CHAPTER I
INTRODUCTION AND DESIGN OF THE STUDY

Introduction

Communication has become one of the essential parts of human life in these days. It is the basis of human relations and it is one of the infrastructural facilities to business field. Telecommunication is one of the forms of communication, which makes a worldwide network to trade and commerce.

Telecommunication systems are generally designed by telecommunication engineers. Early inventors in the field include Alexander Bell, Guglielmo Marconi and John Logie Baird. Telecommunication is an important part of the world economy with the telecommunication industry's revenue being placed at just under 3% of the gross world product.

India has the fastest growing telecom network in the world with its high population and development potential. Airtel, Idea, Reliance, BSNL, Aircel, Tata Indicom, Vodafone, MTNL, and Loop Mobile are other major operators in India. However, rural India still lacks strong infrastructure. India's public sector telecom company BSNL is the 7th largest telecom company in the world.

Telephony introduced in India in 1882. The total number of telephone subscribers in the country was 846.32 million as of March 2011. And the total numbers of mobile phone subscribers have reached 811.59 million at the end of Mar 2011. The overall tele-density has increased to 70.89% in Mar 2011 [1]. In the wireless segment, 20.21 million
subscribers were added in Mar 2011 [1]. The total wireless (GSM, CDMA & WLL (F))
subscribers’ base is 811.59 million as of Mar 2011. The wire line segment subscriber
base stood at 34.73 million.

Indian telecom operators added a staggering 227.27 million wireless subscribers
in the 12 months between Mar 2010 and Mar 2011 averaging at 18.94 million subscribers
every month. To put this into perspective, China which currently possesses the world's
largest telecommunications network added 119.2 million wireless subscribers during the
same period (March 2010 - March 2011) - averaging 9.93 million subscribers every
month (a little over half the number India was adding every month). So, while India
might currently be second to China in the TOTAL number of mobile subscribers, India is
adding nearly twice as many subscribers EVERY month. Mobile teledensity increased by
almost 18.4 percentage points from Mar 2010 and Mar 2011 (49.60% to 67.98%) while
wire line subscriber numbers fell by a modest 2.2 million. This frenetic pace of monthly
subscriber additions means that the Indian mobile subscriber base has shown a year on
year growth of 43.23%. According to recent reports, India was purported to overtake
China to become the world's largest mobile telecommunications market by the year 2013.
(However recent trends indicate that the event may occur earlier than - as early as
October 2011) It was also predicted that by 2013, the teledensity will shoot up to 75%
and the total mobile subscriber base would be a colossal 1.159 billion.

According to the Indian Constitution, telecommunications (or telecom) services
belong to the Central Government’s List. Hence, all policies for promotion, development,
regulation (including pricing) of telecom services are formulated and implemented for the nation as a whole.

Since 1991, focused telecom reforms have been introduced for privatization and diversification in competitive provisioning of services, globalization of trade (including under the WTO agreements) and capital by liberalization of imports and foreign direct investment, establishment of an independent regulator (i.e. Telecom Regulatory Authority of India), introduction of cellular mobile phones, universal service access through the formulation of National Telecom Policy 1994 and 1999, and corporitisation of public provider of telecom services (e.g. Bharat Sanchar Nigam Limited for domestic services). India’s telecom policies and reforms are best summarized and analyzed in many studies, such as, Dossaini (2002), Kathuria et al (2003), and Noll and Wallsten (2004). Pre-budget, Economic Survey of Government of India has been an important annual source for subsequent update on policy and reforms on telecom sector.

