CHAPTER – II
MOBILE PHONE SERVICE PROVIDERS & REVIEW OF LITERATURE

The Cellular telephone (commonly "mobile phone" or "cell phone" or "hand phone") is a long-range, portable electronic device used for mobile communication. Mobile phones have become an essential and important device for communication in the modern days. Mobile phone communication is a part of telecommunication, which comes in the form of oral communication. Mobile devices are growing in popularity with reduction in prices and improved functionality. Consumers prefer the flexibility and versatility of mobile phone devices. Mobile phone facilities easy and faster means of communication and one can communicate with family and friends and transact the business anywhere, anytime at a reasonable cost. In addition to telephony, modern mobile phones also support a wide variety of other services such as text messaging, MMS, email, Internet access, short-range wireless communications (infrared, Bluetooth), business applications, gaming and photography. Mobile phones that offer these more general computing capabilities are referred to as smartphones. India has the world’s second largest mobile phone users with over 903 million as of January 2012.

2.1 History of Mobile Phone

Martin Cooper, a former general manager for the systems division at Motorola, is considered the inventor of the first modern portable handset. Bell Laboratories introduced the idea of cell phone communications in 1947 with the police car technology. However, Motorola was the first to incorporate the technology into a portable device that was designed for use outside an automobile. By 1977, AT&T and Bell Laboratories had constructed a prototype cellular system. A year later, public trials of the new system were started in Chicago with over 2000 trial customers. In 1979, in a separate venture, the first commercial cell phone system began its operation in Tokyo. In 1981, Motorola and American Radio Telephone started a second U.S. cell phone radio-telephone system test in the Washington / Baltimore area. By 1982, the slow-moving FCC finally authorized commercial cellular service for USA. A year later, the first American commercial analog cell

2. "Highlights of Telecom Subscription Data as on 31st December, 2011"
phone service or AMPS (Advanced Mobile Phone Service) was made available in Chicago by Ameritech. Despite the incredible demand, it took 37 years for cell phone services to become commercially available in the United States. Consumer demand quickly outstripped the 1982 system standards. By 1987, cell phone subscribers exceeded one million and the airways were crowded.

2.2 Mobile Generations – 1G to 4G:

First of all, these standards are set by the International Telecommunication Union (ITU). It is a specialized agency of the United Nations, founded in 1865, which is responsible for information and communication technologies. The ITU co-ordinates the shared global use of the radio spectrum, works to improve telecommunication infrastructure and establishes related worldwide telecommunication standards.

2.2.1 First Generation (1G):

It all started with 1G, the first generation of wireless telephone technology and mobile telecommunications. Introduced sometime in the 1980’s, 1G networks used analog signals, as opposed to digital signals used by all the successive generations of mobile technologies. In 1G network, voice calls were simply modulated to a higher frequency, typically to 150MHz and up. The first commercially available cellular network using 1G standard was introduced by NTT (Nippon Telegraph and Telephone) in 1979 in Japan. NTT is also a shareholder and technology provider for TATA DoCoMo in India.

2.2.2 Second Generation (2G):

The second generation (2G) was commercially launched for the GSM standard in 1991 by Radiolinja, currently known as Elisa Oyj, in Finland. 2G allowed for enhanced data services and also introduced short messaging service (SMS). Since the introduction of 2G, voice communications were digitally encrypted. This allowed for greater privacy, efficient data transfer and also less expensive equipment. Two revisions or additions to this generation are sometimes referred to 2.5G and 2.75G. The combined introduction of GPRS (General Packet Radio Services) and the usage of CDMA one networks collectively came to be known as 2.5G. GPRS provided data transfer rates from 56-115kbit/s. So, services like WAP (Wireless Application Protocol) and MMS (Multimedia Messaging) were introduced, along with Internet services. 2.75G was the name given to the evolution of EDGE (Enhanced Data rates for GSM Evolution) or Enhanced GPRS (EGPRS). This was due to the introduction
of 8PSK encoding, which facilitated higher data transfer rates of up to 236.8kbits/s, almost triple of the previous rates. This is the most widely used generation of mobile telecommunication networks, and is what most mobile phones in India are now using.

2.2.3 Third Generation (3G):

The third generation (3G) was introduced by NTT DoCoMo in Japan, in 2001. Although initially limited in scope, it was a leap forward. 3G used completely different radio frequencies from 2G, so it required different equipment to achieve the new high data transfer rates. Also, the enormous costs of additional spectrum licensing fees delayed the introduction of 3G in many countries. 3G data transfer rates are 384kbits/s to 2Mbits/s, so it allows for previously unavailable services like video calls, video conferencing, online conference call, mobile TV, online gaming etc. These speeds are broadband equivalent, so the applications and capabilities are enhanced greatly. Along with these services, 3G provides greater security and privacy. As with 2G, minor evolution of the standards resulted in 3.5G and 3.75G. Again, these standards allowed for higher data transfer rates, exceeding 2Mbits/s, reaching about 14Mbits/s.

2.2.4 Fourth Generation (4G):

The next generation, 4G mobile phones are all set to provide data transfer rates of 100Mbit/s to 1Gbit/s, which is mind boggling, to say the least. Such speeds are not even present in wired networks commercially. 3G has just been launched in India and is available on select mobile operators for select cities. But to access these services, a 3G compatible mobile phone is required.

2.3 Top 10 Countries Mobile Phone Subscribers

Mobile technology has very quickly become common among the people. There was times when an individual dreams of having his own mobile phone as it was expensive in the start. But as the world is getting advanced day by day, mobile and cell phones technology is now the most common department of the advance technology.
Table - 2.1

Top 10 Countries with the number of Mobile Phone Subscribers 2011

<table>
<thead>
<tr>
<th>Year - 2011</th>
<th>Mobile Phone Subscribers in million</th>
<th>Users (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>896.2</td>
<td>67.1</td>
</tr>
<tr>
<td>India</td>
<td>840.28</td>
<td>70.23</td>
</tr>
<tr>
<td>United States</td>
<td>302.9</td>
<td>96</td>
</tr>
<tr>
<td>Russia</td>
<td>220.5</td>
<td>151.9</td>
</tr>
<tr>
<td>Brazil</td>
<td>215</td>
<td>110.5</td>
</tr>
<tr>
<td>Indonesia</td>
<td>168.2</td>
<td>73.1</td>
</tr>
<tr>
<td>Japan</td>
<td>107.4</td>
<td>84.1</td>
</tr>
<tr>
<td>Germany</td>
<td>107</td>
<td>130.1</td>
</tr>
<tr>
<td>Pakistan</td>
<td>105.1</td>
<td>63.2</td>
</tr>
<tr>
<td>Nigeria</td>
<td>90.5</td>
<td>64.7</td>
</tr>
</tbody>
</table>


The worldwide number of mobile phone subscribers surpass 5 billion in 2011 - up from 11 million in 1990 and 750 million in 2000. China leads the mobile phone subscribers list with nearly 900 million as at the end of 2011 - nearly as in the India. United States has seen tremendous growth in the last few years and is to be third place by the year-end 2011. Rapid expansion of cell phones in India will see a future climb in the rankings to a possible number one in 2010. Worldwide mobile phone subscribers are estimated to reach 5.9 billion by the end of the year 2013.

