CHAPTER I
INDUSTRY OVERVIEW

1.1 INTRODUCTION

The Indian telecom sector has witnessed tremendous growth over the past decade. Today, the Indian telecom network is the second largest in the world after China. A liberal policy regime and involvement of the private sector have played an important role in transforming this sector. The total number of telephones has increased from 429.73 million on 31 March 2009 to 926.55 million on 31 December 2011. The telecom industry has witnessed sign

India's telecommunication network is the second largest in the world based on the total number of telephone users (both fixed and mobile phone). It has one of the lowest call tariffs in the world enabled by the mega telephone networks and hyper-competition among them. It has the world's third-largest Internet user-base with over 137 million as of June 2012. Major sectors of the Indian telecommunication industry are telephony, internet and television broadcasting.

Telephone Industry in the country which is in an ongoing process of transforming into next generation network, employs an extensive system of modern network elements such as digital telephone exchanges, mobile switching centres, media gateways and signalling gateways at the core, interconnected by a wide variety of transmission systems using fibre-optics or Microwave radio relay networks. The access network, which connects the subscriber to the core, is highly diversified with different copper-pair, optic-fibre and wireless technologies. DTH, a relatively new broadcasting technology has attained significant popularity in the Television segment. The introduction of private FM has given a fillip to the radio broadcasting in India. Telecommunication in India has greatly been supported by the INSAT system.
of the country, one of the largest domestic satellite systems in the world. India possesses a diversified communications system, which links all parts of the country by telephone, Internet, radio, television and satellite.

Indian telecom industry underwent a high pace of market liberalisation and growth since 1990s and now has become the world's most competitive and one of the fastest growing telecom markets. The Industry has grown over twenty times in just ten years, from under 37 million subscribers in the year 2001 to over 846 million subscribers in the year 2011. India has the world's second-largest mobile phone user base with over 929.37 million users as of May 2012. It has the world's third-largest Internet user-base with over 137 million as of June 2012.

The total revenue of the Indian telecom sector grew by 7% to 283207 crore (US$48 billion) for 2010–11 financial year, while revenues from telecom equipment segment stood at 117039 crore (US$20 billion).

Telecommunication has supported the socioeconomic development of India and has played a significant role to narrow down the rural-urban digital divide to some extent. It also has helped to increase the transparency of governance with the introduction of e-governance in India. The government has pragmatically used modern telecommunication facilities to deliver mass education programmes for the rural folk of India.

1.1.1 HISTORY
THE BEGINNING
The history of Indian telecom can be started with the introduction of telegraph. The Indian postal and telecom sectors are one of the worlds oldest. In 1850, the first experimental electric telegraph line was started between Calcutta and Diamond Harbour. In 1851, it was opened for the use of the
British East India Company. The Posts and Telegraphs department occupied a small corner of the Public Works Department, at that time.

Subsequently, the construction of 4,000 miles (6,400 km) of telegraph lines connecting Kolkata (then Calcutta) and Peshawar in the north along with Agra, Mumbai (then Bombay) through Sindwa Ghats, and Chennai (then Madras) in the south, as well as Ootacamund and Bangalore was started in November 1853. William O'Shaughnessy, who pioneered the telegraph and telephone in India, belonged to the Public Works Department, and worked towards the development of telecom throughout this period. A separate department was opened in 1854 when telegraph facilities were opened to the public.

In 1890, two telephone companies namely The Oriental Telephone Company Ltd. and The Anglo-Indian Telephone Company Ltd. approached the Government of India to establish telephone exchanges in India. The permission was refused on the grounds that the establishment of telephones was a Government monopoly and that the Government itself would undertake the work. In 1891, the Government later reversed its earlier decision and a licence was granted to the Oriental Telephone Company Limited of England for opening telephone exchanges at Calcutta, Bombay, Madras and Ahmedabad and the first formal telephone service was established in the country.[12] On 28 January 1882, Major E. Baring, Member of the Governor General of India's Council declared open the Telephone Exchanges in Calcutta, Bombay and Madras. The exchange in Calcutta named the "Central Exchange" had a total of 93 subscribers in its early stage. Later that year, Bombay also witnessed the opening of a telephone exchange.
1.1.2 FURTHER DEVELOPMENTS AND MILESTONES

- Pre-1902 – Cable telegraph
- 1902 – First wireless telegraph station established between Sagar Island and Sandhead.
- 1907 – First Central Battery of telephones introduced in Kanpur.
- 1927 – Radio-telegraph system between the UK and India, with Imperial Wireless Chain beam stations at Khadki and Daund. Inaugurated by Lord Irwin on 23 July by exchanging greetings with King George V.
- 1933 – Radiotelephone system inaugurated between the UK and India.
- 1953 – 12 channel carrier system introduced.
- 1960 – First subscriber trunk dialling route commissioned between Lucknow and Kanpur. [citation needed]
- 1975 – First PCM system commissioned between Mumbai City and Andheri telephone exchanges.
- 1979 – First optical fibre system for local junction commissioned at Pune.
- 1980 – First satellite earth station for domestic communications established at Sikandarabad, U.P..
- 1983 – First analogue Stored Programme Control exchange for trunk lines commissioned at Mumbai.
- 1984 – C-DOT established for indigenous development and production of digital exchanges.
- 1995 – First mobile telephone service started on non-commercial basis on 15 August 1995 in Delhi.
Development of Broadcasting

Radio broadcasting was initiated in 1927 but became state responsibility only in 1930. In 1937 it was given the name *All India Radio* and since 1957 it has been called *Akashvani*. Limited duration of television programming began in 1959, and complete broadcasting followed in 1965. The Ministry of Information and Broadcasting owned and maintained the audio-visual apparatus—including the television channel *Doordarshan*—in the country prior to the economic reforms of 1991. In 1997, an autonomous body was established in the name of Prasar Bharti to take care of the public service broadcasting under the Prasar Bharti Act. All India Radio and Doordarshan, which earlier were working as media units under the Ministry of I&B became constituents of the body.

Pre-liberalisation statistics

While all the major cities and towns in the country were linked with telephones during the British period, the total number of telephones in 1948 numbered only around 80,000. Post independence, growth remained slow because the telephone was seen more as a status symbol rather than being an instrument of utility. The number of telephones grew leisurely to 980,000 in 1971, 2.15 million in 1981 and 5.07 million in 1991, the year economic reforms were initiated in the country.

Liberalisation and privatisation

Liberalisation of Indian telecommunication industry started in 1981 when Prime Minister Indira Gandhi signed contracts with Alcatel CIT of France to merge with the state owned Telecom Company (ITI), in an effort to set up 5,000,000 lines per year. But soon the policy was let down because of political opposition. Attempts to liberalise the telecommunication industry were continued by the following government under the prime-minister-ship of Rajiv Gandhi. He invited Sam Pitroda, a US-based Non-resident Indian NRI
and a former Rockwell International executive to set up a Centre for Development of Telematics (C-DOT) which manufactured electronic telephone exchanges in India for the first time. Sam Pitroda had a significant role as a consultant and adviser in the development of telecommunication in India.

In 1985, the Department of Telecom (DoT) was separated from Indian Post & Telecommunication Department. DoT was responsible for telecom services in entire country until 1986 when Mahanagar Telephone Nigam Limited (MTNL) and Videsh Sanchar Nigam Limited (VSNL) were carved out of DoT to run the telecom services of metro cities (Delhi and Mumbai) and international long distance operations respectively.

The demand for telephones was ever increasing and in 1990s Indian government was under increasing pressure to open up the telecom sector for private investment as a part of Liberalisation-Privatisation-Globalisation policies that the government had to accept to overcome the severe fiscal crisis and resultant balance of payments issue in 1991. Consequently, private investment in the sector of Value Added Services (VAS) was allowed and cellular telecom sector were opened up for competition from private investments. It was during this period that the Narsimha Rao-led government introduced the National Telecommunications policy (NTP) in 1994 which brought changes in the following areas: ownership, service and regulation of telecommunications infrastructure. The policy introduced the concept of telecommunication for all and its vision was to expand the telecommunication facilities to all the villages in India. Liberalisation in the basic telecom sector was also envisaged in this policy. They were also successful in establishing joint ventures between state owned telecom companies and international players. Foreign firms were eligible to 49% of the total stake. The multi-nationals were just involved in technology transfer, and not policy making.
During this period, the World Bank and ITU had advised the Indian Government to liberalise long distance services to release the monopoly of the state owned DoT and VSNL and to enable competition in the long distance carrier business which would help reduce tariff's and better the economy of the country. The Rao run government instead liberalised the local services, taking the opposite political parties into confidence and assuring foreign involvement in the long distance business after 5 years. The country was divided into 20 telecommunication circles for basic telephony and 18 circles for mobile services. These circles were divided into category A, B and C depending on the value of the revenue in each circle. The government threw open the bids to one private company per circle along with government owned DoT per circle. For cellular service two service providers were allowed per circle and a 15 years licence was given to each provider. During all these improvements, the government did face oppositions from ITI, DoT, MTNL, VSNL and other labour unions, but they managed to keep away from all the hurdles.

