
UNIT 17 TELECOMMUNICATION SERVICES

Objectives

After studying this unit you should be able to:

- understand the growth trends in the telecom sector in India;
- highlight the competitive structure in the telecom industry;
- understand the key issues related to pricing of telecom services;
- describe the service quality parameters for telecom service providers.

Structure

- 17.1 Introduction
- 17.2 Growth of Telecom Sector in India
- 17.3 Tariff Issues
- 17.4 Sector Dynamics and Implications for Firm Level Competition
- 17.5 The Changing Market Structure
- 17.6 Service Quality
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- 17.9 Appendix

Appendix 1 : Chronology of Indian Telecom Deregulation

Appendix 2 : Key Features of NTP 99

17.1 INTRODUCTION

The telecom sector in India has witnessed rapid changes in the last few years. There have been far reaching developments in Information Technology (IT), consumer electronics and media industries across the globe. The Government of India has recognized that provision of world-class telecommunications infrastructure and information is the key to rapid economic and social development of the country. This will not only help in the development of the IT industry, but will also provide for widespread spillover benefits to other sectors of the economy.

The first step in this direction was the announcement of the National Telecom Policy in 1994 (NTP 94). This provided for opening up the telecom sector to competition in Basic Services as well as Value Added Services like Cellular Mobile Services, Radio Paging, VSAT Services, etc. It also set targets for provision of telephone on demand and opening up of long-distance telephony. This was followed by a New Telecom Policy declaration in March 1999 (NTP 99) to remove some of the bottlenecks and push the liberalization process forward.

The policy maker for India's telecommunications sector is the Ministry of Communications and Information Technology, which operates through two government bodies — the Telecom Commission and the Department of Telecommunications (DoT). The Telecom Regulatory Authority of India (TRAI) is an independent regulator that reports to Parliament through the Minister. The Telecom Commission performs the executive and policy-making function, the DoT is the executive and policy-implementing body while the TRAI

performs the function of an independent regulator. Secretary, DOT, is the ex-officio Chairman of the Telecom Commission.

17.2 GROWTH OF TELECOM SECTOR IN INDIA

Telecommunications was not perceived as one of the key infrastructure sectors for rapid economic development during the formative years of the Indian economy. The relatively low levels of investment in this sector affected the quality, quantity and range of services provided. In 1998, number of phone connections per 100 persons in India was 2.2 while the world average was 14.26 (*World Telecommunication Development Report*, ITU, 1999).

According to a report by Ernst and Young (E&Y) this teledensity is expected to cross 20 percent by 2008. According to the report the total telecom revenues in India are expected to almost triple from \$9 billion in 2002 to \$23-25 billion by 2007. As in the other parts of the world, the global wireless revolution has been the principal growth engine in India.

For the provision of basic services (fixed line), the entire country is divided into 21 telecom circles, excluding Delhi and Mumbai. Bharat Sanchar Nigam Limited i.e. BSNL (erstwhile Department of Telecommunications (DoT)) provides basic services in the 21 telecom circles, while Mahanagar Telephone Nigam Limited (MTNL) serves Delhi and Mumbai, which are two metro license areas. Table 17.1 shows the list of basic services operators in India, while Table 17.2 presents the subscriber base corresponding to each operator. BSNL's market share has increased from about 80 per cent to 84 per cent between March, 1997 and March, 2003, while the share for MTNL has dropped considerably.

Table 17.1: List of Basic Service Providers and their Area of Operation

Area of Operation	Name of Service Provider
All over India	Department of Telecommunications, now BSNL
Delhi & Mumbai	MTNL
M.P., Delhi, Haryana, Karnataka, TN	Bharti Telenet Ltd.
Maharashtra	Tata Teleservices Pvt. Ltd. (earlier Hughes Ispat Ltd.)
A.P., Delhi, Gujarat, Karnataka, TN	Tata Teleservices Pvt. Ltd.
Gujarat, AP, Bihar, Delhi, Haryana, HP, Karnataka, Kerala, MP, Mah., Orissa, Punjab, Rajasthan, TN, UP(E), UP(W), WB	Reliance Telecom Pvt. Ltd.
Punjab	HFCL
Rajasthan	Shyam Telelink Ltd.

In the early years after liberalization, India restricted the number of licenses awarded for basic services. The market was divided into separate circles and the policy admitted one private operator in each to compete with the incumbent DoT (now BSNL) and MTNL. New entrants were allowed to offer intra-circle long distance services, but DoT maintained its monopoly on inter-circle National Long Distance (NLD) telephony. Initially, the bidding process led to six new entrants in basic services. In the year 2001, the policy was changed to allow unlimited entry into each circle for basic services and subsequently 22 additional

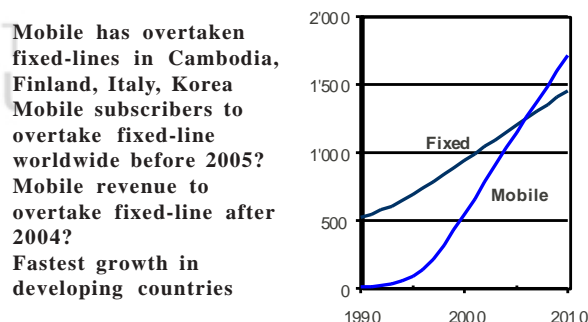
license agreements have been signed. For the list of basic service providers and their area of operation refer to Table 17.1. As of December 31, 2003 BSNL controlled 84.8%, MTNL 10.6% and other private operators 4.6% of the fixed service market.