2.4 World Wide Market Share of Mobile Phones

The global mobile phone industry is based on many different manufacturers and operators. The industry is based on advanced technology and many of the manufacturers are operating in different industries, where they use their technological skills, distribution network, market knowledge and brand name. Four large manufacturers of mobile phones are today dominating the global mobile phone industry & networks; Nokia, Sony Ericson, Samsung and LG. Airtel, BSNL, Tata teleservices, Vodafone, Reliance and others. In addition to these companies there are many manufacturers that operate globally and locally.
World wide market share of various mobile companies has been analysed by Gartner. Gartner is the world’s leading information technology research and advisory company. The results of the analysis are presented in the Table 2.2.

Table 2.2
World Wide Market Share of Mobile Phones between 2010 And 2011

<table>
<thead>
<tr>
<th>Company</th>
<th>2010</th>
<th>Market Share (%)</th>
<th>2011</th>
<th>Market Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nokia</td>
<td>111,473.7</td>
<td>30.3</td>
<td>97,869.3</td>
<td>22.8</td>
</tr>
<tr>
<td>Samsung</td>
<td>65,328.2</td>
<td>17.8</td>
<td>69,827.6</td>
<td>16.3</td>
</tr>
<tr>
<td>LG</td>
<td>29,366.7</td>
<td>8.0</td>
<td>24,420.8</td>
<td>5.7</td>
</tr>
<tr>
<td>Apple</td>
<td>8,743.0</td>
<td>2.4</td>
<td>19,628.8</td>
<td>4.6</td>
</tr>
<tr>
<td>ZTE</td>
<td>6,730.6</td>
<td>1.8</td>
<td>13,070.2</td>
<td>3.0</td>
</tr>
<tr>
<td>Research In Motion</td>
<td>11,628.8</td>
<td>3.2</td>
<td>12,652.3</td>
<td>3.0</td>
</tr>
<tr>
<td>HTC</td>
<td>5,908.8</td>
<td>1.6</td>
<td>11,016.1</td>
<td>2.6</td>
</tr>
<tr>
<td>Motorola</td>
<td>9,109.4</td>
<td>2.5</td>
<td>10,221.4</td>
<td>2.4</td>
</tr>
<tr>
<td>Huawei Device</td>
<td>5,276.4</td>
<td>1.4</td>
<td>9,026.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Sony Ericsson</td>
<td>11,008.5</td>
<td>3.0</td>
<td>7,266.5</td>
<td>1.7</td>
</tr>
<tr>
<td>Others</td>
<td>103,412.6</td>
<td>28.1</td>
<td>153,662.1</td>
<td>35.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>367,986.7</strong></td>
<td><strong>100.0</strong></td>
<td><strong>428,661.2</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

*Source: Gartner*

From the table 2.2, it is inferred that Nokia had the highest market share of 30.3 per cent worldwide during the year 2010 and Samsung 17.8 per cent. During 2011, Apple’s expanded its market share to 4.6 per cent worldwide, and ZTE share increased to 3 per cent and other companies share increased to 35.8 per cent. The companies expect a greater increase in the near future in their market share.

2.5 History of Cellular Phones in India

A report of **Cellular Operators Authority of India** regarding the entry of cell phones into India is listed below. This shows the improvement in cell phone introduction over the years.

1992 - Telecommunication Sector in India liberalized to bridge the gap through Government spending and to provide additional resources for the nation’s telecom target. Private Sector allowed participating.

1993 - The telecom industry gets an annual foreign investment Rs.20.6 million
1994 - License for providing cellular mobile services granted by the government of India for the Metropolitan cites of Delhi, Mumbai, Kolkata & 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.

1995 - 19 more telecom circles get mobile licenses
1995 (August) – Kolkata became the first metro to have a cellular network
1997 - Telecom Regulatory Authority of India (TRAI) is set up
1998 - Annual foreign investment in telecom stands at Rs. 17,756.4 million
1999 - FDI inflow into telecom sector falls by almost 90% to Rs.2126.7 million
1999 - Tariff rebalancing exercise gets initiated
1999 (March) – National Telecom Policy (NTP) is announced.
2000 (June) – FDI inflow drops further down to Rs.918 million coming
2000 (January) – Amendment of TRAI Act.
2000 - 01 – 3rd / 4th operator licences
2003 - CDMA networks launched
2004 - Calling Party Pays (CPP) introduced
2005 - Life time Validity products issued
2008 - Fresh licenses issued to 6 players.
2009 - Tariff wars amongst operators

2.6 Growth Trends of Mobile Phone Services

The rapid growth and use of mobile phones has made the telecom companies like Airtel, Vodafone, Spice, BSNL, Tata, etc more conscious to provide world class and best facilities to their customers in order to maintain their market. Also, these telecom companies are coming up with new ideas and methodology to provide new and easy services to their customers.

People in today’s era are habitual of mobile phones and especially in metropolitan cities where people are well-connected with their friends and families through the mobile phones. All they want in their mobile phones is the best quality, economical in calling so that their talk with their love ones never ends and most importantly better connectivity and good service whenever they needed.
Table – 2.3
Trends in Mobile Services

<table>
<thead>
<tr>
<th>Years</th>
<th>Subscriber Base (in millions)</th>
<th>Growth Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-2002</td>
<td>13.00</td>
<td>263.13</td>
</tr>
<tr>
<td>2002-2003</td>
<td>33.58</td>
<td>158.31</td>
</tr>
<tr>
<td>2003-2004</td>
<td>50.00</td>
<td>48.90</td>
</tr>
<tr>
<td>2004-2005</td>
<td>76.00</td>
<td>52.00</td>
</tr>
<tr>
<td>2005-2006</td>
<td>149.50</td>
<td>96.71</td>
</tr>
<tr>
<td>2006-2007</td>
<td>165.11</td>
<td>10.44</td>
</tr>
<tr>
<td>2007-2008</td>
<td>261.07</td>
<td>58.12</td>
</tr>
<tr>
<td>2008-2009</td>
<td>391.76</td>
<td>50.06</td>
</tr>
<tr>
<td>2009-2010</td>
<td>584.32</td>
<td>49.15</td>
</tr>
<tr>
<td>2010-2011</td>
<td>811.59</td>
<td>38.89</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td><strong>82.57</strong></td>
</tr>
</tbody>
</table>

Source: www.trai.com

The above table explains the growth of mobile phones in terms of subscriber base for the years 2001-2002 to 2010-2011. The trend in the growth rate of the subscriber base depicted an increasing trend over the years. The maximum growth of subscriber base was 263.13 percent during the year 2001-2002. It could also be said that mean growth rate of mobile phones in subscriber base was 82.57 percent during the period. Though the growth trend was fluctuating over the years, there was consistency in the growth of mobile phones subscriber base.