From the supply side, the telecom reforms and policies have been aimed at higher provisioning and wider access to telecom services for business, government, and residential subscribers. Both provisioning and access are preconditions for usage of telecom service, i.e. basic and value added services (including internet and broadband services), as provided by public and private telecom companies over their telephone and wireless networks. Telephone lines provide with access or connection of subscribers to the network. Thus, provisioning, access, and usage are equally important and sequential stages in the process of production through consumption of telecom services.
Recent international studies use cross-country empirical models to estimate the impact of telecom services on economic growth in developing countries, mainly due to the availability of data on large number of countries. These studies include El Khoury and Savvides (2006), which captures the impact openness policies (e.g. privatization, deregulation, and competition) in telecom sector as one of the determinants of economic growth. The empirical evidence offers support for the positive impact of telecom openness on economic growth of less developed countries (i.e. 23 countries below a threshold level of GDP that included India). These studies are in contrast to studies, such as, Sridhar and Sridhar (2004), which mainly used penetration indicators (e.g. tele-density of mainline telephones) to estimate impact of telecom on economic growth in developing countries. Determinants of demand are useful for many policy purposes, such as, estimation of gross value added (in terms of gross earnings, however) by telecom service providers through introduction of new services, changes in price of existing services, and due to changes in purchasing power of people. In essence, this calls for estimation of price and income elasticity of demand for telecom services. Surprisingly, this estimation remains a neglected area of academic and policy interest in India. This is evident, for instance, by the absence of Indian studies in the excellent and recent international survey articles on demand for telecom services [Taylor (2004), and Garbacz and Thompson Jr (2007]. A notable exception is Das and Srinivasan (1999). They estimated the aggregate demand for telephone usage in India, using both time series and panel data models. In time series model (using data from 1964 to 1997), demand for per capita metered call units is estimated as a function of price of per metered call unit, telephone density, share of 3 services in GDP and per capita GDP. In panel data model
(using pooled data for 19 states for the years 1992-93 to 1996 97), determinants of telephone usage are estimated in terms of price of metered call unit, telephone density and share of services in State Domestic Product.

Recent international studies estimate price elasticity of telecom demand in the framework of reforms (i.e. privatization, regulation, and competition) in telecom sector. For instance, Garbacz and Thompson Jr (2007) estimate, among others, price and non-price determinants of demand for telecom services by residential and mobiles services, using a sample of 23 developing countries including India. Telecom prices are distinguished between residential and mobile services. These prices enter into demand estimations both as exogenous variables, and endogenously determined by telecom reform and other variables in a recursive equations framework. Empirical results offer evidence for significant price effects for mobile services.

Communication begins with language, the distinctive ability that has made possible the evolution of human society. With language any message, no matter how complex, can be conveyed between people over a limited distance - within a room or place of assembly, or across a short open space. In modern times 'town criers' hold an annual contest to discover which of them can shout a comprehensible message over the greatest distance. The world record is less than 100 meters. Already, at that short range, a more practical alternative is to run with the message.

**Telecom Service and economic Development**

Core sectors of the economy, which includes telecom, are said to have a direct bearing on transforming consumers into producer and promote economic development. A
number of studies have documented the positive impact of mobile phone adoption on rural development (Bhatnagar 2000, Waverman et.al, 2005). Telecom services would fall in the mid-space of the matrix of development versus profitability by serving low-income consumers (Beshouri, 2006). Need for community based solution has been advocated by many; by tapping into local networks companies can serve low-income markets profitability (Beshouri, 2006). The successful examples of telecom in rural areas also points to the same direction, the Grameen Phone which has been successful has tapped the Microfinance network, and various ICT initiatives have taken the help of either successful cooperatives or have tied-up with a local NGO.

Experiences like the Grameen Phone have shown that provision of phone connectivity to a village serves two purposes, first leads to the economic development by helping individuals and business gain economic efficiency through communications, and promoting social and economic development for individuals who own and operate the telephone enterprises (World Resource Institute, 2001).

At present, service marketing plays a major role in the national economy. In the service sector, telecom industry is the most active and attractive. Though the telecom industry is growing rapidly, India’s telecom density is less than the world’s average telecom density as most of India’s market is yet to be covered. This attracts private operators to enter into the Indian telecom industry, which makes the Bharath Sanchar Nigam Limited (BSNL) more alert to run its business and survive in the market.