Table 17.2: Subscriber Base – Basic Services

Service Provider	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03
DoT/BSNL	11,530,276	14,394,956	17,927,526	22,479,721	28,108,976	33,218,498	35,932,877
MTNL	3,012,324	3,406,740	3,653,913	4,031,624	4,327,158	4,629,709	4,690,080
Bharti Telenet Ltd.	Nil	Nil	13,980	91,967	115,212	180,989	370,973
Hughes Ispat Ltd.	Nil	Nil	6,070	22,110	69,599	160,672	233,397
Tata Tele-services	Nil	Nil	Nil	26,713	58,736	150,400	365,190
Reliance	Nil	Nil	Nil	Nil	109	140	958,534
STL	Nil	Nil	Nil	Nil	8,998	27,150	82,265
HFCL	Nil	Nil	Nil	Nil	13,441	64,926	111,647
Total	14,542,600	17,801,696	21,601,489	26,652,135	32,702,229	38,432,484	42,744,963

In the year 2003-04 while the fixed lines including WLL (F) showed an increase of 3% over the previous year, during the same period the mobile services including Cellular and WLL (M) showed a spectacular growth of 160% i.e. from 13 million to 33.58 million subscribers. This trend is not unique to India. Worldwide trends also confirm the same results i.e. higher growth in the mobile sector.

Figure 17.1: Actual and projected subscriber growth, fixed-lines and mobile, millions, 1990-2010



Source: 1990-1998 data from ITU World Telecommunication Indicators Database. 1999-2010 ITU

Figure 17.1 shows the prediction made by International Telecommunications Union (ITU) that mobile will overtake fixed worldwide, perhaps by 2005. Interestingly, this has already happened in a few countries. In India, it is envisaged that by 2007 mobile phones will surpass fixed phones. However, with the current structural changes in the telecom sector including the move towards unified licensing it is more than likely that this will happen earlier.

Private participation in the cellular-mobile market in India has been very successful. Eight cellular licenses, two in each of the four metros, were awarded in October 1994. Subsequently, bidding resulted in the award of licenses in 18 Circles. (Circles have been classified as category A, B and C based on market characteristics and telephony potential in diminishing order of attractiveness). For two circles, Jammu and Kashmir, and Andaman and Nicobar Islands, no bids were received, while for West Bengal and Assam, only one bid each was made. A list of existing cellular operators and their area of operation is provided in Table 17.3. The subscriber base crossed 3.5 million

by the last quarter of 2001, at the end of March, 2003 it reached to about 13 million and was more than 33 million by the end of March 2004. (Cellular and WLL – M combined). The top five mobile operators (Cellular and WLL-M combined) as of December 2003 in terms of market shares were Reliance (21.9%), Bharti (19.34%), BSNL (17.34 %), Hutchison (13.26%) and Idea (7.88%). Table 17.4 gives the details of growth in subscriber base for cellular services.

Table 17.3: List of Cellular Service Providers and their Area of Operation

Category	City/Circle	Operator 1	Operator 2	Operator 3	Operator 4	
Metros	Delhi	Bharti	Hutch	MTNL	Batata	
	Mumbai	BPL	HMTL	MTNL	Bharti	
	Chennai	RPG	Bharti	BSNL	Hutch	
	Kolkatta	Bharti	Hutch	BSNL	Reliance	
A' Circle	Maharashtra	BPL	IDEA	BSNL	Bharti	
	Gujarat	Hutch	IDEA	BSNL	Bharti	
	A.P.	IDEA	Bharti	BSNL	Hutch	
	Karnatka	Bharti	Spice Comm	BSNL	Hutch	
	T.N.	BPL	Aircel	BSNL	Bharti	
B' Circle	Kerala	Escotel	BPL	BSNL	Bharti	
	Punjab	Spice Comm	-	BSNL	Escotel	
	Haryana	Escotel	ADL	BSNL	Bharti	
	U.P.(W)	Escotel	-	BSNL	Bharti	
	U.P.(E)	ADL	-	BSNL	Escotel	
	Rajasthan	ADL	Hexacom	BSNL	Escotel	
	M.P.	IDEA	Reliance	BSNL	Bharti	
	W.B.	Reliance	-	BSNL	-	
	C' Circle	H.P.	Bharti	Reliance	BSNL	Escotel
		Bihar	-	Reliance	BSNL	-
Orissa		-	Reliance	BSNL	-	
Assam		Reliance	-	BSNL	-	
N.E.		Reliance	-	BSNL	-	
	J&K	-	-	BSNL	-	