2.7 Mobile Subscribers Statistics in India Circle-Wise

Telecom circles have been divided by the Telecommunications Department based on the subscribers available in each circle. The circle-wise mobile subscribers statistics in India is furnished in Table 2.4.

Table – 2.4
Circle – wise subscribers in India During 2011

<table>
<thead>
<tr>
<th>Circle wise</th>
<th>Subscriber base (in million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>63.42</td>
</tr>
<tr>
<td>Assam</td>
<td>13.02</td>
</tr>
<tr>
<td>Bihar</td>
<td>57.56</td>
</tr>
<tr>
<td>Delhi</td>
<td>40.53</td>
</tr>
</tbody>
</table>
The above table reveals that circle-wise subscriber base in India during 2011. Tamil Nadu circle has the highest number of subscribers nearly 73.30 million, followed by UP East with 67.32 million and Maharashtra with 65.56 million of total mobile subscribers in India.

**2.8 Growth of Mobile Subscribers in Tamil Nadu**

In Tamil Nadu, the mobile subscribers’ growth has increased drastically over the years. There are various players in the market using GSM, CDMA technology. Vodafone, Aircel, BSNL, and Airtel use GSM technology whereas Tata Teleservices and Reliance use CDMA technology. GSM technology has easy accessibility. The following table explains the subscribers to GSM and CDMA technology using various service providers.
Table – 2.5

Growth of Mobile Phone Subscribers in Tamil Nadu 2011

<table>
<thead>
<tr>
<th>Operators</th>
<th>Subscribers base (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vodafone (GSM)</td>
<td>10.9</td>
</tr>
<tr>
<td>Bharti Airtel (GSM)</td>
<td>12.6</td>
</tr>
<tr>
<td>Idea/Spice (GSM)</td>
<td>1.24</td>
</tr>
<tr>
<td>Aircel/ Dishnet (GSM)</td>
<td>19.5</td>
</tr>
<tr>
<td>Reliance (GSM)</td>
<td>3.9</td>
</tr>
<tr>
<td>Reliance (CDMA)</td>
<td>4.1</td>
</tr>
<tr>
<td>Tata (GSM)</td>
<td>3.7</td>
</tr>
<tr>
<td>Tata (CDMA)</td>
<td>1.1</td>
</tr>
<tr>
<td>BSNL(GSM)</td>
<td>7.9</td>
</tr>
<tr>
<td>BSNL (CDMA)</td>
<td>0.4</td>
</tr>
<tr>
<td>Sistema (CDMA)</td>
<td>1.4</td>
</tr>
<tr>
<td>Unitech (GSM)</td>
<td>1.3</td>
</tr>
<tr>
<td>Videocon (GSM)</td>
<td>1.5</td>
</tr>
<tr>
<td>Etisalat (GSM)</td>
<td>0.01</td>
</tr>
<tr>
<td><strong>All India</strong></td>
<td><strong>811.59</strong></td>
</tr>
</tbody>
</table>

*Source: DOT & service providers*

The above table describes that the growth of mobile subscribers in Tamil Nadu. Aircel holds the highest number of subscribers, closely followed by Airtel and Vodafone.

2.9 Growth Drivers of Mobile Service Industry:

2.9.1 3G Telecom Services

The explosive growth of the telecom industry in India is being followed by the urge to move towards better technology and the next level of service delivery. While the last 5 years have been transformational for Indian telecom industry, the next few years look even more exciting. BWA will overcome the key hindrance of ROW in India, while 3G has the potential to make the mobile phone, a ubiquitous device for accessing the internet. The new opportunities opened through new services such as
3G mobile, VAS, Wi-MAX, M-Commerce, Mobile banking and Broadband wireless services will put emphasis on deeper penetration into urban and rural areas.

2.9.2 Mobile Number Portability (MNP)

India is a fast growing in terms of mobile usage. A mobile phone has become a necessity in today’s lifestyle. As a result India has turned out to be a competing hub for many mobile companies. Mobile Number Portability (MNP) was launched in India in January 2011, which allows the user to retain the existing number while giving him an option to change the subscriber. India, the world’s second largest market for mobile phones is foretasted to become an even larger market with unit shipments of 209 million each year by 2016 at a compound annual growth rate of 12% from 2010 to 2016, according a market study. India’s mobile market has changed with local mobile companies drastically cutting into the market of the dominant companies like Nokia. The mobile entertainment industry in India is also witnessing significant growth and a latest research forecasts this market to reach $5 billion in 2015 from $1.2 billion in 2009, growing at a CAGR of 26%.

2.9.3 Value Added Services (VAS)

A value-added service (VAS) is popular as a telecommunications industry term for non-core services, or in short, all services beyond standard voice calls and fax transmissions. It can be used in any service industry, for services available at little or no cost, to promote their primary business. In the telecommunication industry, on a conceptual level, value-added services add value to the standard, spurring the subscriber to use their phone more and allowing the operator to drive up their ARPU. For mobile phones, while technologies like SMS, MMS and GPRS are usually considered value-added services, a distinction may also be made between standard (peer-to-peer) content and premiumcharged content. These are called mobile value-added services (MVAS) which are often simply referred as VAS. Value-added services are supplied either in-house by the mobile network operator themselves or by a third-party Value Added Service Provider (VASP), also known as a Content Provider (CP). VASPs typically connect to the operator using protocols like Short Message Peer-to-Peer Protocol (SMPP), connecting either directly to the Short Message Service Centre (SMSC) or, increasingly, to a messaging gateway that allows the operator to control and charge of the content better. There are many national and international investors are ready to invest in this segment of telecom market. A list of some Value Added Services provided by the telecom operators to the end users.
News - e.g. Business, sports, politics etc.
Finance - e.g. Share market, foreign exchange etc.
Entertainment - e.g. Games, jokes, films etc.
Travel - e.g. Railway, airlines etc.
Download - e.g. Caller tunes, wallpapers etc.
Astrology - e.g. Horoscope
Contest - e.g. Reality shows
MMS - e.g. Picture messages, video clips etc.
E-mail - e.g. SMS, e-mail etc.
Music - e.g. Ring tones
Cricket - e.g. Score, video clips etc.
GPRS - e.g. Internet, chat etc.
Call Alert - e.g. Missed call alerts when mobile is switched off or busy
Health - e.g. Health tips, beauty tips etc.
M-Commerce - e.g. mobile transactions like mobile banking
Others - e.g. movies, music etc.