As part of the globalization process, Indian Telecom Industry was privatized. BSNL is providing services like landline services, cellular phone services and broadband
services. Most of its earnings are from landline services and the BSNL put major share of its investment for providing landline services. Due to various reasons most of its landline customers are disconnecting the service.

**Select Performance Indicators**

Over the years, the implications of telecom reforms have been evident by performance indicators, such as: (a) higher penetration in terms of rising tele density (= number of telephones per 100 population), especially due to mobile telephony, (b) increasing share of private sector in provisioning of services, and (c) fall in domestic and international long distance call rates. Since 2000-01, this remarkable increase in tele density has been largely contributed by introduction of cellular mobiles phone. For instance, tele density without cellular mobiles phones was equal to 3.22 in 2000-01 and 4.62 in 2003-04. Easy access and low cost handsets have been driving factors for wide spread used of mobile telephones. At the same way, tele density by rural (or urban) areas increased from 0.9 (or 10.37) in 2000-01 to 1.57 (or 20.74) in 2003-04, but the difference between rural and urban teledensity widened from 11.52 times to 13.21 times. At the international level, India’s teledensity in 2003 was lower than in Brazil (42.38) and China (42.32).

Ownership of telecom services is unique between fixed and mobile telephony. For instance, in 2003-04, ownership of fixed phones was dominated by public sector, mobile telephony by the private sector, and overall phones by the public sector. This captures for changes in the extent of privatization or private participation in the provisioning of services.
Telecom tariff declined for domestic long distance calls. Most importantly, domestic long distance calls, which had remarkable divergence by distance zones, have converged to a uniform rate (i.e. rupee per minute of call) of Rs.1. This rate now equals to local call rate. In the same way, remarkable decline is evident for detailed performance indicators of Indian telecom sector are published, on quarterly basis, by TRAI.

In recent past, performance indicators of telecom services have been used to construct indices of international competitiveness of countries. These indices include World Economic Forum’s World Competitiveness Index and Networked Readiness Index, IMD

From the production side of the national economy, they are contributory to value added by the telecom sector and, hence, contributory for economic growth. A framework for estimation of this contribution is presented in the next section.

**Contribution of Telecom Services to Economic Growth**

Following Jalava and Pohjola (2002 and 2007), a framework to accounting for direct contribution of telecom services to aggregate economic growth is presented here. Let the aggregate value added (Y), at any given time (t), consists of telecom services (YCS,t) and non-telecom goods and services (YNCGSt). Hence, from the production side, national income is equal to gross value added by the telecom services and non-telecom goods and 2 In addition; improvement in the quality of services should be mentioned as positive fallout of competition between public and private providers, and among private providers. For instance, Telecom Regulatory Authority of India developed benchmarks for quality parameters by fixed and cellular mobile phones, internet service
providers, and broadband service providers, and applied uniformly for public and private providers. These parameters are used for quarterly quality monitoring purposes. It might be added here that quality of telecom services is an indicator of improvement of investment climate in India [World Bank (2004)]. Thus, production of telecom services contributes directly to total value added generated in the economy.

India’s GDP from communication services is estimated (using income method) by the Central Statistical Organization (CSO) under the tertiary sector [CSO (2007)]. Communication services include postal and telephones under the public sector. We separate GDP from telecom services (i.e. telephones, telegrams, and overseas communication services) from the postal services (i.e. postal, and money and postal order services) within the public communication sector.3 Further, GDP from private communication sector is estimated by the CSO from 1993-94, coinciding with the introduction of telecom reforms. We treat private communication services are equal to private telecom services. Accordingly, GDP from public telecom services can be distinguished from the private sector GDP.

The Indian Telecom Scenario Today

India, along with other large developing countries, is currently engaged in rapid expansion of its telecommunications infrastructure. In an attempt to speed up the process, find private financing, and introduce competition, the government has licensed one private basic services operator (BSO) in each state to set up an independent telecom network in the state.
The interstate network and international links will be operated by the government-owned monopoly operator (Department of Telecommunications, DoT) for the time being. The DoT, of course, is already an operator in all the states, and is expanding its subscriber base every year. Until now, the telecom network has been built along conventional lines, similar to networks in developed countries. The long-haul backbone network is mostly digital, and employs optical fiber, microwave, and satellite links. The exchanges are largely electronic, with major cities (metros) having large 40,000-line switches.