In 1997, the government set up TRAI (Telecom Regulatory Authority of India) which reduced the interference of Government in deciding tariffs and policy making. The political powers changed in 1999 and the new government under the leadership of Atal Bihari Vajpayee was more pro-reforms and introduced better liberalisation policies. In 2000, the Vajpayee government constituted the Telecom Disputes Settlement and Appellate Tribunal (TDSAT) through an amendment of the TRAI Act, 1997. The primary objective of TDSAT's establishment was to release TRAI from adjudicatory and dispute settlement functions in order to strengthen the regulatory framework. Any dispute involving parties like licensor, licensee, service provider and consumers are resolved by TDSAT. Moreover, any direction, order or decision of TRAI can be challenged by appealing in TDSAT. The government corporatised the operations wing of DoT on 1 October 2000 and named it as Department of Telecommunication Services (DTS) which was later named as
Bharat Sanchar Nigam Limited (BSNL). The proposal of raising the stake of foreign investors from 49% to 74% was rejected by the opposite political parties and leftist thinkers. Domestic business groups wanted the government to privatise VSNL. Finally in April 2002, the government decided to cut its stake of 53% to 26% in VSNL and to throw it open for sale to private enterprises. TATA finally took 25% stake in VSNL.

This was a gateway to many foreign investors to get entry into the Indian Telecom Markets. After March 2000, the government became more liberal in making policies and issuing licences to private operators. The government further reduced licence fees for cellular service providers and increased the allowable stake to 74% for foreign companies. Because of all these factors, the service fees finally reduced and the call costs were cut greatly enabling every common middle-class family in India to afford a cell phone. Nearly 32 million handsets were sold in India. The data reveals the real potential for growth of the Indian mobile market. Many private operators, such as Reliance Communications, Tata Indicom, Vodafone, Loop Mobile, Airtel, Idea etc., successfully entered the high potential Indian telecom market.

In March 2008 the total GSM and CDMA mobile subscriber base in the country was 375 million, which represented a nearly 50% growth when compared with previous year. As the unbranded Chinese cell phones which do not have International Mobile Equipment Identity (IMEI) numbers pose a serious security risk to the country, Mobile network operators therefore suspended the usage of around 30 million mobile phones (about 8% of all mobiles in the country) by 30 April. Phones without valid IMEI cannot be connected to cellular operators. 5–6 years the average monthly subscribers additions were around 0.05 to 0.1 million only and the total mobile subscribers base in December 2002 stood at 10.5 millions. However, after a number of proactive initiatives taken by regulators and licensors, the total number of
mobile subscribers has increased rapidly to over 929 million subscribers as of May 2012.

India has opted for the use of both the GSM (global system for mobile communications) and CDMA (code-division multiple access) technologies in the mobile sector. In addition to landline and mobile phones, some of the companies also provide the WLL service. The mobile tariffs in India have also become lowest in the world. A new mobile connexion can be activated with a monthly commitment of US$0.15 only. In 2005 alone additions increased to around 2 million per month in 2003–04 and 2004–05.

1.1.3 MAJOR SECTORS OF TELECOMMUNICATION INDUSTRY

Major sectors of telecommunication industry in India are telephony, internet, Data centers and broadcasting.

Telephony

The telephony segment is dominated by private-sector and two state-run businesses. Most companies were formed by a recent revolution and restructuring launched within a decade, directed by Ministry of Communications and IT, Department of Telecommunications and Minister of Finance. Since then, most companies gained 2G, 3G and 4G licences and engaged fixed-line, mobile and internet business in India. On landlines, intra-circle calls are considered local calls while inter-circle are considered long distance calls. Foreign Direct Investment policy which increased the foreign ownership cap from 49% to 74%. Currently Government is working to integrate the whole country in one telecom circle. For long distance calls, the area code prefixed with a zero is dialled first which is then followed by the number (i.e. To call Delhi, 011 would be dialled first followed by the phone number). For international calls, "00" must be dialled first followed by the country code, area code and local phone number. The country code for India is
91. Several international fibre-optic links include those to Japan, South Korea, Hong Kong, Russia, and Germany. Some major telecom operators in India include Airtel, Vodafone, Idea, Aircel, BSNL, MTNL, Reliance Communications, TATA Teleservices, Infotel, MTS, Uninor, TATA DoCoMo, Videocon, Augere, Tikona Digital.

Fixed Telephony

Until the New Telecom Policy was announced in 1999, only the Government-owned BSNL and MTNL were allowed to provide land-line phone services through copper wire in India with MTNL operating in Delhi and Mumbai and BSNL servicing all other areas of the country. Due to the rapid growth of the cellular phone industry in India, landlines are facing stiff competition from cellular operators. This has forced land-line service providers to become more efficient and improve their quality of service. Land-line connexions are now also available on demand, even in high density urban areas. India has over 31 million main line customers.

Mobile Telephony

In August 1995, Chief Minister of West Bengal, Shri Jyoti Basu ushered in the cellphone revolution in India by making the first call to Union Telecom Minister Sukhram. Sixteen years later 4th generation services were launched in Kolkata. With a subscriber base of more than 929 million, the Mobile telecommunications system in India is the second largest in the world and it was thrown open to private players in the 1990s. GSM was comfortably maintaining its position as the dominant mobile technology with 80% of the mobile subscriber market, but CDMA seemed to have stabilised its market share at 20% for the time being. By May 2012 the country had 929 million mobile subscribers, up from 350 million just 40 months earlier. The mobile market was continuing to expand at an annual rate in excess of 40% coming into 2010.
According to data provided by Minister of State for Communications and IT Milind Deora, as of 30 November 2012, India has 7,36,654 base transceiver stations (2G GSM & CDMA, and 3G). Of those, 96,212 base transceiver stations provide 3G mobile and data services. Out of India's 640 districts, 610 districts are covered by 3G services as of 30 November 2012.

The country is divided into multiple zones, called circles (roughly along state boundaries). Government and several private players run local and long distance telephone services. Competition has caused prices to drop and calls across India are one of the cheapest in the world. The rates are supposed to go down further with new measures to be taken by the Information Ministry. In September 2004, the number of mobile phone connexions crossed the number of fixed-line connexions and presently dwarfs the wireline segment by a ratio of around 20:1. The mobile subscriber base has grown by a factor of over a hundred and thirty, from 5 million subscribers in 2001 to over 929 million subscribers as of May 2012. India primarily follows the GSM mobile system, in the 900 MHz band. Recent operators also operate in the 1800 MHz band. The dominant players are Airtel, Reliance Infocomm, Vodafone, Idea cellular and BSNL/MTNL. There are many smaller players, with operations in only a few states. International roaming agreements exist between most operators and many foreign carriers. The government allowed Mobile number portability (MNP) which enables mobile telephone users to retain their mobile telephone numbers when changing from one mobile network operator to another. India is divided into 22 telecom circles:
TABLE NO.1.1

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>2.33</td>
<td>66.6</td>
<td>80.46</td>
</tr>
<tr>
<td>Assam</td>
<td>0.20</td>
<td>14.6</td>
<td>47.7</td>
</tr>
<tr>
<td>Bihar &amp; Jharkhand</td>
<td>0.56</td>
<td>62.97</td>
<td>48.37</td>
</tr>
<tr>
<td>Delhi</td>
<td>2.9</td>
<td>42.95</td>
<td>239.91</td>
</tr>
<tr>
<td>Gujarat &amp; Daman &amp; Diu</td>
<td>1.82</td>
<td>54.32</td>
<td>92.56</td>
</tr>
<tr>
<td>Haryana</td>
<td>0.59</td>
<td>23.00</td>
<td>90.86</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>0.30</td>
<td>7.41</td>
<td>112.29</td>
</tr>
<tr>
<td>Jammu and Kashmir</td>
<td>0.20</td>
<td>6.57</td>
<td>56.92</td>
</tr>
<tr>
<td>Karnataka</td>
<td>2.48</td>
<td>56.63</td>
<td>98.22</td>
</tr>
<tr>
<td>Kerala &amp; Lakshadweep</td>
<td>3.18</td>
<td>34.51</td>
<td>107.85</td>
</tr>
<tr>
<td>Kolkata</td>
<td>1.18</td>
<td>25.25</td>
<td>Not available*</td>
</tr>
<tr>
<td>Madhya Pradesh &amp; Chhattisgarh</td>
<td>1.13</td>
<td>53.30</td>
<td>55.38</td>
</tr>
<tr>
<td>Maharashtra &amp; Goa (excluding Mumbai)</td>
<td>2.64</td>
<td>71.00</td>
<td>96.71 *</td>
</tr>
<tr>
<td>Mumbai*</td>
<td>3.0</td>
<td>35.93</td>
<td>Not available*</td>
</tr>
<tr>
<td>North East ^**</td>
<td>0.25</td>
<td>8.76</td>
<td>64.74</td>
</tr>
<tr>
<td>Orissa</td>
<td>0.40</td>
<td>26.27</td>
<td>64.73</td>
</tr>
<tr>
<td>Punjab</td>
<td>1.44</td>
<td>31.17</td>
<td>110.22</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>1.14</td>
<td>49.52</td>
<td>73.26</td>
</tr>
<tr>
<td>Tamil Nadu(including Chennai since 2005)</td>
<td>3.16</td>
<td>78.96</td>
<td>118.29</td>
</tr>
<tr>
<td>Uttar Pradesh(East)</td>
<td>1.20</td>
<td>77.74</td>
<td>62.65(Combined)*</td>
</tr>
<tr>
<td>Uttar Pradesh(West) &amp; Uttarakhand</td>
<td>0.79</td>
<td>55.12</td>
<td>62.65(Combined)*</td>
</tr>
<tr>
<td>West Bengal (excluding Kolkata)***</td>
<td>0.62</td>
<td>46.79</td>
<td>80.56 *</td>
</tr>
</tbody>
</table>