2.10 Quality of Service Performance of Wireless Service Providers:
TRAI monitors the performance of Basic and Cellular Mobile services against the benchmarks for various parameters laid down under quality of service regulations issued from time to time through quarterly performance monitoring report (PMR) received from service providers and monthly POI congestion reports. The analysis of PMR submitted by the service providers for the quarter ending 30th September 2010 indicates that the private cellular mobile service providers are generally complying with the benchmarks prescribed by TRAI for most of the quality of service parameters. However, some of the service providers are not meeting the benchmarks for some of the quality of service parameters. Noncompliance with the benchmarks is generally observed in respect of parameters such as Worst affected cells having more than 3% TCH call drop rate, Point of Interconnection (POI) Congestion, Metering and Billing Credibility-postpaid and Metering and Billing Credibility-prepaid, Accessibility of Call Centre/ Customer Care and Percentage of Calls answered by the operator (voice to voice) within 60 seconds.
<table>
<thead>
<tr>
<th>S. No.</th>
<th>Parameters</th>
<th>Benchmark</th>
<th>No. of Operators not meeting the Benchmarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Quarter Ending December, 2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Out of 236 (Nos.)</td>
</tr>
<tr>
<td>I</td>
<td>Network Related Parameters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Network Availability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i)</td>
<td>BTSs Accumulated downtime (not available for service)</td>
<td>≤ 2%</td>
<td>6</td>
</tr>
<tr>
<td>ii)</td>
<td>Worst affected BTSs due to downtime</td>
<td>≤ 2%</td>
<td>24</td>
</tr>
<tr>
<td>2.</td>
<td>Connection Establishment (Accessibility)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i)</td>
<td>Call Set –up Success Rate (within licensee’s own network)</td>
<td>≥ 95%</td>
<td>1</td>
</tr>
<tr>
<td>ii)</td>
<td>SDCCH/Paging Chl. Congestion</td>
<td>≤ 1%</td>
<td>4</td>
</tr>
<tr>
<td>iii)</td>
<td>TCH Congestion</td>
<td>≤ 2%</td>
<td>5</td>
</tr>
<tr>
<td>3.</td>
<td>Connection Maintenance (Retain ability)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i)</td>
<td>Call Drop Rate</td>
<td>≤ 2%</td>
<td>6</td>
</tr>
<tr>
<td>ii)</td>
<td>Worst affected cells having more than 3% TCH drop (call drop) rate</td>
<td>≤ 5%</td>
<td>42</td>
</tr>
<tr>
<td>iii)</td>
<td>Connection with good voice quality</td>
<td>≥ 95%</td>
<td>7</td>
</tr>
<tr>
<td>4.</td>
<td>Point of Interconnection (POI) Congestion (No. of POIs not meeting the benchmark) (Averaged over a period of Quarter)</td>
<td></td>
<td>≤ 0.5%</td>
</tr>
<tr>
<td>II</td>
<td>Customer Service Quality Parameters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>-------------------------------------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>5.</td>
<td><strong>Metering and Billing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i)</td>
<td>Metering and billing credibility—post paid</td>
<td>≤ 0.1%</td>
<td>16</td>
</tr>
<tr>
<td>ii)</td>
<td>Metering and billing credibility-prepaid</td>
<td>≤ 0.1%</td>
<td>32</td>
</tr>
<tr>
<td>iii)</td>
<td>Resolution of billing/charging/validity complaints</td>
<td>100% within 4 weeks</td>
<td>6</td>
</tr>
<tr>
<td>iv)</td>
<td>Period of applying credit/waiver/adjustment to the customer’s account from the date of resolution of complaints</td>
<td>Within 1 week of resolution of complaint</td>
<td>2</td>
</tr>
<tr>
<td>6.</td>
<td><strong>Response time to the customer for assistance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i)</td>
<td>Accessibility of call centre/customer care</td>
<td>≥ 95%</td>
<td>45</td>
</tr>
<tr>
<td>ii)</td>
<td>%age of calls answered by the operators (voice to voice) within 60 seconds</td>
<td>≥ 90%</td>
<td>101</td>
</tr>
<tr>
<td>7.</td>
<td><strong>Termination/Closure of Service</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i)</td>
<td>%age requests for Termination/Closure of service complied within 7 days</td>
<td>100% within 7 days</td>
<td>11</td>
</tr>
<tr>
<td>ii)</td>
<td>Time taken for refund of deposits after closures</td>
<td>100% within 60 days</td>
<td>30</td>
</tr>
</tbody>
</table>

*Source: www.trai.com*

The Point of Interconnection congestion is monitored on monthly basis through reports received from service providers. The benchmark notified by TRAI in the QoS Regulations for the parameter is <0.5%. The POI Congestion Report analysis for the quarter June 2010 shows that the performance of the CMSPs with respect to the congestion on POIs has slightly improved in the month of June 2010 as compared with the performance in March 2010. As of June 2010, 77 POIs were having congestion above the benchmark of 0.5% as against 82 such POIs in June 2010.
The performance has improved in this quarter as compared to the previous quarter in respect of the following parameters:-

a) Worst affected BTSs due to downtime
b) Connection with good voice quality
c) Call Drop Rate
d) Worst affected cells having more than 3% TCH drop (call drop) rate
e) Metering and billing credibility - post paid
f) Metering and billing credibility - pre paid
g) Accessibility of call centre/ customer care
h) %age of calls answered by the operators (voice to voice) within 60 sec.
i) %age requests for Termination / Closure of service complied within 7 days
j) Time taken for refund of deposits after closures
REVIEW OF PREVIOUS STUDIES:

A detailed review of literature has been framed to find out the research gap and to identify the issues related to the study. This chapter provides the reviews on International level and National level sources with respect of cellular phone service and customers’ attitude and perception to cellular service quality. This chapter also focuses on the over view of the study area.

Ramachandran, T.V. (2001)\(^1\) in his study “Cellular Industry-The best yet to come” highlighted that, the cellular industry wholeheartedly welcomes increased competition in mobile services and believes that what the customers really want is full mobility at an affordable price.

Inger Roos, Anders Gustafsson and Bo Edvardsson, (2005)\(^2\) in their study "The role of customer clubs in recent telecom relationships" found that, The study is to enhance understanding of the club’s role in the customer relationships of a telecommunications company by re-considering the concepts of frequency and commitment in a telecom-customer club. Study found an umbrella concept for the club regarding loyalty: a keeping function, which divided the customer club in two ways: the affective role makes the customer stay with the company and the calculative role with a more inferred loyalty function. The expressions that were not connected to loyalty is the attracting function.

Revathi. S and Padmavathy. S (2005)\(^3\) in their study “Preference in cellular service providers in the post liberalization Era” concluded that, the respondents of BPL cellular limited and Aircel Limited face many problems and they have an idea of switchover to some other service providers. So the Aircel limited and BPL Cellular limited should pay special attention to the factors and to the problems revealed by the users.

