

## CHAPTER I

### **Telecommunication Services: Nature & Market Structure**

Development of transportation and communication infrastructures is one of the most important strides in the history of mankind. From the time of the entrepreneurial pony express (men on horse) and pigeon post of yester centuries to the lightening 4G wi-fi communication, satellite and INMARSAT communications of modern days, mankind has leaped greatly. The process of communication has attained tremendous importance in human lives as human behaviour and social relationships are the result of the process of communication. When communication between two end points stationed at distant points is required, telecommunication led distant people sharing information and ideas, reducing the impact of distance in the world. It has also brought down business expenditure considerably and increased the benefits to business. Telecommunications eliminated a master-to- servant relationship, substituting the service of a messenger by mechanical telegraph in 1794, by copper wires in 1837, by electro-magnetic waves in 1896, and by optical fibre in 1973. Telecommunications enormously reduces the time required to transport messages, business transactions are accelerated and human relationships are improved (Hurdeman, 2003).

#### **Telecommunication: Meaning and Nature**

“The word ‘communications’, derived from the Latin word, ‘communicatio’, means the social process of information exchange and covers the human need for direct contact and mutual understanding. The word ‘telecommunication’ adding tele (=distance) was coined by Edou ard Estannie (1862-1942) in 1904 in his book, ‘Traite Pratique de telecommunication electique’ (telegraphie- telephonie) (Hurdeman, 2003). He defined telecommunication as, information exchange by means of electric signals (Hurdeman, 2003). It

seems to be fairly true as the laws passed in 1854 and in 1885 and even thereafter used the term 'telegraph' in the legislative enactments. As new products emerged for communicating between distant points, need for a generic term arose and 'telecommunication' came to the books. The word "telecom in the real sense means transfer of information between two distant points in space".<sup>1</sup> The popular meaning of telecom always involves electrical signals and as a result, people often exclude postal or any other raw telecommunication methods from its meaning.<sup>2</sup>

Section 3(1) of the Indian Telegraph Act, 1885 defines, the term "telegraph" as follows: "Telegraph means any appliance, instrument, material or apparatus used or capable of use for transmission or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, visual or other electro-magnetic emissions, Radio waves or Hertzian waves, galvanic, electric or magnetic means." "Radio waves" or "Hertzian waves" mean electro-magnetic waves of frequencies lower than 3,000 giga-cycles per second propagated in space without artificial guide"<sup>3</sup>. Telegraph being the first invention in this line of communication, and as the telegraph lines (installation, running and maintenance, provisioning of service etc.) were brought under the Indian Telegraph Act, subsequent innovations and progress in the field of communication utilizing electro- magnetic signals-telecommunication wired/wireless/mobile system for transfer of voice and data fall are also taken into the fold of the incumbent Act, in India. Even though, this is the spirit of the telecom laws in India, one can see a separate Act for the Wireless Telegraphy as Wireless Telegraphy Act, 1933. Still the Indian Telegraph Act, 1885 continue to be the parent legislation of telecommunication in India. This is so because in India there is only one telegraph authority for the telecommunication sector.

The International Telecommunication Union (ITU) defined telecommunication till 1932 as, any telegraph or telephone communication of signs, signals, writings, images and sound of any nature by wire, radio or other system or

process of electric or visual (semaphore) signalling (Hurdeman, 2003). ITU gives a revised definition of telecommunication as, “any transmission, emission or reception of signs, signals, writings, images and sounds or intelligence of any nature by wire, radio, visual or other electromagnetic systems.”<sup>4</sup> There are three points in the definition:

- (a) Transmission/emission/reception- the process of exchange
- (b) Signs/signals/writings/images/sounds/intelligence of any nature - the ‘thing’ exchanged and
- (c) Wire/radio/visual or other electromagnetic systems - the medium used for the exchange

In the process of telecommunication service, ‘transmission’ is the basic element, which is defined as, technology of information transport (Hurdeman, 1997). In the days of growth of telecommunication, the technology of information transport is relevant - telegraph (it’s no more available in India) to wired telephone and then to wireless limited mobility telephone to non- speech pagers to wireless bi-way GSM/CDMA mobile (offering seamless mobility) communication and even satellite telecommunication. Finally, it is now accepted at WTO GATS that telecommunication services may be grouped into two as basic services and as Value Added Services (VAS). Basic services refer to access communication services irrespective of the technology being applied. And VAS is those which improve quality or content of the communication.