^* Population statistics are available state-wise only. ^** North east circle includes Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, & Tripura ^*** West Bengal circle includes Andaman-Nicobar and Sikkim
1.1.4 CURRENT SCENARIO

The Indian telecom sector has witnessed tremendous growth over the past decade. Today, the Indian telecom network is the second largest in the world after China. A liberal policy regime and involvement of the private sector have played an important role in transforming this sector. The total number of telephones has increased from 429.73 million on 31 March 2009 to 926.55 million on 31 December 2011. The telecom industry has witnessed significant growth in subscriber base over the last decade, with increasing network coverage and a competition-induced decline in tariffs acting as catalysts for the growth in subscriber base. The growth story and the potential have also served to attract newer players in the industry, with the result that the intensity of competition has kept increasing. Also, broadband segment has seen significant growth with total internet subscribers reaching 20.99 million in September 2011, which includes 13.30 broadband subscribers. Liberalization of the sector has not only led to rapid growth but also helped a great deal towards maximization of consumer benefits, evident from a huge fall in tariffs. Telecom sector has witnessed a continuous rising trend in the total number of telephone subscribers and hence the teledensity. In simple terms, ‘Teledensity’ is the number of landline telephones in use for every 100 individuals living within an area. A teledensity greater than 100 means there are more telephones than people. Third-world countries may have a teledensity of less than 10. Teledensity is also an important indicator of telecom penetration in the country. Teledensity has increased from 18.2 per cent in March 2007 to 76.86 per cent in December 2011. Teledensity varies across circles and there is significant urban-rural divide. While urban teledensity reached 167.4 per cent at the end of December 2011 and rural teledensity was only 37.5 per cent. At circle levels also, while some circles such as Delhi (235.6 per cent), Mumbai (188.95 per cent), Kolkata (168.45 per cent), Chennai (170.18 per cent), and Himachal Pradesh (118.63 per cent) have high
teledensity, in some circles such as Bihar (47.17 per cent) and Assam (45.85 percent), it is very low. The steps that been undertaken to improve teledensity, particularly in rural areas. The wireless segment broadly classified into GSM and CDMA segments based on the underlying technology. The GSM segment holds the majority of subscribers with 785.97 million at the end of Dec 2011. The remaining 107.88 million subscribers use CDMA based services. While the GSM segment is seeing a consistent increase in the number of subscribers, the CDMA segment is seeing a reduction. The CDMA wireless segment saw a decrease from 112.42 million at end of Sept 2011 to 107.88 million at the end of Dec 2011. In contrast the figures for GSM are 761.20 million and 785.97 million for Sept and Dec 2011 respectively.

![Table: Circle wise Overall Teledensity June](image)

**Figure 1.1 Circle wise overall Teledensity, June 2012**

**Source:** Brief Report on Telecom Sector in India, August 2012, ASA & Associates, New Delhi

The overall wireless market and consequently the GSM market is led by Bharti Airtel which held 19.62% at the end of Feb 2012. It is followed by
Reliance Communications, which holds 16.68% of the market and also the leader in the CDMA segment. In the GSM segment, Vodafone and Idea closely follow Bharti Airtel while Tata and Sistema follow Reliance Communications in the CDMA segment.

1.1.5 GROWTH IN TELECOM

Growth Drivers Key factors, which will fuel the growth of the sector include increased access to services owing to launch of newer telecom technologies like 3Gand BWA, better devices, changing consumer behavior and the emergence of cloud technologies. A majority of the investments will go into the capital expenditure for setting up newer networks like 3G and developing the backhaul, among other things.

![Graph of Mobile subscriber base 2010-2011](image)

**Figure 1.2 Mobile subscriber base 2010-2011**

*Source : Brief Report on Telecom Sector in India, August 2012, ASA & Associates, New Delhi*

**Subscriber Base**

The mobile subscriber base in India is estimated rise by 9 per cent to 696 million connections this year, according to technology researcher Gartner.
The mobile service penetration in the country is currently at 51 per cent and is expected to grow to 72 per cent by 2016.

**Mobile Value Added Services (MVAS)**

India's current MVAS industry has an estimated size of US$ 2.7 billion. The industry derives its revenues majorly from the top five to six products such as game based applications, music downloads, etc, which continue to form close to 80 per cent of VAS revenues. The Indian MVAS industry estimated to grow to US$ 10.8 billion by 2015, with the next wave of growth in subscriptions expected to come from semi-urban and rural areas.

**Mobile Number Portability (MNP)**

Mobile Number Portability requests increased from 41.88 million subscribers at the end of March 2012 to 45.89 million at the end of April 2012. In the month of April 2012 alone, 4.01 million requests have been made for MNP.

**Handsets**

The mobile handset market's revenues in India will grow from US$ 5.7 billion in 2010 to US$ 7.8 billion in 2016, according to the study. India is the second largest mobile handset market in the world and is set to become an even larger market with unit shipment of 208.4 million in 2016 at a CAGR of 11.8 per cent from 2010 to 2016. The Indian handset market witnessed a 14.1 per cent growth in 2011 to touch a total volume of 182 million handsets. The market continues to be dominated by Nokia with a share of 37.2 per cent, followed by Samsung with 14.9 per cent, G'Five with 7.5 per cent, and Micromax with 5.8 per cent. Domestic and Chinese handset makers such as Micromax, G'Five, Karbonn, Spice, Maxx and Lava, have garnered a strong presence in the Indian market due to their feature-rich, localized products and low price points.
1.1.6 MARKET PLAYERS

Key Players

Telecom Operator wise Market Share

![Diagram showing market share of various telecom operators.]

Figure 1.3 Telecom operator wise Market share
Source: Brief Report on Telecom Sector in India, August 2012, ASA & Associates, New Delhi

With new players coming in, the intensity of competition in the industry has increased, especially over the last four years. The market share of telecom operators of the telecom companies reflects the fragmented nature of the industry, with as many as 15 players. As of April 30, 2012, Bharti telecom led the market with 19.94 per cent share, Reliance (16.58 per cent), Vodafone (16.41 per cent), Idea (12.4 per cent), BSNL (10.51 per cent), Tata (8.77 per cent), Aircel (6.93 per cent), with the remaining share being held by other smaller operators. Telecom Operator wise Market Share Bharti is far ahead with close 20% market share in India, Reliance (16.58%) and Vodafone (16.41) are having a close battle. Reliance currently has 154 million subscribers as compared to 152.5 million of Vodafone. Uninor, who is one of the late entrants
in Indian Telecom market now has over 45 million subscribers and accounts for close to 5 percent of Indian mobile market share

1.1.7 REGULATORY ENVIRONMENT

LIRNEasia's Telecommunications Regulatory Environment (TRE) index, which summarises stakeholders' perception on certain TRE dimensions, provides insight into how conducive the environment is for further development and progress. The most recent survey was conducted in July 2008 in eight Asian countries, including Bangladesh, India, Indonesia, Sri Lanka, Maldives, Pakistan, Thailand, and the Philippines. The tool measured seven dimensions: i) market entry; ii) access to scarce resources; iii) interconnection; iv) tariff regulation; v) anti-competitive practices; and vi) universal services; vii) quality of service, for the fixed, mobile and broadband sectors.

The results for India, point out to the fact that the stakeholders perceive the TRE to be most conducive for the mobile sector followed by fixed and then broadband. Other than for Access to Scarce Resources the fixed sector lags behind the mobile sector. The fixed and mobile sectors have the highest scores for Tariff Regulation. Market entry also scores well for the mobile sector as competition is well entrenched with most of the circles with 4–5 mobile service providers. The broadband sector has the lowest score in the aggregate. The low penetration of broadband of mere 3.87 against the policy objective of 9 million at then end of 2007 clearly indicates that the regulatory environment is not very conducive.