Source: www.coai.com

Table 17.4: Subscriber Base – Cellular Services

Category	March '97	March '98	March '99	March '00	March '01	March '02	March '03	March '04
All Metros	325,967	551,757	519,543	795,931	1,362,592	2,567,757	4,439,524	7,941,766
'A' Circle	9,698	176,954	354,799	585,653	1,165,778	2,134,333	4,364,943	9,698,299
'B' Circle	3,000	138,309	284,189	460,094	932,685	1,501,151	3,374,538	7,402,067
'C' Circle	366	15,296	36,915	42,633	116,040	227,573	508,632	1,112,273
All India	339,031	882,316	1,195,446	1,884,311	3,577,095	6,430,814	12,687,637	26,154,405

Source: www.coai.com

Activity 1

Visit the website www.coai.com and find out the market positions of the various cellular service providers.

17.3 TARIFF ISSUES

It is now widely recognized that enhancing efficiency and investment in telecom requires the introduction of competition, which in turn needs a regulatory mechanism to facilitate competition. An essential ingredient of transition from a protected market to competition is alignment of prices to costs (i.e., cost-oriented or cost-based prices), so that prices better reflect their likely levels in a competitive environment. In basic telecom, for example, a major departure in pricing of services involves cross-subsidization. Cross subsidization involves providing one service such as monthly rental below cost and another such as Domestic Long Distance (DLD) and International Long Distance (ILD) above cost to recover cost and also to generate surplus for investment. Table 17.5 shows that in 1998, 70 per cent of BSNL's (then DoT) revenue was due to only 13 percent of the subscribers. This can be estimated by calculating the cumulative distribution of subscribers and revenues from Table 17.5. For example, 2.7% of subscribers contributed 46.1% of revenue. The next 2.5% of subscribers contributed 9.8% of revenue, implying that 5.2% of subscribers contribute 55.9% of revenue and so on. One reason for this was the very high price of long distance calls compared to local calls. The considerable difference between the price of a local call and that of DLD and ILD calls was policy driven. Empirical evidence shows that it was 90 times more expensive to make a long distance call from Delhi to Mumbai in 1998 compared to local call and the corresponding ratio for an ILD call to USA. This implies that those who made long distance calls were cross subsidizing those who used the telephone for only local calling.

Table 17.5: Revenue Contribution by Different Subscriber Groups

Share of Total Subscribers	The Contribution of These Subscribers to Call Revenue
2.7 % (those making more than 10,000 call bi-monthly)	46.1 %
2.5 % (those making between 5001 and 10,000 call bi-monthly)	9.8 %
7.9 % (those making between 2,001 and 5,000 calls bi-monthly)	13.4 %
14 % (those making between 1,001 and 2,000 calls bi-monthly)	11.6 %
21.3 % (those making between 501 and 1,000 calls bi-monthly)	10 %
51.7 % (those making 0 to 500 calls bi-monthly)	8.1 %

Source: Telecom Regulatory Authority of India (TRAI). 1999, "Telecommunication Tariff Order."

Traditionally, BSNL (DoT earlier) tariffs cross-subsidized the cost of access (as reflected by rentals) by domestic and international long-distance usage charges. In order to promote desired efficiencies, 're-balancing' of tariffs is a necessity, and, therefore an important policy issue. Re-balancing of tariffs involves reducing tariffs that are above costs while increasing those below costs. Thus, re-balancing implies a reduction in the extent of cross-subsidisation in the fixed-services sector. Such a rationalization is required as a condition precedent to

the conversion of a single operator system to a multi-operator one. A small proportion of the subscribers account for a major share of call revenue, and these subscribers would be the subject of competitive churn when private sector operators enter the market. For example, Hughes teleservices (now TATA) targeted the high revenue paying subscribers when it entered the market in Mumbai and made attractive offers to corporates and potential clients in the rich districts of Nariman point and Colaba. Similarly, Bharti in Madhya Pradesh acted likewise in the cities of Indore and Bhopal when it newly entered the market in 1996. Such cream skimming or cherry picking is a commonly adopted pricing strategy for new entrants in telecommunication markets when facing entrenched incumbents. Loss of high revenue customers will have a significant effect on the revenue situation of the incumbent, making it difficult to meet its revenue objectives. Thus, while tariffs have to be reduced for the services that are priced much above cost (e.g., long distance and international calls), tariffs for below-cost items need to be increased. Such a re-balancing exercise is common when preparing the situation for competition. Otherwise, competition will result in a decline in above cost prices without any compensating charge in the below cost prices. Cost-based prices restrict the possibility of cream skimming by operators.