Availability and access to quality and efficient services are vital for economic development, beneficial to customers and critical for international competitiveness of the industrial and agricultural sectors in the economy. The importance of telecommunication services to an economy is clearly brought out by an ITU study of telecommunications and development. The report entitled, ‘The Missing Link’, concluded that telecommunications

increase the efficiency of economic, trade, commercial, and administrative activities, improve the effectiveness of social and emergency services and distribute the social, cultural and economic benefits of the process of development more equitably throughout the country (Maitland, 1985). Improved telecommunication facilities have accelerated the process of globalization and the integration of world economy. It is aptly pointed out that thanks to telecommunications; local businesses became regional, then national and finally multinational, developing the world economy (Ithiel, 1976).

The world is moving fast towards an economic system that gravitates to the continuous and ubiquitous availability of and access to information. Information exchange (i.e. communication transport) has developed as a valuable commodity mainly due to the recent advances in telecommunication technology. Countries and sectors adequately equipped with the required telecommunications systems rapidly moved into industrialized, information-oriented growth in their economy. For the developing countries in the world, a technologically advanced modern telecommunications infrastructure is not only essential for domestic economic growth, but a prerequisite for ensuring participation in the increasingly competitive world markets and also for attracting new investments. Universal telecommunications services have penetrated every sector of economy and society in the developed and industrialized countries of the world.

The Jipp curve<sup>5</sup> (Jipp. A, 1963), known as probably the most famous diagram/chart in the economics of telecommunications, proposes that there is a direct positive correlation between teledensity (number telephone connections in a given territory) and economic development.

### **WTO's Governance of World Economy**

In the post world war - II ravaged economic situation, some countries came together seeking a spirit of cooperation in trade among the nation states so as

to rebuild the world economy. The Bretton Woods Conference of 1944 recognized the need for an international institution for trade to complement the IMF and World Bank, the twin financial institutions (Harold, 1996). Thus, an institutionalized body regulating world trade was in the offing as was the two financial institutions. The World Bank and the IMF had already come into existence and the idea was to create a third organization – the International Trade Organisation (ITO)- with the objective of ushering in an equitable trading order and facilitating the orderly development of global trade, besides ensuring growth and development of all nations (Bhaumik, 2006).

Negotiations on the General Agreement on Trade- and Tariff (GATT) progressed in Geneva. Finally, eight countries, out of the negotiating twenty three countries signed the Protocol of Provisional Application of the General Agreement on Tariffs and Trade in 1947. It was the proto type of the GATT 1947. Many countries turned to the only existing multilateral international arrangement for trade, the "GATT 1947" to handle problems concerning their trade relations (Jackson, 1969). GATT came into effect in 1948 in the wake of Second World War (Low and Mattoo, 1998). Seven rounds of negotiations occurred under GATT. The eighth round - the Uruguay Round - concluded in 1994 with the establishment of the World Trade Organization (WTO) replacing GATT. The principles followed by GATT and the GATT agreement were adopted by the WTO, the institution, charged with administering and extending them. It was the Uruguay Rounds that lasted for 87 months that brought in WTO as an institution. Apparently the Round was held to evolve the rules on removing obstacles to international trade and to encourage global economic growth through greater trade (Paul, 2011).