Government Initiative

The Cabinet has given its approval to National telecom Policy (NTP) 2012. The policy directs new initiatives, which includes free roaming, unrestricted Net telephony and a new unified licensing regime for operators. The policy also endorses a boost to broadband expansion and an increase in
local manufacturing of telecom equipment. The National Science and Technology Entrepreneurship Development Board (NSTEDB), the Department of Science and Technology (DST), Government of India, Technopark and MobME Wireless have joined hands to set up the Startup Village - Indian Telecom Innovation Hub in Kerala. The country’s first Public Private Partnership (PPP) telecom business incubator is a step to support new product initiatives and turn them into successful ventures. TRAI is also doing its bit to achieve the aim of carbon emission reduction under which operators are directed to achieve carbon reduction to the extent of 5 per cent by 2012-13, 12 per cent by 2016-17 and 17 per cent by 2018-19. Concerning these norms under 'Green Telephony', TRAI has further mandated for all the operators that at least 50 per cent of all rural towers and 20 per cent of all urban towers are to be powered by hybrid power by 2015.

**FDI Policy in Telecom**

Foreign direct investment (FDI) in telecom sector (including radio paging, cellular mobile, and basic telephone services) during April-March 2011-12 stood at US$ 1,997 million, as per the Department of Industrial Policy & Promotion (DIPP) data. Total telephone subscriber base in the country reached 952.91 million at the end of April 2012 from 951.34 million at the end of March 2012. Total Wireless subscriber base increased from 919.17 million in March 2012 to 921.02 million at the end of April 2012. Wireline subscription stood at 31.89 million at the end of April 2012. Overall tele-density has reached 78.71. Total Broadband subscriber base has increased from 13.79 million at the end of March 2012 to 13.95 million at the end of April 2012, there by showing a monthly growth of 1.13 per cent.

**Investment Policy**

Foreign direct investment limit in telecom services is 74 per cent subject to the following conditions:
• This is applicable in case of Basic, Cellular, Unified Access Services, National/ International Long Distance, V-Sat, Public Mobile Radio Trunked Services (PMRTS), Global Mobile Personal Communications Services (GMPCS) and other value added Services

• Both direct and indirect foreign investment in the licensee company shall be counted for FDI ceiling. Foreign Investment shall include investment by Foreign Institutional Investors (FIIs), Non-resident Indians (NRIs), Foreign Currency Convertible Bonds (FCCBs), American Depositary Receipts (ADRs), Global Depository Receipts (GDRs) and convertible preference shares held by foreign entity. In any case, the 'Indian' shareholding will not be less than 26 per cent.

• FDI up to 49 per cent is on the automatic route and beyond that on the government route.

• FDI in the licensee company/Indian promoters/investment companies including their holding companies shall require approval of the Foreign Investment Promotion Board (FIPB) if it has a bearing on the overall ceiling of 74 per cent. While approving the investment proposals, FIPB shall take note that investment is not coming from countries of concern and/or unfriendly entities.

• The investment approval by FIPB shall envisage the conditionality that the Company would adhere to licence Agreement.

• FDI shall be subject to laws of India and not the laws of the foreign country/countries.

1.1.8 REVENUE GROWTH

The total revenue in the telecom service sector was 86720 crore (US$14.7 billion) in 2005–06 as against 71674 crore (US$12.1 billion) in 2004–2005, registering a growth of 21% with estimated revenue of FY’2011 of 835 crore (US$140 million). The total investment in the telecom services sector
reached 200660 crore (US$33.9 billion) in 2005–06, up from 178831 crore (US$30.2 billion) in the previous fiscal.\[^51]\) Telecommunication is the lifeline of the rapidly growing Information Technology industry. Internet subscriber base has risen to more than a 121 million in 2011. Out of this 11.47 million were broadband connexions. More than a billion people use the Internet globally. Under the Bharat Nirman Programme, the Government of India will ensure that 66,822 revenue villages in the country, which have not yet been provided with a Village Public Telephone (VPT), will be connected. However doubts have been raised about what it would mean for the poor in the country.

It is difficult to ascertain fully the employment potential of the telecom sector but the enormity of the opportunities can be gauged from the fact that there were 3.7 million Public Call Offices in December 2005 up from 2.3 million in December 2004.

The Total Revenue of Indian Telecom Services company is likely to exceed 200000 crore (US$34 billion) (US$ 44 Bn approx) for FY 11–12 based on FY 10–11 nos and latest quarterly results. These are consolidated numbers including foreign operation of Bharti Airtel. The major contributions to this revenue are as follows:

- Airtel 65060 (US$1,100)
- Reliance Communications 31468 (US$530)
- Idea 16936 (US$290)
- Tata Communications 11931 (US$200)
- MTNL 4380 (US$74)
- TTML 2248 (US$38)
- BSNL 32045 (US$540)
- Vodafone India 18376 (US$310)
- TataTeleservice 9200 (US$160)
- Aircel 7968 (US$130)
- SSTL  600 (US$10)
- Uninor   660 (US$11)
- Loop    560 (US$9.50)
- Stel     60 (US$1.00)
- HFCL    204 (US$3.40)
- Videocon Telecom  254 (US$4.30)
- DB Etisalat/ Allianz  47 (79¢ US)
- Grand Total  201997 crore (US$34 billion)

1.2 NEED FOR THE STUDY

Over the years, research has been done in different service sectors, even in telecommunication services, to find out the drivers of customer satisfaction with respect to service quality and service features. However, very few studies have taken into consideration the discrimination of satisfied and unsatisfied customers with respect to service quality, service features as well as demographics of the customers. Also, hardly any such study has been done in the cellular service industry. So, there is a need for conducting such a study in the Indian scenario. This study aims to explore the variables of both service quality and service features with regard to Indian cellular services. The two – fold objective of this study is to find out the underlying constructs of these variables from the perspective of cellular users, and then study how these factors and the demographics of the users discriminate between the satisfied and unsatisfied customers.

1.3 RELEVANCE OF THE STUDY

The study will contribute towards managerial decisions to be made by the cellular companies of India when they decide on the factors (with respect to service quality, service features and demographics) which actually differentiate between the satisfied and the unsatisfied customers, and the major areas that they have to strengthen, in order to get more number of satisfied customers.
This becomes important in the Indian scenario, as the churn rate of cellular users in India is 3.5% to 6% per month, which is one of the highest in the world, and which can also go up to 13% if mobile number portability is allowed.¹

1.4 STATEMENT OF THE PROBLEM

The customers’ tastes and preferences are consistently changing because of the fast and vast development of information technology in India. The challenges to the service providers in the market increase the customer base. It is possible only by creating new circles, new – generation pricing strategy, glitzy and eye catching advertising, developing positive perception about the brand and customer retention and loyalty programme. The customer base has been extended with the provision of better technology, price and services. Apart from that the market in Indian society is classified into very rich, upper middle class, middle class, lower middle class and very poor, the scope for increasing the customer base is very high in the upper middle, middle and lower middle class. The required marketing strategy for the above said customer segments is totally different from one another. Hence, the service provider has to evaluate the customers’ perception and expectation from the service providers with regular interval to formulate suitable marketing strategy. Otherwise, the marketing strategy itself can lead to many problems. By nature, the core service offered by the service providers are the same, but may differ in the supplementary services offered to their customers. Hence, the service providers are often facing many problems in formulating their marketing strategy appropriate to the existing environment.

1.5 SIGNIFICANCE OF THE STUDY

The telecommunication services have made a rapid stride both in quality and quantity. However the users at large are found dissatisfied with the quality of services made available to them. The process of technological sophistication has gained momentum but the users are yet to get the quality service. The managerial proficiency is felt essential at different stages of operation. The professional and technocrats have to pave the way to make possible quantitative improvements in the services the domestic, commercial, institutional sectors except world – class services. The managerial experts feel that the service providers in telecommunication need a conceptualized marketing which would improve the quality of services and make way for the generation of profits. The various players in market aim at market applied innovation – driven, sales – driven, customer – driven and product – driven strategies to capture the market. They are investing more in customer centres and CRM platforms to expand their customer base. But because of cut – throat competition, the marketing strategies followed by the various service providers require a consistent modification in the mobile phone service market. Hence, the present study focuses on the marketing strategies and practices implemented by the service providers in market.