The local loop is copper based, with extensive use of remote line units to reduce copper length. The capital investment (hereafter referred to simply as cost) 1 per line has also been more or less the same as in other countries. Now that the BSOs are starting afresh to put new networks in place, they are looking at an array of technology choices that have become available over the last decade. These include new access technologies with a recently standardized interface to the main exchange, and with the capability to provide inexpensive Internet service on a circuit-switched network.

In this article, we will see how new technological developments are being leveraged to provide an elegant, service-rich, rapidly deployable, and cost-effective network. A persisting theme throughout the article is the cost of the solution. It will become clear that large-scale expansion will simply not occur unless a lower per-line revenue is sustainable, at least in the near term. This is feasible only if the cost per line is halved, to begin with, and goes down every year. It will be argued that products based on new technologies are making this a reality. Electronics will be seen to provide the
solution for rapid expansion of telecommunications, as it has done with computing. The following section gives a summary of some of the economic parameters that circumscribe our arguments. The current availability of telephones, the cost per line today, the income strata of the population, the urban/rural segmentation, and the realizable revenue targets are discussed. Attention is focused on the new access technologies and their open interface to the switches, and on the provision of efficient Internet service. It can be described some of the products developed in India to provide the new solutions outlined in the previous section. Innovations in the use of technology and standards, proposed originally in some cases for other applications, are shown to be the key in achieving low cost and richness of features.

India has barely 17.5 million telephones today. For a population of 970 million, this amounts to a teledensity of a little over 1.5 per 100. There were about 25 percent of these telephones are in four metropolitan cities. Even though 74 percent of the population lives in rural areas, the number of village telephones is less than a few percent. The total number of Internet subscribers amounts to barely 1/10,000 population, mostly confined to the large cities. The number of long distance circuits, even though now almost fully digitized, crossed the 150,000 mark only in 1996. The primary reasons for low tele density are the high cost of providing a telephone and the limited revenue expected. The total investment required for each telephone today, assuming conventional technology, is more than $900. This may not appear to be very large, but once one considers the 15 percent financing cost (interest rates for loans) prevalent in India and 15 percent operational, maintenance, and obsolescence cost, minimum yearly revenue of
$270/subscriber is required for the operator to break even. Once again, the amount does not appear to be very large.

It is not viable to expand the telecom network in India substantially at the prevalent level of per-line investment. However, systems based on new technologies, many developed in India; promise to more than halve the investment required. It looks at the telecom scenario, the new technologies, the Indian products based on these technologies, and the cost reductions they promise. The provision of widespread Internet service with low access tariff is an important aspect of the new approach.

The most important fact about telecommunications is the revolutionary technological change in the industry since the widespread adoption of digital technology in the 1980s. Most of the assumptions that guided telecommunications policy throughout the world before 1980 were hopelessly out of date by 1990. Unfortunately, many policies throughout the world are still misinformed by these outdated assumptions.

Telephone System: The telecommunications system in India is the 2nd largest in the world. The country is divided into several zones, called circles (roughly along state boundaries). Government and several private operators run local and long distance telephone services. It was thrown open to private operators in the 1990s. 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.
The Indian Telecom Services Performance Indicators  
October - December 2011  
(Data As on 31st December 2011)