Selvaraj V.M. and Ganesan Malathi (2005)\(^4\) in their study, “A study on consumer behaviour towards cell phone users in Thuthookudi City’ concluded that, the existing customers are satisfied with the cellular service and is having good prospective customers for cellular services. By creating more awareness, better coverage, connectivity and new schemes the prospects for cellular service can be increased.
Francis Sudhakar. K and Lydia Nutan (2005)\textsuperscript{5} in “An objective study of customer behaviour in BPL Mobile Cellular Ltd” found that, present day customer seeks more information about product class, category, and brand before making purchase, so considerable amount of information should be given through advertisement. Any change in schemes should be communicated to the customers on regular basis.

Warbhuvan, S.S. (2005)\textsuperscript{6} in his study “Role of Telecom in Aurangabad: An analysis” found that, the telecom services have now become a basic human need. To seek, receive and impart information has been treated as a basic human right.

Dhananjay Kanderao Keskar (2005)\textsuperscript{7} in his study “Reliance Infocomm: Ushering in a new revolution in the telecom industry” found that, the aggressive marketing strategy and promotional campaigns of Reliance Infocomm Limited. It also describes different promotional offers by Reliance Infocomm in order to increase the volume of sales by acquisition of new customers. The study found the Reliance Infocomm new initiative of product diversification (fixed telephone service area) to tap the new segments and its competitive advantage.

Panandikar (2005)\textsuperscript{8} points out that the degree of consumer satisfaction bears a direct impact on the quality of service where good quality of services gives better customer satisfaction and bad quality of services leads to dissatisfaction of the consumer. In a monopoly situation, a customer has no choice but to accept the quality of services of whatever level of standard that the monopoly operator provides. However, by bringing in competition and giving free choice to select an operator, the market share of an operator would largely depend on the quality of services and the price. More discerning customers might even opt to pay a higher price for a better quality of services. Consumer complaints represent the negative perception of quality of services. Quality of service as perceived by a customer largely depends on Service Support Performance: ability of an operator to provide services and maintain them; Service Operability Performance: service user–friendliness, simplicity and ease of use; Service Integrity Performance: transmission performance to the pre-established performance criteria; Service Ability Performance: accessibility, Retainability and reliability signifying, making available the services to a customer on request and ability to provide them without interruption.

Chandiran. P (2005)\textsuperscript{9} in his study “Product life cycle and Promotion strategies in cellular telecom industry” found that, with the increasingly affordable tariffs and
stable policy regime, the telecom industry is the fastest growing in the market. The consolidation process which involves takeovers, mergers and acquisitions are over, the industry look at their promotion mix. The role of customer service and brand building is an importance for marketing.

Harvinder Singh (2005)\textsuperscript{10} in his study, “Mobile Telephony Need to Knock Multiple Doors” concluded that, Mobile telephony in India has been tremendous growth in terms of subscriber base, tele-density, and usage, in the past six years, but it has not translated into a high Average Revenue per User (ARPU). A gradual but steady shift of mobile service providers towards value added services will help in achieving a higher level of differentiation among service providers. It will also generate an alternative stream of revenue and dependence on voice-call revenue will come down. It will eventually end the rat race in mobile telephony because the worst thing in a rat race is: Even if you win it, you are still a rat.

Richard Lee, Jamie Murphy, University of Western Australia (2005)\textsuperscript{11} their study investigates determinants that cause mobile phone Customers to transit from being loyal to switching. It concluded that there are different factors which affect the Customers to switch from loyalty to switching intentions such as price, technical service quality, Functional service quality, switching costs, etc. But, the rating was given that price is the most important factor which affects the Customers to switch loyalties to another provider.

Dhandapani Alagiri, (2005)\textsuperscript{12} in his study “Rural Telecom Reach” analysed the India is an emerging and a very larger player in the telecommunications revolution. While the Indian telephone network is increasing at a good pace, the growth has been more concentrated in the urban centers than in the rural areas. Digital gap measured using tele-density is considered a threat to socio-economic prosperity by all modern governments. The tele-density in the urban areas has crossed 40 percent while in the rural areas it stands at around an abysmally low 2 percent. The telecom policies should address the differential needs of various regions giving special consideration at the local government level of rural and urban areas to identify the region-specific needs. The rural reach of telecommunications also depends heavily on private investment as it is expected to play an important role in providing value-added services apart from the basic telephony provided by the government agencies. Foreign direct investment also will have to play a role in expanding the rural reach of telecom in the country.
Vijay Kumar. R and Ruthra Priya, P. (2006)\textsuperscript{13} in their study “Satisfaction derived by the Airtel Subscribers in Coimbatore” analysed that, Mobile phones have become an essential and important device for communication in the modern days. Airtel Network is one of the leading mobile service providers in Coimbatore city. There is a steady increase in the number of mobile phone users, the improvement in the quality of the services of this network will attract more new subscribers and would help to retain the existing subscribers in the future competitive market.

Jain, Abhay and Hundal, B.S. (2006)\textsuperscript{14} in their study “Factors Influencing the Adoption of Cell Phone Services in Rural Areas”, indicated that there has been a phenomenal spurt in the growth of tele-density in the country, with the evolution of new wireless technologies; but the gap between the urban tele-density and rural tele-density has been continuously increasing (TRAI, 2004). Various policy initiatives have been taken to reduce this widening gap, which in turn, will result in tremendous potential for growth in rural areas. While mobile phone usage in rural areas is rather an unexamined genre in academic literature, this explanatory study investigates the factors influencing the rural consumers' buying behaviour in the mobile phone market.

Banumathy, S. and Kalaivani, S. (2006)\textsuperscript{15} in their study “customers’ attitude towards cell phone services in communication system” found that, majority of the respondents have given a favourable opinion towards the services. Some problems that deserve the attention of the service providers. They need to bridge the gap between the services promised and services offered.

Chinnadurai. M and Kalpana. B (2006)\textsuperscript{16} in their study “Promotional Strategies of Cellular Services: A customer perspective” analysed that, the increasing competition and changing taste and preferences of the customer’s all over the world are focusing companies to change their targeting strategies. It was found that advertisement play a dominant role in influencing customers but most of the customers are of opinion that promotional strategies of cellular companies are more sales oriented rather than customer oriented.

Srivastava. R, Jatin Bhangde, Nirav Bhatt, Kunal Gogri and Hemal Marfatia, (2006)\textsuperscript{17} in their study “Role of competition in growing markets: Telecom Sector” found that, to survive in telecom market and face the competition the companies has to provide customers extra value added features, high quality services at competitive prices, make innovative schemes through aggressive pricing and superior service to retain and add more customers.
Bedabal Ray (2007)\(^{18}\) in his study “Vodafone in the Indian Telecom Market Issues and Challenges” analysed that; Vodafone’s presence in the Indian market can augur a new marketing statement for all telecom operators. MNCs must understand the working environment of different countries. Many companies have failed to understand the cross-cultural management system they prevailed there. This wouldn’t create a problem for Vodafone, as it has been able to understand the Indian market to a great extent through participation in stock in Airtel for the past couple of years. In Airtel, it holds some shares but is not involved in management. Now it is a company with huge presence in the Indian market. Vodafone’s immediate agenda should include new customer acquisition, acquiring new circles, strategic alliance with the BSNL for network and strong emphasis on customer retention. Vodafone’s global experience should help the company do things right in all directions and aspects. Vodafone will succeed or fail in the Indian telecom market.