1.6 SCOPE OF THE STUDY

The scope of the study is limited to Tamilnadu alone. The study is based on the customers’ perception on the services, service quality, and the precedents of service quality of various service providers in market at Tamilnadu. The important service providers in the market at Tamilnadu are Airtel, Aircel, Vodafone and BSNL. The period of the study is confined to 2011 – 2012.
1.7 REVIEW OF PREVIOUS STUDIES

The review of previous studies are listed below:

1. Cellular Market in India

Srikant (2006) revealed that the strength of the cellular mobile industry in India has a huge wireless subscriber potential, and is fastest growing mobile market in the world. Consumers are ready to pay for cutting edge services, cheap labour to attract foreign investments, telecom professionals, telecom infrastructure, relaxation of government rules and regulations for foreign participants and lowest tariffs in the world.2

Srivastava et al., (2006) pointed out that the price plays an important role in growing or emerging market like that in the telecom sector. For telecom companies to do service, be competitive or even glow, they continuously need to provide customers extra value added features, high quality services at competitive price, so that customers do not switch to other operators. Although the companies are in the growth phase, they cannot afford to be co placement and need to continuously innovative through aggressive pricing, attractive schemes and superior service to retain and expand customer strength.3

Revathi and Padmavathi (2005) identified that majority of the subscribers are following the post paid system. Their switching tendency to other cellular service is more.4 Shashi Kumar and Chauley (2007) felt that the consumer satisfaction on mobile service depends on the demographic characteristics of the respondents. The deep positive impact of mobile services on social changes has been identified. The future of mobile services is very

---


bright. It is also concluded that mobile service providers should exercise due care before introducing new services.\textsuperscript{5}

Banumathy and Kalaivani (2006) revealed that majority of respondents form the services provided by the mobile services. The important reasons for choosing cell phone are facility to identify the missed calls, more convenience and low cost. The level of satisfaction among the consumers is found as higher in the case of Aircel and BSNL, whereas it is lesser in the case of Reliance and Airtel.\textsuperscript{6}

Alok and Sirohi (2006) found that the cellular service providers provide quality of services to their customers. It will also help the new entrants to formulate the strategies by following the results of existing companies. The study can also help the cellular companies in determining their service level by comparing it with the expected service level of the customers. Switching is poor service and cost of the existing services. The price offered by the service providers plays an important role in switching from one operator to another. Hence, they concluded that the service providers can not only command market leadership based on quality product, it has also to be matched with attractive pricing.\textsuperscript{7}

Francis and Lydia (2005) mentioned that the factors influencing the migration to post paid from prepaid among the cell phone users are economy,


attractive schemes, references group influences, limited usage and advertisement.  

2. Consumer’s Perception on Cellular Services

Consumer behavior refers to the act of consuming goods or services. The review of consumer behavior in the cellular industry is summarized below:

Selvaraj and Ganesan (2005) found that majority of the cell phone users are satisfied with the mobile services but they opined that the billing pattern is not at the satisfactory level. They perceived mobile services as a cheaper mode of communication. They are satisfied with the advertisement given by mobile services.  

Daxa (2005) revealed that the important requirements for telephone among the customers are common communication and Business requirements. The majority of the customers perceive that the services are excellent. The important reasons for dropping the services are high rate, lack of network and lack of coverage in rural area. The level of education, age and income are not significantly associated with the perception on the service provided by the Telecom companies.  

Vijay Kumar and Priya (2006) found that the important factors influencing the satisfaction derived by the subscribers of Airtel network are the clarity of signals, availability of plan options, call charges and the activation formalities. Majority of the respondents opined that Airtel offers plenty of value added services, convenient plan options, activation formalities. Majority

---


of the respondents opined that Airtel offers plenty of value added services, convenient plan options, activation formalities and moderate call charges. There is a significant association between the profile of respondents and their attitude towards the services offered by Airtel.\textsuperscript{11}

Chao and Gupta (1995) revealed that a higher level of education can be expected to increase the degree of consumers’ involvement when buying a sophisticated product like a mobile handset. Educated people are more likely to engage in more meaningful search for information and production evaluation, thus, rating some factors like country of origin as important in order to make rational buying decisions.\textsuperscript{12}

Hui and Zhou, (2002) reported that country of origin may affect consumers in various ways such as their perception of product quality, their perception of foreign goods and products, purchase intention and purchase value.\textsuperscript{13}

Ahmed et al., (2002) claimed that extrinsic cues play an important role in reducing perceived risk, which is intensity related to purchase intention and product evaluation. The role of country of origin as an external factor that influences consumer behavior has been appreciated in most consumer behaviour models.\textsuperscript{14}

Ibrahim and Pajaree (2006) revealed that country of origin effects are an insubstantial factor in consumer evaluation of mobile handsets. Other product


factors such as disability, design, features, brand and price were perceived by consumers in both countries as more important than country of origin. The respondents were also found to be more interested in the made in label and have a strong preference towards products manufactured in particular countries.\textsuperscript{15}

3. Customers Attitude

The customer satisfaction is defined as the perceived values among users of mobile handsets. The reviews related to the customers attitude are illustrated below.

Balasubramanian et al., (2002) identified that the unique intrinsic attributes mentioned by the end users are unhindered time and space attributes of the mobile phone. The extrinsic attributes are divided as direct and indirect network. Direct network is the effect of the size, speed and capacity of the network whereas indirect network is the effect originating from the information, transaction, or machine interactive services.\textsuperscript{16}

Raja et al., (2006) stated the product quality, product distribution, service support, service personnel, information services and corporate brand equity are the integral factors influencing customer satisfaction of mobile handset end users. The successful adoption of the mobile handsets among the users can be attributed to unique features provided through product distribution and brand equity, and distinct features like innovativeness, reach ability and convenience. The highly satisfied cluster group predominantly consisted of


Nokia and Sony Erickson handset users. Dissatisfaction was noticed among the cluster which consisted of Motorola and Samsung handset users.17

Sashikala (2006) examined the relationships between service quality and its related variables and also the desired qualities improve customer retention among the mobile service providers. The result implicates that customers set Reliability among the components of service quality as the important criterion to determine behavioral intention. Service quality includes elements like coverage, connectivity and voice clarity which are strongly correlated with the technical limitation of the mobile subscriber network as well as service providers own infrastructure. The identified important discriminate service quality factors among the satisfied and the dissatisfied in the mobile phone services are reliability and responsiveness.18

Chinnadurai and Kalpana (2006) compared the different cellular services. The Aircel users considered that the sales promotion of the company is the important promotional strategy, whereas among the Airtel and BPL users, these are advertisement and sales promotion. Among the BSNL and Reliance users, these factors are advertisement. The study also reveals that the Aircel and BPL are ranked first in the matter of cost and coverage, whereas the Aircel and BSNL rated first and second the cost and facilities. The reliance concentrates on the cost aspect and next the service aspect.19

4. Service Quality in Cellular Market

Wang and Lo (2002) identified the relationship between the service quality factors, overall service quality, customer value, customer satisfaction

and behavior intentions. The significant impact is identified between the tangibles, reliability on overall service quality; assurance and empathy on overall service quality, tangibles, empathy, network quality and customer sacrifice on customer value; reliability, assurance and net work quality on customer satisfaction and customer value and satisfaction on behavior intentions.20

Bloemer et al., (1998) identified the base services in GSM sector are coverage of calling area, value – added services, customer support services, the supplier’s services of the operator and services in campaigns. The study also identified the significant impact of perceived service quality in GSM sector on consumer loyalty.21

Martin and Ibrahim (2006) mentioned that the service quality of the electronic services is narrated by the confirmatory factor analysis into graphic quality, clarity of layout, attractiveness of selection, information quality, base of use, technical quality, reliability, functional benefit and emotional benefit.22

5. Service Quality Gap

Clement (2005) analyzed the service quality gap in sixteen dimensions namely managements perceptions, service quality strategy, service design, service gaps, quality supportive financial function, internal communication, integration, co – ordination, selection and training, service delivery, external communications, personnel’s perceptions of customers’ expectations, contact


personnel’s perceptions of customers experiences, human element, consumer perceptions and service quality evaluation.\(^{23}\)

Zillur Rahman (2005) identified the higher service quality gap in commercial banks as ‘reliability’ dimensions. The consumers’ perception of service quality did not meet with their expectations. The higher service quality gap is identified in a few aspects of service quality namely customers feeling while interacting with the bank staff, pruning service at the promised time and employees instill confidence in customers.\(^{24}\)

Gani and Bhat (2003) revealed that the service quality gap is lesser in foreign banks compared to that of Indian banks. Our banks are lagging behind in the matter of physical facilities, up – to – date equipments, communication, maternal, neatness of employees, prompt service, willingness of employees to help customers, convenient operating hours, customers’ interest at the heart of employees and personal attention.\(^{25}\)

6. Customer Switching

Roos (2004) identified the switching options are comparatively new to Telecommunication customers in the Nordic countries. This affects switching behaviour. The market has been turbulent for the same reasons, which in turn encourages low offers from new competitors. From the traditional Government owned telecommunications company’s point of view, customers can only partly switch and therefore perceive the network to constitute switching barriers.\(^{26}\)

---


Wang and Hing (2002) revealed that although there are two players in China’s mobile phone market, the competition between them is more intense than ever. They compete not only in network quality by a large investment in network extension and upgrading, but also in customers retention and acquisition by direct and indirect price reduction. The service quality and customer satisfaction has significantly positive behaviour intention on customers and negative intention on their switching behaviour.27

Anita et al. (2005) mentioned the importance reasons for non – switching from one service provider to another are the cost and energy involved in informing so many people about change in their number, confusion regarding the service offerings and complex tariff plans provided by other competitors, whereas the reason for switching is dissatisfaction with their current service providers owing to the hidden costs and other factors.28

7. Customer Satisfaction

Lim and Widdows (2006) identified the importance of marketing strategies of mobile phone service providers in the determination of their customer satisfaction.29

Henkel and Honchaime (2002) mentioned that value added services offered by mobile service providers can increase both customer satisfaction and total usage, which in turn can reduce churn rate, increase revenue and repurchase of entire services in future.30

---


Serkan et al., (2005) observed that customer satisfaction is dependent on perceived quality and has a positive role toward this dependence. Proper care should be taken while formulating any long term policy for customer satisfaction. At least for building profits, customer satisfaction is a main determinant.