The methodology of specifying tariffs included the following feature to impart flexibility. For certain services, TRAI specified particular tariff levels while for several others it allowed forbearance. Forbearance is a feature that permits service providers to set their own tariffs without approval from the regulator. Usually it is a practice followed in markets where there is substantial or adequate competition. Even for those services for which tariff levels are specified, the framework includes the possibility of providing alternative tariffs. The tariffs specified by TRAI form a package that is termed the “standard tariff package.” This package must always be provided to the customer. In addition, the service provider is left free to provide any “alternative tariff package.” Since the standard tariff package is always available to the customer, any alternative tariff package has to be better in order to attract any customer. Therefore, the standard tariff package provides a minimum guarantee to the customer. In one sense, it specifies the peak expenditure level for the customer, with the alternative tariff packages being attractive only if the expenditure involved in them is lower than that for the standard tariff package. This method of flexibility was adopted because of the growing tendency in telecom markets to provide different tariff combinations for various baskets of services. Thus the standard tariff package could be viewed as a ceiling tariff, with operators free to provide alternative tariffs that were below this level. For cellular mobile, tariffs were restructured because the prevailing rentals were low and call charges were high. This resulted in a tariff structure that dissuaded usage and loaded the subscriber base. Thus, call charges were reduced and rentals were increased. The methodology clearly included license fee as costs and showed that a high license fee translates into higher tariffs. Standard monthly rental for mobile cellular was increased from Rs 156 to Rs. 600, but the maximum call charge was reduced from a peak of Rs. 16.80 per minute to Rs. 6 per minute. The service providers were allowed to give alternative tariff packages which resulted in lower tariffs.

The possibility of giving alternative tariffs provided a means of addressing several concerns. Over time, with greater competition in the market, tariffs for long distance calls and for cellular mobile have seen dramatic declines within such a framework. The reduction in tariffs has also been spurred by the introduction of wireless in local loop (with limited mobility) and the major cost reduction due to technological change. With the new service providers relying on more recent, cost efficient technologies, Indian telecom market is emerging with very strong competitive pressure.

The basic driving force of growing competition in what was once thought to be a natural monopoly is the increasing versatility with which services can be provided, based on the digitisation of all signal-transfer technology. As the manner in which signals are transferred from one location to another becomes common, it is possible for a service provider in one segment of telecommunication, say network television services, to perform the functions of another, say, the local phone company. Efforts to maintain barriers across such segments will eventually be overwhelmed by technology. Regulation will follow convergence rather than the other way around. Convergence will eliminate the existing barriers between different types of services, for example, between basic and cellular and allow service providers and, thus, consumers to benefit from scale and scope economies. This has already been initiated in India with a move towards unifying the licenses for Basic and Cellular services.

17.4 SECTOR DYNAMICS AND IMPLICATIONS FOR FIRM LEVEL COMPETITION

a) Basic Services

After NTP 1994 was announced, move was made to include private participation in providing telecom services. During September 1994 guidelines were issued for private sector participation in basic services. In January 1995 tenders (circle-wise) were invited for the 2nd operator in Basic service. In the year 1997 private operators started providing basic services.

Table 17.6: Extent of Competition as on 31st March 1997

Circle/City	Number of Basic players	Number of Cellular players
A&N	1	0
AP	1	1
Assam	1	0
Bihar	1	0
Gujarat	1	2
Haryana	1	2
H P	1	1
J & K	1	0
Kerala	1	0
Karnataka	1	0
Maharashtra	1	0
M P	1	0
N E	1	0
Orissa	1	0
Punjab	1	0
Rajasthan	1	0
T N	1	0
U P (E)	1	0
U P (W)	1	0
W B	1	0
Mumbai	1	2
Kalkatu	1	2
Delhi	1	2
Chennai	1	2

b) Cellular Services

Licences were issued for Cellular Services for metros in November 1994. In December 1994 tenders were invited for 19 circles apart from 4 metros. In most of the circles/metros two operators began service, making the market a duopoly.

c) State of Telecom Market as on 31st March 1997

Basic subscriber base	14.54 Million
Cellular Subscriber base	0.34 Million
Teledensity	1.56

Number of NLD players: 1 (BSNL)

Number of ILD players: 1 (VSNL)

The data shown above demonstrates that the telecom sector in 1997 was dominated by the government owned monopoly, with a few private operators in the cellular mobile segment. Teledensity was low and prices were relatively high. Although the market had been opened to competition in the basic and cellular segments, the structure remained concentrated i.e. the market was fairly monopolistic.

In the year 1999, NTP-99 was announced. Its main objectives are shown in Appendix 2. In 1999, DoT was divided into DTS (Department of Telecom Services) for service provision and DoT for policy making. In the year 2000 DTS was corporatised as BSNL, which is the name under which it operates today. Until June 2001, there were only 6 private operators in operation apart from BSNL (operating all over India except Delhi and Mumbai) and MTNL (operating in Delhi and Mumbai). During this period, existence of private operators did not provide adequate competition to force down prices. There was virtually no competition in Basic services. As on 31st December 2003, share of private operator in basic service market was less than 5%.