Fulbag Singh and Reema Sharma (2007)\(^{19}\) in their study “Cellular Services and Consumer Buying behaviour in Amritsar City” found that, After the liberalization of the telecom policy in 1994, the telecom sector was one of the sectors to be opened for private players. Entry of new players in this sector has made selection of cellular services difficult for consumers. The survey results identified certain factors influencing customer’s behaviour while selecting service options but the degree of importance of each factor varies. The findings of this survey are also beneficial for service providers both existing as well as new, to design their promotional strategies accordingly.

Smruti Bulsari (2006)\(^{20}\) in his study “National Telecom Policy (NTP) 1994 and Structural Change in Telecommunication sector of Gujarat” concluded that, There has been a significant development in the telecommunication sector in the past decade. The reforms in the telecommunications sector its beginning with the liberalization policy in general and the NTP 1994. This policy was revised after having identified the lacunae and it is being revised continuously in tune with the changes in technology and value added services with basic telephony. Since the introduction of the NTP 1994, a significant growth in the telecommunications sector of Gujarat and the growth rate is estimated to be 9.6%.

Bedabal Ray (2007)\(^{21}\) in his study “Mobile Operators in the New Communication paradigm” concluded that, Communication system is going through a paradigm change all over the world. To have innovations in communications to entice
new customers as well as to retain the existing ones. Airline companies in India on
selling more e-tickets today. Companies should realize how they should provide better
shopping experiences to their customers and provide easy access to product or service
information. Companies have to strategies how they will bring their customer to the
new realizations and give them better shopping experiences. They have to strategies
to bring the consumers into the paradigm of a different mode of communication. The
shopping experience is good for a particular company, sales and profits zoom. There
is a tremendous opportunity for innovation even if companies are communicating the
same idea theme or technology. It is parity communication, companies are supposed
to innovate and put forward out-of-the-box ideas. And Hutch and Airtel are trying to
do that.

Jan. M and Wajidi. A (2007)\textsuperscript{22} in their study “Cellular Mobile Phone Service
& Users’ Preferences in Quetta City” highlighted offering of various packages as a
major tool to survive the competition and to increase the market share. Besides this
instant connectivity and low call rates are also important to attract and retain
maximum number of customers. It is also emphasized that the mobile phone service
providers should understand customers’ behavior and preferences.

Inger Roos and Margareta Freidman (2008)\textsuperscript{23} in their study "Emotional
experiences in customer relationships – a telecommunication study" analysed that,
The study aims at deepening understanding of the role of emotion in customer
switching processes and identifying the relative frequency of negative discrete
emotions in terms of different triggers. The main finding was that the identified
emotions were located in the trigger part of the relationship, and was expressed by the
respondents during the switching process in form of annoyance, anxiety,
disappointment, dissatisfaction, distress, depression, rage, stress and tension.

Jamie Anderson, (2008)\textsuperscript{24} in his study "Developing a route to market strategy
for mobile communications in rural India: An interview with Gurdeep Singh,
Operations Director, Uttar Pradesh, Hutch India" analysed that, the paper is to explore
the challenges of reaching low-income customers in developing markets. That
managers need to go beyond traditional approaches to serving the poor, and innovate
by taking into account the unique institutional context of developing markets. In most
cases, MNOs have served the poorest consumers through shared-use models such as
Grameen Phone's Village phone concept in Bangladesh, due to the commonly held
belief that reaching these consumers is difficult due to two key challenges –
affordability and availability. This paper demonstrates that MNOs can deliver availability and affordability to achieve increased individual or household penetration through business model innovation.

Rick Ferguson and Bill Brohaugh, (2008)\textsuperscript{25} in their study "Telecom's search for the ultimate customer loyalty platform" analysed that, companies with sound customer strategies can use this as a differentiator in an increasingly muddled market. In an increasingly competitive market, customer loyalty efforts can play a major part in the attraction of new customers and the retention of current ones. Marketers dealing in the telecommunications arena are entrenched in an exciting era of industry growth. As consumers' choices expand, the importance of a sound customer relationship strategy becomes more and more important for the success of the company.

Frederic Jallet and Fabio Ancarani (2008)\textsuperscript{26} in their study “Yield management dynamic pricing and CRM in telecommunication” found that, the importance of yield management and dynamic pricing in telecommunication sector. Yield Management is the process of allocating the right type of capacity or inventory unit to the right kind of customer at the right price so as to maximize revenue or yield. Yield management and dynamic pricing strategies could be usefully applied to preserve and increase profitability. Yield management techniques can help telecom operators to optimize the benefits they can derive from a subtle management of information networks and partnerships. However, such an approach is more difficult to implement in the telecommunication industry than in the airlines sector because of the difficulty to control (and sometimes refuse) network access to customers.

Roma Mitra Debnath and Ravi Shankar, (2008)\textsuperscript{27} in their study "Benchmarking telecommunication service in India: An application of data envelopment analysis" found that, Telecommunications has entered a new age of development with advanced technology and increased competition with established players. The technological advances in the telecommunication sector are associated with an uninterrupted growth of the mobile sector. The prime focus of the service providers is to create a loyal customer base by benchmarking their performances and retaining existing customers in order to benefit from their loyalty. The results are insightful to the telecom policy planner as benchmark them in terms of their efficiency. It also identifies the inefficient service providers who can improve their efficiency by making the efficient providers as their role model.
Sunil Mani (2008) in his study “Growth of India’s Telecom Services (1991-2007): can it lead to emergence of a manufacturing hub” analysed that, the telecom industry can be achieved by easing governmental regulations with respect to production, imports and exports and focusing more on tariffs and other conditions of sale. The growth of the telecom services segments of the industry appears to be spawning a manufacturing industry. In order to sustain this high growth, the government ought to be very serious about examining various proposals for bridging the digital divide through the support of private sector service providers at well.

Anitha Seth, Momaya. K and Gupta H.M. (2008) in their study “Managing the Customer Perceived service quality for cellular mobile telephony: An empirical investigation” concluded that, there is relative importance of service quality attributes, and showed that ‘responsiveness’ is the most important dimension followed by reliability, customer perceived network quality, assurance, convenience, empathy and tangibles.

Mayank Vinodbhai Bhatt (2008) in his study “A Study Mobile Phone Usage among the Post Graduate Students” analysed that, important for mobile carriers, service providers, content developers, equipment manufacturers, as well as for parents and young people alike that the key characteristics of mobile technology is well understood so that the risks associated with its potentially damaging or disruptive aspects can be mitigated. This paper has tried to compare the usage difference by gender with respect to the difference manufacturing and service provider companies.