Barnhoorn (2006) found that mobile services providers are investing a lot but still there are mismatches in the actual and perceived value of the customers.31

Anckan and Carlsson (2003) revealed that an intention to adopt or reject a mobile service appears to be determined to a greater extent by perceived benefits than by perceived barriers.32

Hashed et al (2012) found that the relationship between perceived value, perceived quality and corporate image have a significant positive influence on customer satisfaction, whereas customer expectation has positive but without statistical significance.33

Anderson and Fornell (2000) revealed that customer expectations are the consequences of previous experience with the company’s products or services. This raises customer expectations for overall quality, in product and service quality, and for fulfillment of personal needs. Customer expectations construct is anticipated to have a direct and positive relationship with customer satisfaction.34

Rajpurohit and Vasita (2011) indicated that the factor that induces the consumer to buy a particular mobile phone operator is call tariffs followed by network coverage and brand image. Majority of the consumer are satisfied with the value added services offered by their mobile phone service providers.35

Debarati and Ishita (2010) revealed that the factors like good network coverage and family and friends using the same network is one of the utmost importance to the customers whereas the offer of free connection with handset being the least important one.36

8. Customer Satisfaction and Loyalty

Singh and Sharma (2007) found that locating people, Less expensive connection cost, less operating documents required are the most important factor behind choosing a service provider. Value added services namely banking services, insurance services, stock market services, latest News – match scores etc are the second most important factors followed by service benefits and convenience respectively.37

Chadha and Deepa (2009) showed that the switching cost, service quality and customer satisfaction have positive association with customer loyalty. However, the customer satisfaction was found to be the best predictor of customer loyalty.38

---

Aydin et al., (2005) noted that perceived switching cost had a moderate effect on the relationship between the customer satisfaction and loyalty, and trust and loyalty. The effect of customer satisfaction on loyalty in customers is less, when the switching cost is perceived to be high rather than low.  

9. Marketing Strategies in Mobile Phone Service Industry

Sabat (2002) revealed the three business models between customer – facing and support services, and the underlying communication networks and ownership of spectrum rights to offer wireless services through these networks. The division of responsibilities is best placed in the context of wholesaler and retailer functions required to deliver the mobile wireless value. The retailer functions are reselling airtime, acquiring and managing customer relationship, managing relationships with content – related services and applications and offering mobile network services to subscribers.  

OFTEL (1999) identified the levels of wireless service provision as mobile virtual network operator, indirect access providers, independent service providers, tiered service providers and network operator direct sales force. The mobile virtual network operation includes sales of full service. The net work operator is paid for outgoing and incoming calls and independent service offering and price calls. The indirect access providers sell outgoing call service that is routed to other networks and inbound calls would be serviced by network operator itself. The independent service providers sells subscriptions and services based on the operators’ network, differentiated packaging, pricing, customer servicing and billing.  

---


41 OFTEL (1999), Recently named as Office of Communication (OFCOM), UK.
Downes and Miu (1998) found the important drivers of this emerging markets include scale of economics arising out of core competencies of a company, drive for profitability through the possibility of scope economics, need to personalize offers through differentiation, career goals to transition into a national player, carries financial constrains hampering its goals and drive to build and efficient spectrum market.  

Sabat (2003) identified that the service providers in mobile wireless service measure the pulse of the demands, preferences and habits of the customers. They should increase their marketing skills, customer are management and communication and potential brand identity for their services. Further, these players could accelerate greater diversity and differentiation in the service and application base benefiting greater traffic flow on the network architecture.

Hemant (2004) found that the key factor in the long term success if the Mobile Wireless Network Operator (MVNO) operator relationship will be the degree to which the MVNO offering is complementary to the host network’s focus. Complementarily can be on the basis of factors like brand, target market segment, services and reachable customer base. Meeting customer demand for location – specific personalized content will be a critical success factor of mobile wireless.

Sabak (2003) identified that the service providers in mobile wireless are deferring next – generation services offering. The restructuring methods followed to turnaround in the wireless industry. It includes stringent

---

performance target, reducing states in other ventures, spin – off ventures, liquidating position in forward looking ventures, forming JVs with established companies in the field, abandoning the venture and or abandoning the field, focusing on core competence, significant delaying network roll – outs, launching third generation applications with moderated functionalities and opting for network sharing.45

Bedabul Ray (2007) identified that the important strategy to attract new customers in mobile service market are low – price operator, operator with global image, operator with service efficiency and portability. The companies focus on cost leadership, technology innovation and image differentiation to enhance the average revenue per user. The identified challenges to increase the number of customers are new circles, new – generation pricing strategy, Glitzy and eye catching advertising, develop positive perceptions about the brand and customer retention and loyalty program.46

Galvin and Zander (2007) revealed the marketing strategy of Motorola in the mobile phone market. The company adopted turn around strategies, diversification, product innovation, quality and corporate culture to increase its market share by reinventing itself as a net company and focusing more on customer satisfaction and better product innovation with competitive prices. The company also adopted “six sigma quality standard in the marke.47

Sukumar (2004) pointed out that the Bharatis Act II consists of big objectives namely making Bharati a globally – admired telecommunications company, institutionalizing Bharati and creating a process – driven company,

enhancing revenues by leveraging growth and focusing on value added services and extending the customer base. They adopted best practices, benchmarking and six sigma as their strategies in the marketplace.\textsuperscript{48}

Mukesh (2004) analyzed the performance of the CDMA services providers by hygienic, motivators, potential savers and hidden opportunities. The hygienic consists of pricing of STD calls and local calls, ease of locating dealer and initial deposit acquisition cost, whereas motivators consist of ease of understanding bills, coverage inside basement or lift, good values for money, error free accurate bill, credibility of company, and coverage while roaming. The potential savers include the courteousness and politeness of dealer, time for activation, call centre personnel authorized to take decisions. Hidden opportunities cover time taken to resolve billing queries, overall time taken to resolve complaints and cell centre personnel directing you to the correct person promptly.\textsuperscript{49}

Sinha (2004) analysed the performance of the GSM service providers on the basis of their marketing programmes. These are coverage within city, inside buildings, good value for money, coverage inside basements of lifts, use of best technology, recommendation by all, quality of SMS, good infrastructure, value added services, documentation required, activation time, prompt receipt of bills, error free billing, availability of recharge cards, pricing for STD calls and local calls, time validity, ease of locating dealer and ease of balance enquiry.\textsuperscript{50}

Janardhan Rao (2007) revealed the market strategy of Vodafone is ‘over paying’ for Hutchison Essar. It is noted that India could be a place from where Vodafone can begin to look at other regional markets, such as Pakistan, Bangladesh and even Indonesia. Vodafone had secured its new operation at a

very reasonable price and is very confident about market growth and profit growth.  

Clay Chandler (2007) pointed out the importance of penetration in rural market for mobile phone service. The rural customers have far less to spend on mobile-phone services than their urban counterparts. To attract the rural customers, China mobile has gradually lowered rates, but only to the extent that reductions are offset by increased usage. The rural customers use the phone to manage village affairs, keep tabs on the trucks they rent out for cargo jobs, dispatch duties say as secretary general of a local transport co-operative, and also stay in touch with parents.  

Mahadevan (2004) revealed that the BSNL has announced international roaming, international SMS and a few value-added schemes for cellular services. It has announced loyalty scheme which will offer free calls for the customers under plan 325 and 525, rental waival for disconnection period, new low-value recharge coupons, full talk time for recharge coupons. The company has tied – up with Motorola to supply the equipment.  

Bakshi (2004) identified the new initiatives taken by BSNL for the customers. They are international roaming, SMS, International Long Distance (ILD) services, GPRS facility on BSNL cellular services, SMS on fixed lines throughout India, broadband services in all major towns of India and audio and video conferencing services.  