**Wire line Subscribers**

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Wire line Subscribers</td>
<td>35.09 Million</td>
</tr>
<tr>
<td>% change over the previous quarter</td>
<td>1.34%</td>
</tr>
<tr>
<td>Urban Subscribers</td>
<td>26.21 Million (74.68%)</td>
</tr>
<tr>
<td>Rural Subscribers</td>
<td>8.88 Million (25.32%)</td>
</tr>
<tr>
<td>Market share of Private Operators</td>
<td>17.02%</td>
</tr>
<tr>
<td>Market share of PSU Operators</td>
<td>82.98%</td>
</tr>
<tr>
<td>Teledensity</td>
<td>2.95</td>
</tr>
<tr>
<td>Urban Teledensity</td>
<td>7.35</td>
</tr>
<tr>
<td>Rural Teledensity</td>
<td>1.07</td>
</tr>
<tr>
<td>Village Public Telephones (VPT)</td>
<td>0.58 Million</td>
</tr>
<tr>
<td>Public Call Office (PCO)</td>
<td>3.34 Million</td>
</tr>
</tbody>
</table>

The number of telephone subscribers in India increased from 723.28 million in Sep-10 to 787.28 million at the end of Dec-10, registering a sequential growth of 8.85% over the previous quarter as against 7.68% during the QE Sep-10. This reflects year-on-year (Y-O-Y) growth of 40.05% over the same quarter of last year. The overall Teledensity in India has reached 66.16 as on 31st December. (Source: TRAI Reprot, 2012.)
Significance of the Study

Until the mid-1990s the ownership of a telephone in India was considered a luxury, not a consumer item. The waiting period for a landline could extend from five to 10 years. Even in 1996, for instance, people were waiting for a telephone after having paid a hefty amount as an application deposit for three to five years. Today, in many states companies are competing to gain customers and there is no waiting list for getting a landline phone connection. Mobile telephone services have become so cheap so that landline phone subscribers surrender their landline phone and they switch over to the cellular phone. The B.S.N.L prevents the surrenders by offering concessions and takes promotional measures to retain its landline phone customers. In this context, the study gains significance.

The present study has some innovative aspects towards the customers’ preferences such as their sensitive reactions in the form of shifting the landline phone to cell phone. The study brings out the factors that retain the landline phone among the subscribers. The traditional landline phone customers have specific expectations, likes and dislikes. The study reveals the perception of the customers.

Statement of the Problem

The provision of infrastructural facilities has traditionally been the responsibility of the public sector. However, fiscal constraints, technological innovations, low levels of operational efficiency and inappropriate pricing policies have led to fundamental changes. It is argued that even though the reforms have been successful in terms of encouraging private participation in the sector, it is too early to say how effective they
will be in the longer run in achieving sectoral and national development goals. (John Wiley, 1998).

Now, Indian telephone industry is under heavy competition. Even now, the traditional telephone service is offered by the BSNL but at the same time, customers shift their choice to cellular service. The BSNL makes various steps to retain its landline customers. In this context, the study tries to deal with various key issues regarding the BSNL’s efforts in this regard.

The BSNL is the only service provider, making focused efforts and planned initiatives to bridge the Rural–Urban Divide ICT Sector. In fact, there is no telecom operator in the country to beat its reach with worldwide network providing services in every nook and corner of the country. Now the BSNL is crossing a crucial situation because of the technical advancement in the tele communication sector and its survival is subject to some transformations. But, surrenders of landline and getting mobile connections are increasing every month. The BSNL can not close its traditional tele services because it has a huge amount of investment on this line of telephony. So, the company has to retain its customers by offering concessions and introducing new liberalized schemes to the existing customers. This study considers landline customers’ perception towards their landline phone in Thanjavur Telecom Circle of Tamil Nadu, India.
Objectives of the Study

1. To study the retention strategy adopted by the B.S.N.L to retain its landline phone customers
2. To analyse attractive, discouraging and expectation factors of the BSNL landline phone subscribers of Thanjavur Telecom Circle, Tamil Nadu
3. To evaluate the satisfactory variables of the BSNL landline phone subscribers
4. To measure awareness of the subscribers towards attributes of the landline phone and its usage.
5. To identify the attitude of the subscribers towards the BSNL and the landline phone and
6. To give suitable suggestions to the BSNL for the development of landline service of the BSNL

Hypothesis of the Study

1. There is significant association between demography of the landline customers (Gender, age, educational qualification, occupation, annual income and area of residence) and Technical Problem
2. There is no association between demography of the landline customers (Gender, age, educational qualification, occupation, annual income and area of residence) and Reason for having landline
Research Design

This research is a sample survey because it takes a considerable part from a large population and analyses the sample part in order to make a meaningful interpretation and conclusion.