Bedabal Ray (2008) in his study “Creating Superior Perceived Image Marketing Communication by Mobile Phone Service Companies” concluded that, Mobile phone service companies and their advertising agencies should therefore nudge themselves out of the narrow focus of building a huge customer base (many of whom provider very low revenues and switch service providers frequently) in the short term based on universal attributes. They should instead move towards developing a communication strategy for the long run that would build on their unique attributes (tangible and/or intangible) so as to develop loyal clientele among specific target groups.

Cygnus Business Consulting and Research Pvt. Ltd (2008) in its “Quarterly Performance Analysis of Companies (April-June 2008)” has analysed the Indian telecom industry in the wake of recent global recession and rising inflation, and its overall impact on the Indian economy. Service sector is one of the most significant
sectors of Indian economy. Cygnus estimates, the Indian telecom industry is expected to maintain the growth trajectory in the next quarter as well with almost 5-6 million subscribers added every month.

Islam, M. S. (2008)\(^3\) in his study “The Analysis of Customer Loyalty in Bangladesh Mobile Phone Operators Industry” has highlighted several factors for building the customers’ satisfaction and customer loyalty. Trust is the major determinant for this. In addition to trust, switching cost & corporate image are responsible for customer loyalty and satisfaction in mobile phone operator industry in Bangladesh.

Seo et al (2008)\(^4\) in their study “Two-level model of customer retention in the US mobile telecommunications service market” has mentioned that switching cost plays a significant role in customer retention. Switching costs include all costs incurred by the customer when a customer switches between different brands of products or services. Switching costs consist of loss and gain costs. Loss costs occur when customers leave their service provider, while gain costs occur when the customer starts to subscribe to a new service or gains a new product. Organizations can increase loss costs to retain customers and manipulate gain costs to attract new customers.

Oyeniyi and Abiodun (2009)\(^5\) in their study, “Switching Cost and Customers Loyalty in the Mobile Phone Market: The Nigerian Experience” argues that customer satisfaction positively affects customer retention and that switching cost affects significantly the level of customer retention.

Yanming TAN and Jianqiu ZENG (2009)\(^6\) in their study “Study on Value Chain of Telecom VAS under Transformation Background” concluded that, In the new environment, telecom industry is becoming a part of several converged industries in information society gradually from an independent industry which provides telecom products like voice or data. Judging from the industry status quo, the construction of flexible telecom networks still need more time, and the degree of information society also needs to be further upgraded, and applying conditions of the new value chain mode of telecom VAS may be not sophisticated enough. However, it will be necessary to implement gradual transition towards future goals for telecom operators, and the study of this paper will offer certain theoretic guide to operators.

Systems”, conclude that the 4G mobile technologies will stimulate subscriber interest in broadband wireless applications because of its ability and flexibility towards the world of wireless mobile communications. A concentrated effort seems to categorize how wire-less mobile technologies can accompaniment a more user focused world of wireless. Finally the report elaborates the different Mobile Communication Technologies that have been developed in the past and their evolution and development towards 4th generation communication systems. Their detail comparison with each other has been discussed to have a better knowledge and understanding about the technological advancement made towards the evolution and development of 4th generation communication systems.

Muzammil Hanif, Sehrish Hafeez and Adnan Riaz (2010) in their study “Factors Affecting Customer Satisfaction” found that, Customer satisfaction is very important as satisfied customer would add value to the brand and spread a positive word of mouth and help in making good reputation of brand. Satisfied customers would be able to make long term profitable relationship with brand. There is significant effect of price fairness on customer satisfaction. If tariff rates charged are fair and affordable to customers then they use telecom services of that brand for longer period of time which consistently satisfies their all communication needs. Similarly, if customers are provided with good services such as courteous behavior of sales person or complaint officer then they feel emotional attachment with their brand of cellular company. Similarly if their complaints are solved promptly and commitments are fulfilled then it would provide a sense of belongingness to the brand. It can be concluded that if any firm wants to be successful over longer period of time then it has to make its customers satisfied through charging fair tariffs and memorable customer services so that they can reign over the market.

Rajkumar Paulrajan and Harish Rajkumar (2010) in their study “Service Quality and Customers preference of Cellular Mobile Service Providers” found that, The study was undertaken to examine and understand the consumers' perception choice in selecting cellular mobile telecommunication service providers. Consumers' perception is widely varied in accordance with the Communication quality, call service, facilities, price, customer care and service provider's quality. The price has significant positive impact on consumer perception choice in selecting telecommunication service provider. Hence, product quality from the marketer's perspective is associated with communication, price, feature, function, or performance
of a product. Price plays a significant roll in the purchase decision of the telecommunications sector. It shows that product quality and availability has a significant impact on consumer perception choice in selecting mobile telecommunication service provider and supported.

Neelam Dhanda and Pooja Goel (2010) in their study “What impinges the choice of Cell Phone Connection” found that, Mobile Phone Services are becoming popular day by day. Service providers are increasing their market share by attracting new customers. India’s tele-density has increased tremendously due to mobile telephone technology. Major Conclusions that emerged from the study are that female respondents have more prepaid connections as against their Male counterparts. Postpaid connections are popular among the working age groups while prepaid connection is found to be most popular in the age group of less than 20 years and respondents above the age of 60 years. People having monthly personal income of more than Rs. 50,000 prefer to have a postpaid connection against others having no self income or low income prefer to take a prepaid connection. According to the study, service class and business class respondents choose postpaid connection while respondents of other categories of occupations have prepaid connections.

Amulya. M and Anand. D (2010) in their study “Customer Relationship Management in Telecom Sector” found that, Customer Relationship Management plays a vital role in today’s market. It starts before the sales. It includes service awareness, customer acquisition, customer maintenance, customer loyalty, customer reward, customer retention. Relationship cannot be acquired over night and cannot be forced. It takes long time to build and maintain trust and to win-win for both the parties involved in the relationship. The rural population requires a more detailed awareness programmes highlighting the long-run benefits of owning and using mobile phones. BSNL has to identify the most economically backward class in the rural areas through a survey and accordingly devise a scheme of few phones made available in the villages and the residents can use the same by inserting a 1 Re. coin. Since, these households cannot afford even the cheapest handset and cannot regularly top up, public phones is only alternative.

Shikha Suman (2010) in her Study “Market Driven Innovations in Telecom Industry” define that after the liberalization, telecom sector in 1994 transformed the entire telecom industry with many private companies foraying into the sector. The telecom companies have been various promotional strategies implemented by the
major cellular service providers in the Indian cellular market. Most of the promotional
strategies revolve around capturing the younger generation who formed a major part
of the target market. Prominent among these were celebrity engrossment loyalty
rewards, discounts coupons, business solutions and talk time schemes. The most
important consumer segments in the cellular are the youth and business class segment.
Due to heavy competition and favorable market, these has been a heavy decline in
tariff plans provided by the service providers and the decreasing price of handset has
added to grow story of telecom.