---

Dhawan and Anup (2004) identified the importance marketing strategy adopted by Hutchison. They are innovation in the existing circle, introduction of vans for service in smaller towns. GPRS to the network and all billing requests and clarifications made on the spot and Kiosks at airports and hospitals. Bharati now allows consumers to pay their bills anywhere in the country. It has also cleaned up its network by removing subscribers with a poor track record of paying bills.\textsuperscript{55}

Anup Jayaram (2004) pointed out that with the wireless revolution continuing unabated, fixed line companies are looking at tweaking their models. Bharti focuses on broadband, starting with DSL, that caters to the needs of corporate consumers and grows form bulk users like call centers. Reliance provides total telecom solutions to enterprises, broadband to retail subscribers and hosts data centers for companies. BSNL provides value-added services though broadband, provides fiber to home in 2-3 years and start growing again in the next 18 months. Tata Tele services focuses on providing fixed wireless terminals, broadband to retail subscribers and enter new circles with fixed services.\textsuperscript{56}

Jai Menon (2006) found that the Bharti Airtel has led to commoditization of voice – based services. Falling tariffs have only aggravated the problem for operators. This has meant that strategies like free talktime, lower rates at night, and the like are no longer sufficient to give an edge over rivals. The high level of personalized customer service through a contact infrastructure augmented by a cost – effective business model has won laurels for it. The company has relied on innovation to drive its growth and fight competition like introducing a host of non – voice – based offerings like music,


gaming, Bollywood content, education and other value – added services to its customers.\textsuperscript{57}

Jagdish (2006) identified the role of marketing strategy namely cross-selling and upselling in mobile phone service market. It reveals the doing of other things to the same customers, by selling other services. The utility and conventional model has two differences. In conventional model, the customer has to own a lot of equipments whereas in the utility model, they do not have to own any equipment at all, as all the equipments are given away free by the company. It is enough that the customers pay as they go.\textsuperscript{58}

Sharma and Ojha (2004) studied the factors contributing to customers satisfaction of mobile user in India. They noticed that these factors are network based service performance, retailer related process performance and network operator related performance.\textsuperscript{59}

Bulk and Run (2009) identified factors leading to customer satisfaction of cellular phone service providers. These are price, transmission quality, usage ease and service support.\textsuperscript{60}

1.8 RESEARCH GAP

Even though there are so many studies related to the customer preference, brand preference, switching behavior, customer satisfaction in mobile phone service provider industry. Most of the studies focused on any one or two of the above said concepts. There is no exclusive study which coins the linkage between the service quality, antecedents of service quality and


precedents of service quality in Mobile Phone service industry especially in Tamilnadu. Hence, the present study has made an attempt to fulfill up the research gap with proposed research model.

### Proposed Research Model of the Study

<table>
<thead>
<tr>
<th>Profile of the Customers</th>
<th>Service quality of service providers</th>
<th>Precedents of service quality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Core service</td>
<td>• Overall service quality</td>
</tr>
<tr>
<td></td>
<td>• Value added service</td>
<td>• Customer retention</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Customer satisfaction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Customer loyalty</td>
</tr>
<tr>
<td>Buyer behaviour in Market</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 1.9 OBJECTIVES OF THE STUDY

Based on the Proposed research model, the objectives of the study is confirmed to

1. To exhibit the profile of the customers in the mobile phone service market;
2. To study their buying and switching behavior in the market;
3. To examine the level of expectation, perception and service quality gap in core service quality of service providers in the market;
4. To study the level of expectation, perception and service quality gap in value added service quality of service providers in the market;
5. To analyze the various precedents of service quality of the service providers in the market;
6. To evaluate the impact of core and value added service quality factors on each precedents of service quality and
7. To identify the discriminant service quality aspects among the urban and rural customers.
1.10 HYPOTHESES OF THE STUDY

Based on the objectives of the study, the following hypothesis are drawn

1. There is no significance difference among urban and rural customers regarding their view on various aspects related to switching behavior, service quality and precedents of service quality of the service provider:

2. There is no significant association between the profile of the customer and their level of view on remains aspects related to switching behavior, service quality, service quality gap and precedents of service quality of service providers.

3. There is no significant impact of core service quality factors on various precedents of service quality of service provides and

4. There is no significant impact of value added service quality factors on various precedents of service quality of service providers.

1.11 RESEARCH METHODOLOGY

Research Methodology enlightens the methods to be followed in research works standing from investigation to presentation of research report. One research the methodology focuses on the methods to be adopted at remains steps in research process. In includes research design, sampling plan, sources of data, collection of data, framework of analysis and limitations.

1.12 RESEARCH DESIGN

Research design is the blue print of the remains the methods for conducting the research projects. It includes the procedures for obtaining the information needed, the way in which they are processed and the method of presentation of result to solve the research problems. Even though the research designs are to many, the present study followed the decipher research design.

Since the present study has made an attempt to explain the profile of customer, than buying sphagnum, switching sphagnum, their level of expectation and perception on even and value added service quality and
precedents of service quality of service providers in cellular service market, it is discipline in nature. Apart from this, the present study has its own objectives and pre-planned methodology to fulfill the objectives, it is in discipline nature. Since the study also focuses in the cause of and effect relationship between the service quality and precedents of service quality in cellular market, it is also diagnostic in nature. Hence, the applied research design of the study is discipline and diagnostic research.

1.13 SAMPLING PLAN OF THE STUDY

The sampling procedure of the study consists of two important aspects namely determination of sample size and distention of sample size.

a) Determination of Sample Size

The sample size of the present study is determined by the given formula.

\[ n = \left[ \frac{Z \sigma}{D} \right]^2 \]

Where as  
- \( n \) – Sample size
- \( Z \) – \( Z \) statistics at 5 percent level (1.96)
- \( \sigma \) – standard deviation of variable in pre-test (customer satisfaction on service provides)
- \( D \) – Accepted error term (.05)

In the present study, these one

\[ \left[ \frac{1.96 \times 0.590}{.05} \right]^2 = 480 \]

Hence, the sample size of the study is 480 customers.

b) Distributed of sample size

The sample size of the study 480 is equally distributed among 32 districts, Tamilnadu. Hence, the sample from each district came to 15 customers irrespective of their service providers. Hence the applied sampling procedure of the study is judgment sampling.

45
c) Characteristics of the sampled customers

The basic characteristics of the sample customers is confined to their nativity (district) and current service provider. The distribution of customers on the basis of above said two characteristics are presented in Table – A

Table A - Distribution of customers on the basis of their district and current service provider

<table>
<thead>
<tr>
<th>S.No</th>
<th>District</th>
<th>Aircel</th>
<th>Airtel</th>
<th>BSNL</th>
<th>DoCoMo</th>
<th>Idea</th>
<th>MTNL</th>
<th>Reliance</th>
<th>Videocon</th>
<th>Vodafone</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aryalur</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>Chennai</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>Coimbatore</td>
<td>3</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>Cuddalore</td>
<td>6</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>Dharmapuri</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td>1</td>
<td>2</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>6</td>
<td>Dindigul</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>2</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>7</td>
<td>Erode</td>
<td>2</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>8</td>
<td>Kanchipuram</td>
<td>6</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>9</td>
<td>Kanyakumari</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>10</td>
<td>Karur</td>
<td>5</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>Krishnagiri</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>12</td>
<td>Madurai</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>13</td>
<td>Nagapattinam</td>
<td>6</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>14</td>
<td>Namakkal</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>15</td>
<td>Nilgiris</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td></td>
<td>1</td>
<td></td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>16</td>
<td>Perambalur</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>17</td>
<td>Pudukottai</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>18</td>
<td>Ramnad</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td>1</td>
<td></td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>19</td>
<td>Salem</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>20</td>
<td>Sivangani</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td></td>
<td>3</td>
<td></td>
<td>1</td>
<td></td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>21</td>
<td>Thanjavur</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td>1</td>
<td></td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>22</td>
<td>They</td>
<td>6</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>23</td>
<td>Thiruvallur</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>24</td>
<td>Thiruvurur</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td>1</td>
<td></td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>25</td>
<td>Thiruveli</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>26</td>
<td>Tiruppur</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>27</td>
<td>Tiruvannamalai</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td>1</td>
<td></td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>28</td>
<td>Trichy</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>29</td>
<td>Tuticorin</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td>1</td>
<td>2</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td>Vellore</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>31</td>
<td>Villupuram</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>32</td>
<td>Virudhunagar</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>116</td>
<td>24</td>
<td>26</td>
<td>63</td>
<td>3</td>
<td>24</td>
<td>1</td>
<td>90</td>
<td></td>
<td>480</td>
</tr>
</tbody>
</table>
The important service provider among the sampled customers are Aircel and Airtel which constitutes 27.71 and 24.17 percent to the total respectively. It is followed by customers up vodafone and Idea which constitutes 18.75 and 13.13 percent to the total respectively. The customers of BSNL and reliance service providers constitutes only 5 each percent to the total. The analysis reveals that the important current service provider among the customers is Aircel and Airtel.

1.14 COLLECTION OF DATA

The required data to fulfill the objectives of the study are collected with the help of pre strutted interview schedule. The schedule was divided into low important parts. The first bank of the schedule corns the profile of the customers and their buying behavior in the mobile phone service market. The second part of the schedule includes the switching behavior and its determinants in the market. The third part of the schedule consists of the level of expectation and perception on cure and value added service quality of the mobile phone service providers. The last part of schedule included the various precedents of service quality of mobile phone service provider namely overall service quality, customer retention customer satisfaction and customer loyalty.