Research Methodology

Methodology is the attempt to validate the rationale behind the selected research design and provide justification of why it is appropriate in solving the selected research problem. It is the process by which the researcher evaluates the tools that produce knowledge.

Research Methodology is a means of taking decision from the results obtained from the collective, natural or social phenomena. The primary goal of research methodology is to understand immediate, distant and past social problems in order to gain a better measure of control over them.

Pilot Study

Pilot study is an informal exploratory investigation which serves as a guide for a larger study. A pilot study is a small-scale replica and a rehearsal of the main study. Pilot studies are concerned with administrative and organizational problems related to the whole study and the respondents. The success of the pilot study is undoubtedly enhanced by the pilot or preliminary investigation. This shows the advantages of doing a pilot study to determine the final target. For the present study a pilot study was undertaken before conducting the research at full fledged scale.
Population and Samples

B.S.N.L landline subscribers of Thanjavur Telecom Circle of Tamil Nadu, India constitute population of the study. Size of population of the study is 1,07,897 as on 01.01.2011. As it is a large one, sampling method was adopted. 1,020 samples were selected as per random sampling method. The size of samples was determined with the help of sample size software. The minimum sample size requirement was 270 at 90% confidence level, 383 at 95% confidence level and 660 at 95% level of confidence. The real sample size is 1,020 with the expectation of reliable results.

Thanjavur telecom circle has six divisions’ viz., Thanjavur Urban, Thanjavur Rural, Papanasam (Rural), Pattukkottai (Rural), Mannargudi (Rural), Tiruvarur (Rural), and Tiruthuraipoondi (Rural). The sample customers were selected at random from each division. The six divisions have been notified as urban and rural by the B.S.N.L. Thanjavur town is identified as urban and the rest of Thanjavur taluk as rural. All other five divisions are rural areas as per the classification made by the B.S.N.L. Land line Phone subscribers from all the six divisions have been selected as samples for this study.

Data and Sources

Primary data and secondary data have been used in this study and they were collected accordingly. The secondary data were collected at first from the web sites of the B.S.N.L and secondary sources. Next the primary data were collected from the sample subscribers of the B.S.N.L landline phone. For this purpose, a well structured questionnaire was used.
Dimensions of the Study

Following are the variables are taking into consideration for the study and they are the retention factors that retain the B.SN.L landline customers to have the landline.

1. Call Rate
2. Extent of Free Calls,
3. Low deposit amount
4. Easy connection
5. Rental Plans
6. Billing System
7. Service
8. Grace Period
9. Information Service
10. Customer Care Functions

These are the identified variables towards the usage of landline connection.

Based on three aspects i.e, attractive factors, discouraging factors and expectation factors the identified variables were classified. The customers ranked these factors as per their perception.

Ten satisfaction variables are taken into consideration and they are listed as call rate, free calls, rental plans, billing system, mode of payment, voice clarity, on line balance enquiry, service, grace period and information service.
Occupation and income of the landline subscribers are the two demographic variables to correlate with the satisfaction variables.

**Questionnaire**

A well-defined questionnaire was constructed for collecting the primary data from the sample customers. The questionnaire consists of the following way.

- Personal Information
- Details of Landline Connection
- Experience in the Usage of Landline In The Last One Year Period
- Levels of Satisfaction
- Levels of Awareness
- Rating of Attitude
- Ranking the Attractive Factor
- Ranking the Discouraging Factor
- Ranking the Expectation Factor

The questionnaire was pre-tested with a sample of 50 landline customers. And necessary corrections were made.

**Method of Study**

The study takes the following methods to analyze the data.