Noor-Ul-Ain Nawaz and Ahmad Usman (2011)\textsuperscript{43} in their study “What Makes
Customers Brand Loyal: A Study on Telecommunication Sector of Pakistan” found
that, The Study is focus on loyalty concept in services sector. Brand loyalty is
receiving great deal of attention in telecommunication sector. It could be concluded
that, Service quality, satisfaction, commitment and trust are major antecedents of
brand loyalty for telecommunication sector and for other similar markets. Service
quality is most important factor that directly influence brand loyalty. Furthermore,
service quality and satisfaction also have indirect positive influence on customer
loyalty.

Jessy John (2011)\textsuperscript{44} in his study “An analysis on the customer loyalty in
telecom sector: Special reference to Bharath Sanchar Nigam limited, India” concluded
that, the purpose of this paper was to investigate the factors that influence customer
loyalty of BSNL customers. Trustworthiness, relationship, image, value added
services and inconvenience in switching phone no. were found to the key factors that
influenced the loyalty of the BSNL customers. Even though the service provided by
BSNL is very cost effective it is still loosing its customer base. BSNL must look away
from the issue of cost and must try to improve the network quality and the quality of
customer services as per the expectations of the customers. New technologies and
features are being introduced in mobile services like PDA, MP4, high mega pixel
digital camera and others. BSNL need to update itself with respect to these
technologies at the same time take the initiative to market itself as youth friendly as
youth are the target universe of any mobile provider. At the same time initiatives
should be taken to improve the functional service quality were attention should be
given to improve reliability, assurance, empathy and overall satisfaction of the
customers. The existing customers should be actually made to feel that the ‘BSNL is
best hai mere a lie’ which means BSNL is the best one.
Sivarthina Mohan. R and Aranganathan, P (2011)\textsuperscript{45} in their study “Conceptual framework of Mobile Marketing : Spamming the consumer around the world” found that, Mobile phones can also be an extremely cost effective communication channel as well as an efficient way of delivering a marketing message. Promotion through mobiles has emerged as an integral part of any brand’s marketing campaign today. It has become an important engagement tool for brands and aims to fulfill the gap that traditional media has been unable to bridge. With the increasing popularity of the Mobile Internet, this form of marketing is soon on the edge to achieve a significant reach. It is also widely believed that the success of mobile advertising will directly depend upon the penetration and the success of Mobile Internet. There are plentiful opportunities for content and service providers to generate mobile value added services (mVAS) revenues from this nascent market.

Sathish .M, Santhosh Kumar .K, Naveen K.J, Jeevanantham .V, (2011)\textsuperscript{46} in their study, “A Study on Consumer Switching Behaviour in Cellular Service Provider: A Study with reference to Chennai” The study reveals that call rates play the most important role in switching the service provider followed by network coverage, value added service, Consumer care and advertisement which plays the least important role. It is found that there is a relation between switching the service provider and the factors (Customer service, service problem, usage cost, etc.). After analysing the findings of the study, we suggest that cellular service providers concentrate more on increasing network stability and setting tariff rates competitively. The findings also suggest that managers of these mobile operators should shift focus on building corporate image and analyse more carefully the reason for consumers to switch brands in this industry in order to increase loyalty among these consumers.

Revathi .S (2011)\textsuperscript{47} in her study “Individual subscribers perception to Cellular Service Quality and Value” found that, The study has revealed that BSNL provides better service quality as compared to Reliance & Tata Indicom in the study area. The point of concern is the failure of service providers in the study area to solve billing problems. This billing affects the overall service quality of cellular services. However the result of two stage least square estimates of the multi stage model for cellular service quality and value reveal that there is a positive and statistically significant relationship between overall service quality the service quality dimensions.
Zainurin Bin Dahari, Muhammad Sabbir Rahman and Ferodous Azam. S.M (2011)\textsuperscript{48} in their study, “Customer Satisfaction with Mobile phone operators: An exploratory study in Kuala Lumpur, Malaysia” concluded that, The Malaysian customers are very much conscious of brand image, service quality and price of the operators. Therefore, Mobile phone operators in Malaysia should be very careful about these factors and the kind of services they are offering. In order to complete, mobile phone operators probably need to develop effective marketing strategies, upgrade their technological capabilities and develop their efficient marketing activities. In particular, there is a need for mobile phone operators to develop and maintain better quality, minimize price and increase brand image to increase the level of customer satisfaction.

Mallikarjuna .V, Krishna Mohan .G and Pradeep Kumar .D (2011)\textsuperscript{49} in their study “Customer switching in mobile industry - an analysis of pre-paid mobile customers in AP circle of India” found that, Switching is quite high in the pre-paid customer segment due to low switching costs and competitive tariff plans. With entry barriers easing and mobile number portability around the corner, there is a high probability for switching especially in the pre-paid segment. As network coverage, tariff plans, service play a vital role in retaining customers; the mobile operators should employ a number of strategies to manage the challenges. New levels of customer interaction at various stages are necessary to ensure customer intimacy and loyalty. Providing information on different plans, value added services, provision and activation of additional services, and customer friendly environment at all points of interaction are necessary to ensure customer delight. Network coverage and access are the key factors that influence the customer retention. Hence, investment in network and technology should go on to improve the geographic coverage, seamless connectivity and speed. Improvement in the quality of basic service – the voice calls will prove to be an excellent strategy for enhancing customer loyalty.

Amulya. M and Anand, D (2011)\textsuperscript{50} in their study “Market Competence of BSNL in the dynamic Telecom World” concluded that, Telecom connects people across the length and breadth of the country, irrespective of income bracket and it provides many benefits to all in the society. It contributes significantly to India’s GDP and particularly benefits to the poor people in the country. The mobile phone has revolutionized Indian economy in that it has become more inclusive in terms of enabling greater participation of the poorer sections of the society. Now, people in
these regions can conduct their business activities in a more economical manner, they do not have to move from place to place in order to do business. Small businessmen and small traders are able to do their business over telephone and that is a very important contribution to the growth of the country. And broadband services will only improve matters. BSNL is still the largest network owner across the country and it can do miracles only if it takes unbiased decisions at the right time. Delaying all the decisions and too much political interference is what is pushing it into losses. This is the right time to introspect and take action before it leads to bankruptcy.

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CONCLUSION:

The review of the above literature shows that usage of mobile phone technology has a significant societal influence. The ubiquitous and ever connected nature of the technology is shaping attitudinal changes. In India also the studies are related to metros and big cities only. Few studies were conducted in European countries, the U.S and in the few other foreign countries. Most of the previous studies are available on mobile phone service usability and customers satisfaction level in the small towns of India. The present study, ‘User’s level of satisfaction with Mobile Phone Service Provider’. 