The relevant variables in the above mentioned concepts were derived with the help of the study of previous studies. A pilot study was conducted among 90 customers who were equally distributed to Chennai, Coimbatore, Madurai, Salem, Trichy and Vellore districts (15 x 6). Based on the feed back from the pre test, certain modifications, additions and deletions were carried out in order to prepare a final schedule to collect the primary data from the customers.
1.15 FRAME WORK OF ANALYSIS

The statistical analysis has been selected and used to process the collected data according to the requirements of the study. The analysis is selected according to the scale of data and the objectives of the study. The included statistical analysis and its application are presented below:

1.15.1 T – test

The ‘t’ test is one of parametric tests to analyse the significant difference among the two group of samples. It is applied when the criterion variable is in interval scale (Nangundar61, 2010). The ‘t’ statistics are calculated by

\[ t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{(n_1 - 1)\sigma_{x_1}^2 + (n_2 - 1)\sigma_{x_2}^2}{n_1 + n_2 - 2} \times \frac{1}{n_1} + \frac{1}{n_2}}} \]

Which is compared with the degree of freedom of \((n_1 + n_2 - 2)\).

Whereas \(t\) = ‘t’ statistics

- \(\bar{x}_1\) – mean of the first group of sample
- \(\bar{x}_2\) – mean of the second group of sample
- \(n_1\) – number of samples in the first group
- \(n_2\) – number of samples in the second group
- \(\sigma_{x_1}^2\) – variance in the first sample
- \(\sigma_{x_2}^2\) – variance in the second sample

The ‘t’ test has been applied to test the significant difference among the urban and rural customers regarding

I. Their source of information about the service provider,
II. The variables influencing to choose the service provider,
III. The factors influencing to choose the service provider,

---

IV. The variables leading to their switching behavior,
V. The factors leading to their switching behavior,
VI. Their expectation, and service quality gap on service quality variables in core and reduced service quality of operators and;
VII. Their perception on precedents service quality factors.

1.15.2 Exploratory Factor Analysis

The exploratory analysis is used when the researcher wants to narrate the variable into handsome factors and also find the relationship between the variables and narrated factors. It is also called the narration analysis. Whenever the variables related to a particular event are unmanageable or plenty and also in interval scale, the factor analysis has to be executed to narrate these variables into factors. (Nalini, 2006) Before applying the factor analysis, the validity of data for factor analysis, the validity of data for factor analysis have to be executed with the help of Kaiser – mayer – ohlin (KMO) measure of sampling adequacy and Bartletts test of sphericity. The acceptable KMO measure of sampling adequacy is 0.5, whereas the acceptable level of significance of chi – square value is up to 0.05 per cent level. In the present study, the factor analysis has been executed to identify the

a) Factors influencing the choice of their service provider,
b) Factors leading to customer churn and
c) Core and Value added quality factors mobile phone service, providers;

1.15.3 Discriminate Analysis (Two group model)

The discriminate analysis is used when the dependent variable is in nominal scale and the independent variable are in interval scale. It is used to identify the important discriminate variable among the two groups formulated

---

in the study (Malhotra, 2003)\textsuperscript{63} The unstandardized canon discriminate function was estimated by

\[ Z = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + \ldots \ldots + b_nX_n \]

Whereas \( Z \) = Discriminant enterion
\( X_1, X_2, \ldots, X_n \) = Discriminant variables
\( b_1, b_2, \ldots, b_n \) = Discriminant coefficients

The wilks lambda was calculated as a multi-variant measure of group difference over discriminating variables. (Shajahan, 2005)\textsuperscript{64} The relative discriminating power of the variables was calculated by

\[ I_j = K_j (\overline{X}_{j1} - \overline{X}_{j2}) \]

Whereas
\( I_j \) = the important value of the jth variable
\( K_j \) = unstandardized discriminant co-efficient for the jth variable.
\( X_{j k} \) = mean of the jth variable for kth group

The relative importance of a variable \( R_j \) is given by

\[ R_j = \frac{I_j}{\sum_{j=1}^{n} I_j} \]

In the present study, the two group discriminant analysis has been administrated to identify the important discriminant factors away them urban and rural customers regarding various aspects related to being behaviour, switching behavior service quality and precedents of service quality of mobile service providers.

\textsuperscript{63} Tranesh K. Malhotra (2003), Marketing Research: An Applied orientation: pearson education Private Ltd, India, pp: 559 - 570

\textsuperscript{64} Shajahan, S (2005), ”A study on the level of customers satisfaction on various modes of banking services in India,” The ICFAI Journal of bank management, 4(1) Feb, pp: 79 – 84.
1.15.4 Confirmatory Factor Analysis (CFA)

The CFA is one of the multivariate statistical tools which is applied to confirm the extracted variables in the factor by the exploratory factor analysis. It explains the factor in a reliable manner or not (Segars and Grover, 1993)\textsuperscript{65}. It is mentioned by the reliability and validity of variables in each construct developed in the present study (Fornell and Larcker, 1981)\textsuperscript{66}. The content validity, convergent validity and discriminant validity have been tested through CFA (Li et al., 2007)\textsuperscript{67}. In the present study, the CFA have been used to test the reliability and validity of variables in each construct related to various aspects in switching behaviour, service quality and precedents of service quality of the mobile phone service providers.

1.15.5 Multiple Regression Analysis

The multiple regression analysis is one of the multi variate analysis which can be used to measure the impact of independent variables on dependent variables which were measured at interval scale (Huselid 1995\textsuperscript{68}; Sels, 2003\textsuperscript{69}; Singh, 2004\textsuperscript{70}). In the present study, the fitted regression model is:

\[ Y = a + b_1X_1 + b_2X_2 + \ldots + b_nX_n \]


Whereas

\( Y \) - dependent variable

\( X_1, X_2, \ldots, X_n \) - independent variable

\( b_1, b_2, \ldots, b_n \) - regression co-efficient of independent variables

\( a \) - intercept and

\( e \) - error term

In the present study, it is used to evaluate the impact of service quality of mobile phone service providers on the precedent of service quality of the mobile phone service provider one by one.

1.15.6 One way analysis of Variance (ANOVA)

The oneway analysis of variance is applied when the experimental variable is in interval scale and the number of sampled groups are more than two. The ‘F’ statistics is calculated by

\[
F = \frac{Trss/df}{Ess/df} = \frac{\text{Greater Variance}}{\text{Smaller Variance}}
\]

Compared with \( F (K - 1; N - k) \) degree of freedom

Whereas

\( F \) = ‘F’ statistics

\( N \) = Total number of sample size

\( K \) = Number of sampled groups

\( Trss/df \) = Variance between groups and

\( Ess/df \) = Variance within groups

In the present study, the oneway analysis of variance have been used to measure the association between the profile of employees and their view various aspects related to the service quality of mobile phone service providers, presciently service quality, factor leading to choose the service providers and the factors leading to switch from one service providers to another.
1.16 LIMITATIONS OF THE STUDY

The present study is subjected with the following limitations.
1. The hope of the study is limited to Tamilnadu state only
2. Eventhough, the sample size is determined by scientific way, the applied sampling procedure is unscientific.
3. The include service quality of cellular service providers is classified into core and value added service quality only.
4. The precedents of service quality of cellular service providers is confirmed to overall service quality, customers retention, customers satisfaction and customer loyalty.
5. The variables related to the concepts used in the present study are drawn from the review of previous studies,
6. The included variables in each concept in the present study are measured at five profit scale only.
7. There may be a personal ideas from the customers because the interview schedule was answered only out of their memory,
8. The linear relationship between the dependent and independent variables have been assumed in the application of multiple regarding analysis
9. The unstandardised procedure has been followed to estimate the two group disimprovement analysis and
10. The total study is based on the customers’ perception only.

1.17 CHAPTERISATION

The present study is presented in size chapters in order to present in neat and clean manner.
The Chapter – I “Introduction and Design of the study” includes the introduction, Need for the study, Relevance of the study, statement of the problem, review of previous studies, research gap, proposed research model, objectives of the study, hypotheses of the study, methodology, limitations and scheme of the study.

The chapter II deals with the definition, meaning, measurements, methods and variables used to measure the concepts in the study namely factors leading to choose the service provider, customers churn analysis, sore and value added service quality and precedent of service quality of service providers in cellular minted.

The Chapter – III ‘Background of the customers and their behaviour in mobile phone service market’ discusses the profile of the customers, variables leading to choose the service provider, switching behaviour, antecedents of switching and the association between the profile of the customers and their behaviour in the cellular service market.

The Chapter – IV ‘Service quality of mobile phone service providers; customers’ perspective deals with the level of expectation, perception and service quality gap in core and value added service quality of service provides in the cellular service market and its association with the profile of the customers and the discriminate service quality factors among urban and rural customers.

The Chapter – V consists of the customer’s perception on various precedents of core and value added service quality and the impact of core and value added service quality factors on the precedents service quality of service provides in cellular service market.

The Chapter – VI ‘Summary of findings, conclusions and policy implications’, includes the summary of findings of the study, conclusions, Suggestions, and scope for factor research.