- Measurement of level of satisfaction by using scaling technique
- Rating the attitude of the customers
- Ranking the Attractive Factors Discouraging Factors and Expectation Factors.

**Scaling Technique**

The study uses five point Likert’s scale to measure the satisfaction with the following five points of measurement.

- Highly satisfied
- Satisfied
- Neutral
- Dissatisfied
- Highly Dissatisfied

Likewise, four point scale is fixed to measure the awareness of the customers with the following four points of measurement.

- Fully aware
- Sufficiently aware
- Slightly aware
- Not aware

Five point Likert’s scale to rate the attitude of the customers with the following five points of measurement. 10 attitude statements were framed for this purpose.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree
**Analysis of Data**

In the analysis section, the questions of the questionnaire are taken for analysis in the chronological order. Responses of every question are tabulated and then analyzed. The analysis chapter has two major sections such as percentage analysis and statistical analysis. In the percentage analysis, responses for every question are analyzed with the help of percentages. The percentages are the common tools used for analyzing the data and the percentage is the appropriate tool to determine the majority and minority classification in respect of the responses. By means of the percentage analysis, inferences can be made at a logical base (Davis, 1985). So, the percentage analysis was undertaken at first. Then, the statistical analysis section consists of testing of hypotheses so that the Chi square Test, F Test, T test and factor analysis were used as analytical tools.

The SPSS 18 was utilized for analyzing the data.

**Framework of Analysis**

The data collected from the selected sample respondents are scrutinized before the commencement of tabulation. The frequency distribution is used by the researcher to arrive at percentage figures. Diagrams are also used in the study. In order to analyse the relationship between the variables and the differences between the variables the statistical analysis namely chi square test, t test, F test etc are employed respectively in this research.

**Chi square test**

Chi square test is an important test amongst the several tests of significance developed by statisticians. It is a statistical measure used in the context of sampling
analysis for comparing a variance to a theoretical variance. As a non-parametric test, it can be used to determine if categorical data shows dependence or the two classifications and the actual data when categories are used. (Kothari, 1998). The chi square test is applied to test the hypotheses.

**T test**

If the original population is normally distributed and the standard deviation of the population is unknown (and therefore has to be estimated from a sample), the sampling distribution of the mean derived from the large samples will also be normally distributed. But, if the sample size is small (say 30 or less) then the sampling distribution of mean will follow a t-distribution.

**F test or Analysis of Variance (ANOVA)**

F test (popularly known as Analysis of Variance - ANOVA) is used when multiple sample case are involved. As the significance of the difference between the means of two samples can be judged through any test, the difficulty arises when one has to examine the significance of the difference amongst more than two sample means at the same time. Therefore, the F test has been selected as the appropriate tool for analysis.

**Limitations of the Study**

1. This research does not include institutional customers of the BSNL landline phone.

2. The study is not a comparative study with any other division of telecom sector.

So, the selected customers of the landline phone of the B.S.N.L and they were requested to give their perception towards their landline phone. But, the
customers may have given their perception towards their experience with the landline connection, keeping their experience and convenience of cell phone connection in their mind.

3. The present study takes the survey during the last 4 month period (January, 2012 – April 2012). The data are related to that period only. At the same time, the customers were requested to disclose their perception, as they perceived during the last one year period. Such limitation is essential because, the customer may have the B.S.N.L landline connection last 10 years or 20 years back. The call rates, terms and conditions of usage etc of the landline phone were different from the present days’ conditions. So, the study takes the customers’ views, experiences and perception towards the usage and retention of the landline phone during the last one year period. (2010-12)

4. The research is made form the customers’ point of view only.

Chapterisation

The research has the following chapters:

First chapter is the introduction and research design.

Second chapter is the review of literature.

Third chapter is the Bharat Sanchar Nigam Limited: A Profile

Fourth chapter is Landline Phone Connection And Retention Strategy of the Bharat Sanchar Nigam Limited

Fifth chapter is the analysis of retention factors on landline phone.

Sixth chapter is the findings, suggestions and conclusion.