Licence for 3rd Cellular operator was granted to the Government owned service providers, BSNL & MTNL. MTNL started its Cellular services in 2001 while BSNL started its services in 2002. An interesting development in cellular tariffs was witnessed at this time. There was a steep and sudden decline in tariffs by the private operators in anticipation of entry of 3rd cellular service provider. However, an analysis of market shares of cellular operators shows that MTNL has not been able to make a significant impact in the Cellular Market. At the end of September 2003, MTNL's share in Delhi was 6% and 8% in Mumbai. An interesting fact is that the private operator that entered the markets of Delhi and Mumbai almost a year after MTNL, has acquired a larger share of the market. Whereas, BSNL as the 3rd entrant has had relatively more success achieving a 22% market share on an all India basis as of September 2003 (operating in 19 circles). The fourth Cellular operator also started service along with BSNL in the year 2002. As one would expect, the entry of competition in cellular mobile has provided a boost to the market in terms of subscriber acquisition, tariff changes and value added services like roaming, SMS, cricket updates, stock market news etc. Based on the prevailing tariffs in the market, costs and extent of competition, TRAI decided to introduce forbearance in the year 2002. Thus cellular service providers are now free to determine the price of tariff offerings to subscribers.

17.5 THE CHANGING MARKET STRUCTURE

Several parts of the sector have been liberalised and along with reforms the market structure has also undergone a significant change. Unlimited entry of new players has been allowed in basic, NLD, ILD, ISP and infrastructure businesses. Cellular mobile has upto 4 operators in each service area. As a result of these changes, the sector presents a very different picture from the one that obtained in 1997. There are 8 different operators in certain lucrative

service areas such as Delhi, Chennai, Karnataka etc. There are 4 NLD and 5 ILD operators in India.

The way in which the structure of the industry is changing at a phenomenal speed seems unending at the moment. The Reliance launch has been a catalyst not just in the ensuing price competition but even more significantly in attempting to alter the mindset of all the stake holders of the telecom business. One early casualty is going to be the most conventional way of looking at the business: henceforth the services and the tariff on offer cannot be fitted so easily into neat compartments such as basic telephone services, mobile services or local calls, STD calls and so on. Bundling, which is examined later in this section is one example of this.

Three to four leading private players are likely to emerge as competition to the incumbents, BSNL and MTNL, which have a significant presence across the value chain. The Tata Group, Reliance Infocom and Bharti Televentures have announced plans to emerge as integrated telecom companies offering end-to-end services to customers. Hutchison, on the other hand, appears to be focused on cellular services, with no stated intention of entering other businesses.

The VSNL acquisition has catapulted the Tata Group to the leading position among private Indian telecom players. With a 100 per cent share in the lucrative ILD business, a leading share in Internet services, and a favourable NLD license, VSNL fits in perfectly with the group's plans of providing integrated telecom solutions. The Tata-VSNL team will now embark on its next challenge - ensuring a smooth transition at VSNL and integrating business plans for ILD, NLD and Internet/data services to enhance value for its customers and shareholders.

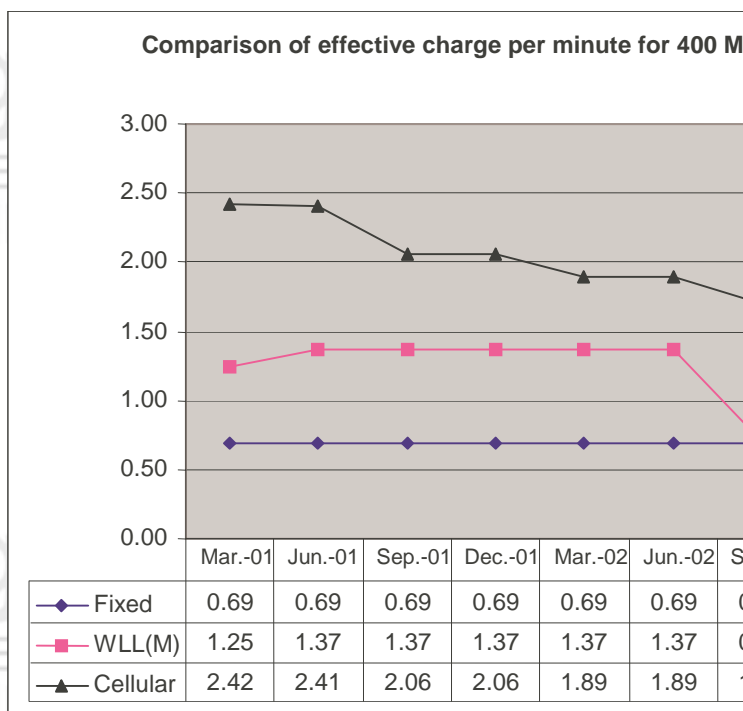
This increase in competition has not only increased the market size for telecom, but has also resulted in substantial tariff declines. The next section analyses this phenomena.

a) Trend in tariffs

There can be no question about the direction of change in average tariff in the sector. The trend has been consistently downward. There are many ways to estimate the decline in tariffs for telecom services and some may be subjective. While different methods may result in different estimates, the message that comes through is that substantial declines in tariffs have occurred that can only be attributed to the intense competition in the market.

