mtnl.in

### 4.14.3. Growth and Achievement of MTNL

MTNL as a company, over the last **twenty six** years, grew rapidly by modernizing the network through induction of State-of-the-art technologies and adopting a customer friendly approach. The state of the art network infrastructure of MTNL started with 114 exchanges capable of providing 8.8 lakh connection in 1986 and expand their exchanges to 595 units capable of providing 1.25 crore connections in 2012. The subscriber base has increased from 7.5 lakh in 1986 to 92.9 lakhs in 2012 providing telephone, cellular and internet services. The old analog exchanges are upgraded to digital exchanges for superior service quality during the 26 years of journey. MTNL also expand ISD services from one country in 1986 to 243 countries in 2012.
Table 4.4: Growth and Achievement of MTNL

<table>
<thead>
<tr>
<th></th>
<th>1986</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. No of exchanges</td>
<td>114</td>
<td>595</td>
</tr>
<tr>
<td>2. Equipped capacity (Millions)</td>
<td>0.88</td>
<td>12.48</td>
</tr>
<tr>
<td>3. Subscriber base (Millions)</td>
<td>0.75</td>
<td>9.29</td>
</tr>
<tr>
<td>i) Basic Wireline &amp; CDMA Fixed (Millions)</td>
<td>0.75</td>
<td>3.45</td>
</tr>
<tr>
<td>ii) CDMA-Mobile (Millions)</td>
<td>-</td>
<td>0.13</td>
</tr>
<tr>
<td>iii) GSM Cellular (Millions)</td>
<td>-</td>
<td>5.5</td>
</tr>
<tr>
<td>4. Internet Dial-up (Millions)</td>
<td>-</td>
<td>0.89</td>
</tr>
<tr>
<td>5. Broadband (Millions)</td>
<td>-</td>
<td>1.04</td>
</tr>
<tr>
<td>6. PCOs (Local and Long Distance) (Millions)</td>
<td>0.01</td>
<td>0.21</td>
</tr>
<tr>
<td>7. No of stations on Long Distance Network</td>
<td>264</td>
<td>39,303</td>
</tr>
<tr>
<td>8. No of countries connected overseas on ISD</td>
<td>11</td>
<td>243</td>
</tr>
<tr>
<td>9. Digitalization of exchange network</td>
<td>Nil</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: www.mtnl.in

4.14.4. Joint Ventures & Subsidiaries of MTNL

The goal of MTNL is to diversify into new geography to provide quality services at affordable cost. Thus MTNL has expanded beyond national boundaries through its Joint Ventures and Subsidiaries. MTNL has presence in Nepal through its Joint Venture United Telecom Limited (UTL) and in Mauritius through its 100% subsidiary Mahanagar Telephone Mauritius Limited (MTML). Similarly Millennium Telecom Ltd (MTL) and MTNL-STPI IT Services (MSITS) Ltd were established to provide related business services in India.

1. **Millennium Telecom Ltd. (MTL):**

   Millennium Telecom Ltd. (MTL) a wholly owned subsidiary of MTNL with registered office located in Mumbai was incorporated in February 2000. The MTL is in the business of Infrastructure
Sharing, Data Centre Outsourcing Application including Web Hosting, Cloud computing etc. MTL also providing Turn Key Solutions to various central Government /State Government /PSU/Banks/ Private Corporate etc. MTL is also exploring new opportunities in providing Broadband services in Wi-Fi environment, leasing out spare optical fiber capacity, and sharing spare CDMA Switch capacity to other operators.

2. **United Telecom Limited (UTL):**

UTL is a joint venture company of MTNL (26.68%), Tata Communications Limited (26.66%) and TCIL (26.66%) along with partner Nepal Ventures (P) Limited (NVPL) (20%). The company provides basic, Mobile, NLD, ILD and data services in Nepal. The Company is operational since 10th October, 2001 with initial offerings of WLL based basic services in Nepal. The company has set up CDMA 1X EVDO infrastructure to cater to growing data and VAS needs of its customers in Nepal. UTL network has its presence in 36 districts (out of 75 districts in Nepal).

The present paid up equity capital of the company is INR Rs. 1,945 Millions. The Turnover of the company for FY 2009-10 is around INR Rs.1, 058.55 Millions and Profit after Tax (PAT) is
around INR Rs. 0.54 Millions. UTL has achieved the customer base of 611668. UTL has contributed in expansion of the telecom sector and towards GDP of the country. During the period ending 31st March 2011 (2010-2011), the company has reported a net profit of INR 73,456,410.

3. MTNL-STPI IT Services (MSITS):

MTNL-STPI IT Services Ltd. is a 50:50 Joint Venture between Software Technology Parks of India (STPI) and Mahanagar Telephone Nigam Limited, (MTNL). The JV formed in 2006 combines the STPI’s rich experience as an ISP and MTNL’s track record of being India’s leading telecom operating company to offer niche portal services to the Indian community. The JV aims to provide exclusive data center services, messaging services, business application services to the identified sectors of economic activity and thereby also popularizing the .in domain in the networked community across the world.

4. Mahanagar Telephone Mauritius Limited (MTML):

MTML a 100% subsidiary company of MTNL was incorporated as a private domestic company in November 2003 at Mauritius. Registered with Authorized capital of 600Millon MUR and paid up capital of 300M at the time of inception. The Authorized
capital was enhanced to MUR 1500 Million in 2009. The paid-up capital of the company is enhanced from INR 854.12 Million to INR 1052 Million. Company got license from the ICTA (Telecom regulatory at Mauritius) to operate Fixed Wireless Services, Mobile Services, International Long Distance Services and Internet Services.

Company is Providing Fixed, Mobile, International Long Distance and Internet services to the people of Mauritius at most competitive rates. Around $ 20 million have been invested by MTNL in MTML. MTML is also expanding the capacity of core network upto 310K lines along with implementation of GSM network in Mauritius for 200K lines capacity and replacing 110K core capacity of CDMA 1XEVDO network. Steps are being taken for implementing international roaming for MTML Mauritius GSM network.

4.14.5. Employment generation by MTNL

The employee strength of MTNL for last seven years is shown in the table 4.5.
It is known that public sector enterprises are overstaffed and it is proved by the MTNL. The employee strength of MTNL is 51133 in 2005-06 was reduced to 41611 in 2011-12 registering a decline of average 3% per year.

**Table 4.5: Employee strength of MTNL**

<table>
<thead>
<tr>
<th>Year</th>
<th>Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-06</td>
<td>51133</td>
</tr>
<tr>
<td>2006-07</td>
<td>48529</td>
</tr>
<tr>
<td>2007-08</td>
<td>47422</td>
</tr>
<tr>
<td>2008-09</td>
<td>46155</td>
</tr>
<tr>
<td>2009-10</td>
<td>44910</td>
</tr>
<tr>
<td>2010-11</td>
<td>43311</td>
</tr>
<tr>
<td>2011-12</td>
<td>41611</td>
</tr>
</tbody>
</table>

Source: Annual reports of MTNL