The reason why estimates of tariff declines could vary is because prices vary depending on the nature of usage and the package of services viz. local NLD, ILD, value added services etc. chosen by the subscriber. Another complexity in telecom is the widespread use of multi part pricing i.e. a fixed monthly rental for access to the service and a variable charge depending upon usage and the nature of calls. Moreover service providers have attempted to segment the market according to subscriber types and have tried to customize tariff offerings to best meet the needs of different subscribers. Thus a number of tariff plans are available which subscribers choose according to their requirements.

In September 2003, TRAI did a study on trends in tariffs for Fixed, Cellular and WLL (M) services. The following graph shows the results of that study.



MOU: Minutes of Use

The above graph is based on the calculations performed on the minimum tariffs prevailing in the market at various points of time for average local usage of 400 minutes (outgoing + incoming). As stated above, tariff decreases have been an unmistakable feature of the telecom market in India over the last few years, although different analysts could come up with different estimates depending on the methodology adopted for the purpose.

b) Innovations in Tariff offerings

Technological progress has blurred the boundaries between different platforms for access services. Thus, competition is not only within the service but also between the services, viz, cellular and WLL (M). One manifestation of this competition has been examined in the previous section on tariff declines. Another is the frequency of change in tariff plans offered by operators. Not only is the frequency of change high, service providers are also designing innovative tariff plans to attract subscribers. Further, service providers are striving to lock their customers for a longer period of time to prevent churn. *Acquiring subscribers is passé; customer retention has become vital.*

c) Bundling of services

Another interesting change in the sector is the multiple licenses owned by a single company. As stated earlier, India has issued separate licenses for Basic, Cellular, NLD, ILD, ISP services. In view of the fact that a single operator has acquired multiple licenses and can thus offer multiple services, one of the innovations that have occurred relates to bundled offers. An integrated operator (Integrated operator means that one business house possesses cellular or basic i.e. access, NLD, ILD and ISP license. This enables the service provider to offer end-to-end services to the customer under its own brand name) can design more bundles and innovative schemes compared to a stand-alone operator. Some of the bundled offers are described below.

- ▣ **CUG (Closed User Group)** : Forming a group of customers where the calls within group are either not charged or are charged very low and the calls made outside the group are charged higher.
- ▣ **Friends and Family** : Unlimited free talktime to a selected number for a cost of a fixed monthly charge.

- **Free VAS (Value Added Services):** such as SMS, CLIP free with certain tariff plans.
- **Unlimited usage free:** Tariffs with high monthly rental and unlimited free usage. This may attract the high callers and this type of packages also ensures a minimum ARPU (Average Revenue per User) to the service provider.
- **Zero Rental:** Packages with no or zero rental and high calls charges. This type of package may attract very low users, who want to own a phone but use it very rarely.
- **Prepaid plans with no administrative charges or plan fee:** This ensures a fixed ARPU to the service provider. Also, customer gets a chance to use his net payout to the fullest.
- **Plans to lock customers for a longer period of time:** Tariff plan for minimum commitment of 3 years. Although it provides a facility to the customer to exit the plan but at a very high cost, which discourages the customer from exiting the plan.
- **Plans with very low rental but outgoing calls are barred:** At a very low monthly cost ranging between Rs. 70 to Rs. 150, customer can receive any number of calls. Also if someone wants to make outgoing calls, he can use VCC (Virtual Calling Card). It is a perfect substitute of pager or may be one step ahead.

The intense competition witnessed in telecommunications has several implications that go well beyond the immediate sectoral interests. Such competition has been price-driven; with the existing service providers hoping to retain their market share through tariff cuts in the wake of strong emerging challenge. The immediate gainers are the consumers, especially users of mobile.

Activity 2

Try to find out examples of bundling in other industries (sectors) in India.

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17.6 SERVICE QUALITY

The Telecom. Regulatory Authority of India Act 1997 11(1) (b) (v) as amended by TRAI (Amendment Act, 2000) mandates TRAI to “lay down the standard of quality of service (QOS) to be provided by the service provider and ensure the Quality of Service and conduct the periodical survey of such service provided by the service providers so as to protect interest of the consumer of Telecom Services”. One could argue that in a competitive environment, Regulator need not bother about QOS Parameters and competition will automatically take care of it. Unfortunately, in reality it is not so. Even in the countries, where there has been competition in various telecom services for a long time, the QOS is a major concern to protect consumer interest.

After going through a consultation process through written comments and open house discussions, TRAI issued a QOS Regulation on 5th July, 2000 both for Basic as well as Cellular Services. This Regulation has laid down benchmarks for various QOS parameters with the following objectives:

- i) Create conditions for customer satisfaction by making known the quality of service which the service provider is required to provide and the user has a right to expect.
- ii) Measure the Quality of Service provided by the Service Providers from time to time and to compare them with the norms so as to assess the level of performance.
- iii) To generally protect the interests of consumers of telecommunication services.

QOS Parameters for Basic Telecom Services

The following key benchmarks have been set for basic services

- i) Provision of a telephone after registration of demand for exchange areas declared on demand : 100% within 7 days.
- ii) Fault incidences (No. of faults / 100 subscribers / month): <3
- iii) Fault repair by next working day: >90%
- iv) Mean Time To Repair (MTTR): <8 hours
- v) Call Completion Rate within a local network: >65%
- vi) Metering and billing credibility: Not more than 0.1% of bills should be disputed.
- vii) Operator Assisted Trunk Calls: Urgent <1 hour, ordinary <2 hours
- viii) Customer Care (Promptness in attending to customers requests) 95% of requests: a) Shifts : <3 days b) Closures: <24 hours c) Additional facility : < 24 hours
- ix) Percentage of repeat faults: <1%

QOS Parameters for Cellular Services

On similar basis QOS Regulation have been laid out along with the benchmarks for cellular services.

A) Fault incidence and Repair

- i) Fault incidence (Number of faults /100 subscribers/month): <1
- ii) Faults cleared with 24 hours : 100%
- iii) Accumulated down time of Community isolation: <24 hours

B) Network Performance

- i) Call Success Rate (within licensees own network): >99%
- ii) Service Access Delay : Between 9 to 20
- iii) Call Drop Rate : <3%
- iv) Percentage of connections with good voice quality : >95%

C) Billing Complaints

- i) Billing complaints per 100 bills issues: <0.1%
- ii) Percentage of billing complaints resolved within 4 weeks: 100%
- iii) Period of all refunds/payments due to customers from the date of resolution of complaints as in (ii) above: <4 weeks

In a survey conducted by IMRB on behalf of TRAI to assess the quality of services provided by the service providers (for the period Oct. – Dec. 2003) following issues emerged.

- a) The basic services being provided are not upto the desired standards. The situation is particularly bad in respect of provision of new connection within 7 days, number of faults per 100 subscribers per month, time taken to repair faults, and time taken to shift connections and closures.

- b) Cellular operators are providing much better quality of service than their basic counterparts. Fierce competition in the cellular market has forced operators to constantly keep improving their networks, resulting in acceptable levels of service. The key concern areas for CDMA operators are billing complaint incidence, billing complaint resolution and fault incidence, in that order. The performance of the CDMA operators on the remaining parameters is good.

The details of QOS regulation and detailed reports on surveys conducted are available on TRAI's website : www.trai.gov.in

Activity 3

As a user of telecom services, try to evaluate the service quality of your service provider(s) based on the parameters given in this section.

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17.7 SUMMARY

This unit gave you an overview of fixed line and cellular mobile industry in India. There has been a significant growth in the Indian telecom market during the last few years. A number of steps have been taken by the Indian government which have resulted in a dynamic change in the competitive structure of the industry. The unit outlines the steps taken and analyses the competitive structure prevailing in the industry. Issues related to pricing (tariffs) have been discussed in detail. The unit ends with the service quality parameters relevant to telecom service providers.

17.8 SELF ASSESSMENT QUESTIONS

1. Discuss the major trends in the growth of telecom sector in India during the last few years.
2. What are the important issues that should be kept in mind while deciding on the pricing issues for telecom services?
3. Explain the nature of competition prevailing in the telecom industry in India. What are its implications for the telecom firms?
4. What is bundling? Why do you think bundling has emerged as an important aspect of customer pricing, especially in context of telecom service provision in India. Do you think bundling is always in customer interest? Give Reasons.
5. What are the service quality parameters for basic telecom services and for cellular mobile services? Why have such parameters been introduced by the regulatory authority?

17.9 APPENDIX

Appendix 1 : Chronology of Indian Telecom De-regulation

Year	Event
1992	Bids invited for radio paging services in 27 cities
	Bids invited for cellular mobile services in four metro cities
1994	National Telecom Policy announced
	Radio paging, V-SAT data services, electronic mail services, voice – mail and video – text services opened to private providers
	DoT guidelines for private sector entry into basic telecom services in the country
	Eight cellular licensees for four metros finalized after over two years of litigation
1995	DoT calls for proposal to operate basic, cellular telecom services and public mobile radio trunked (PMRT) services
	DoT receives bids for basic, cellular and PMRT services
	Most cellular operators in circles sign license agreements
	DoT announces cap on the number of circles basic operators can roll out services in. Licensees selected for five circles.
1996	After setting reserve prices for circles, DoT invites fresh bids for basic services in 13 circles
	Five successful bidders short-listed for providing basic services
	Poor response to third round of basic telecom bidding. Only one company bids - for Madhya Pradesh.
	Selected bidder of first round refuses to extend bank guarantees for its four circles. Challenges in court DoT move to encash guarantees.
	Three more companies move court against DoT move to encash guarantees.
1997	Telecom Regulatory Authority of India (TRAI) formed.
	First basic telecom service company signs license and interconnect agreements with DoT for Madhya Pradesh
	Second basic service provider signs basic telecom license pact for Gujarat
	TRAI quashes DoT move to increase tariffs for calls from fixed-line telephone to cellular phones
	VSNL calls for global tenders to find a partner for its South Asian regional hub project
	Internet Policy cleared; license agreement for basic services in Maharashtra also becomes operational
	Basic service licensees for Andhra Pradesh and Punjab sign basic telecom agreements with DoT.
1999	TRAI Issued First Tariff Order.
	New Telecom Policy announced.
	<i>TRAI Issues First Regulation on Interconnection and Usage Charge</i>
	Conditions for migration to revenue sharing from fixed license fee regime issued
	<i>Cellular operators allowed the use of any digital technology; MTNL given a license to provide cellular mobile service under these flexible technology conditions.</i>
2000	Ordinance promulgated divesting TRAI of adjudicatory role. TDSAT created to settle disputes between licensor and licensee. Appeals against TRAI decisions to be heard by TDSAT.
	TRAI implements second phase of tariff re-balancing

	<p>Policies announced for easier entry/operation of new service providers in the various sectors, e.g., VSAT, PMRTS, Radio Paging, Unified Messaging, Voice Mail</p> <p>Government has allowed the setting up of international gateways to private internet operators</p> <p>Guidelines for Issue of Licence for National Long Distance Service</p> <p>Guidelines for Issue of Licence for Cellular Mobile Telephone Service</p>
2001	<p>Guidelines for Issue of Licence for Basic Telephone</p> <p>Convergence Commission of India Bill laid in Parliament.</p> <p>Open competition policy announced for International Telephony Service</p> <p>Usage of Voice Over Internet Protocol permitted for international telephony service</p> <p>First License for National Long Distance service signed</p> <p>Launch of WLL(M) services by Basic service provider in the market</p>
2002	<p>Guidelines for Issue of International Long Distance Licence</p> <p>First License for International Long Distance service signed</p> <p>First private operator begins ILD service</p> <p>TRAI revises tariffs for WLL(M)</p> <p>TRAI leaves Cellular tariffs to market forces, service providers to notify their Reference Tariff plans</p> <p>TRAI introduces the Reference Interconnect Offer (RIO) regulation</p> <p>TRAI introduces Regulation on Quality of Service For VOIP Based International Long Distance Service</p>
2003	<p>TRAI introduces the Telecommunication INTERCONNECTION USAGE CHARGES (IUC) Regulation</p> <p>TRAI leaves NLD sector left under forbearance subject to a ceiling tariff</p> <p>TRAI leaves ILD sector left under forbearance</p> <p>TRAI mandates Basic Service Operators (BSO) to be non-discriminatory in provision of Infrastructure facilities to ISPs</p> <p>TRAI gives its recommendations on unified licensing for basic and cellular mobile services</p> <p>TRAI gives its recommendations on "WLL(M) Issues Pertaining To TRAI Based On HON'BLE TDSAT'S Order</p> <p>TRAI Forbears Basic Service Tariffs Except Rural Tariffs</p>

Appendix 2 : Key Features of NTP 99

Some of the notable advances marked by the NTP 99 are as follows:

- Speeding up competition in long distance, including usage of the existing backbone network of public and private entities in Rail transport, Power and Energy sectors for data (immediately) and for domestic, long-distance voice communication when the latter is opened to competition from January 2000. This increases the scope for entry of a new category of 'infrastructure providers' or 'carrier's carrier'.
- Fixed Service Providers (FSP) shall be freely permitted to establish 'last-mile' linkages to provide fixed services and carry long-distance traffic within their service area without seeking an additional licence. Direct interconnectivity between FSPs and any other type of service provider (including another FSP) in their area of operation and sharing of infrastructure with any other type of service provider shall be permitted.
- Policy to convert Public Call Offices (PCOs), wherever justified, into Public Teleinfo centres having multimedia capability like Integrated Services Digital Network (ISDN) services, remote database access, government and community information systems etc.
- Transforming, in a time-bound manner, the telecommunications sector to a greater competitive environment in both urban and rural areas providing equal opportunities and level playing field for all players.
- Strengthening research and development efforts in the country and provide an impetus to build world-class manufacturing capabilities.
- Achieving efficiency and transparency in spectrum management.
- Commitment to restructure DoT.
- Interconnect between private-service providers in the same Circle and between service provider and VSNL along with introduction of competition in Domestic Long Distance.
- Undertaking to review interconnectivity between private-service providers of different service areas, in consultation with TRAI.
- Permission for 'resale' of domestic telephony.
- Clarity regarding number of licenses that each operator may be granted. (This could lead to consolidation of industry operators over the long term).
- Emphasis on certain other issues including Standardisation, Human Resource Development and Training, Disaster Management and Change in Legislation.