Advocates of globalization say that increasing international trade is crucial to the continuance of globalization, expansion of trade and calibrated economic development and growth. Without international trade, nations

would be limited to the goods and services produced within their own political borders. For the proponents of globalization, increasing trade relations among the countries would accelerate the spread of the fruits of advancement in science and technology, and promote investment in research and development activities (Bhagwati, 2004). Each country may have its own offensive interests and sensitive concerns to be safeguarded. Because of the stubborn posturing of aggressive nationalist interests and its propagation, there are many estranged relations in the world among the countries. Now a day, many countries are trying to reconcile these relations first through establishing economic trade relations, so as to prompt them to come to the table of discussion and to prosper together and assist mutually in growth as natural allies. WTO strongly intervenes and tries to play a balancing role in these conflicting interests of countries through its mechanism of Dispute settlement.

### ***GATS and the Global Governance of the Telecommunication Sector***

The preamble of the GATS states clearly that the Agreement aims to contribute to world trade expansion under conditions of transparency and progressive liberalization and for promoting the economic growth of all trading partners and the development of developing countries.<sup>6</sup> General Agreement on Trade in Services (GATS) is a multi-lateral agreement. WTO members are, per se, part of the GATS agreement also. But, GATS have incorporated in-built flexibility in its framework. The GATS general obligations and disciplines do not, in themselves, impose any obligation upon the member countries to open up its market in all services/a specific services sector/sub sector. A member country is expected to follow the obligations to that extent as it has undertaken with respect to a service/ sub sector. The commitments on market opening and liberalization are expressed in the schedules to the agreement.

GATS is a multilateral agreement on services under the WTO system of trade governance. It has classified services into 12 sectors. Telecommunication services are a sector, which in turn has many sub sectors (15), under the Services classification of Communication services, as given by the GATS<sup>7</sup>.

The sub sector services falling under the telecommunications sector are further detailed in the classification list of GATS. It clearly states that all forms of Voice, message and data transfer services including internet services fall within the purview of telecommunication services. It is in fact a narrative list that includes: (a) Voice telephone services (b) Packet-switched data transmission services (c) Circuit-switched data transmission services (d) Telex services (e) Telegraph services (f) Facsimile services (g) Private leased circuit services (h) Electronic mail (i) Voice mail (j) On-line information and data base retrieval (k) Electronic data interchange (EDI) (l) Enhanced/value-added facsimile services, incl. store & forward, store & retrieve (m) Code and protocol conversion (n) On-line information and/or data processing (incl. transaction processing) (o) Other.

### **Formation of Market Structure in Telecommunication Services**

Electric telegraph is considered to be the first product/service in the telecommunication market world over, even though there were various products enabling communications. It may be because of the fact that transfer of signals using electricity provided various essential features like speed, reliability and security to the process of transmission and to information as such. In the telecommunication market, the product transferred is information. It is already seen that ‘information of varying nature’ such as signals, sounds etc. is exchanged through the process of telecommunication. Daniel Headrick, in his famous book, “the Invisible weapon: Telecommunication and International Politics” brings out the nature of information and why telecommunication process was brought under the

government control world over from the very beginning of its implementation.

Information has 3 levels of value, in itself as knowledge; if it is timely, as news; and if it is exclusive, as secrets. Governments wanted all three. Large empires went to great lengths to speed the flow of information: the Romans built roads, Persians and Mongols established relays of horses, the British..... Before, the electric telegraph, however the slow and unreliable nature of communications acted as a restraint on governmental control (Headrick, 1991). These words puts forth the basic nature of information and the why of governmental control over its transmission from one place to another. It is an undisputed fact that telecommunication is, and always has turned out to be, a political technology, because the timely flow of information is a vital instrument of power. Therefore, telecommunication itself has a political history from its inception in 1851. Because of the nature of the product and its social importance and economic significance, telecommunication became a societal technology under the political control. It can be seen that during periods of peace, cables and radio were, instruments of peace; in times of tension, they became instruments of politics, tools for rival interests, and weapons of war. From the beginning of its invention in the 1850s and commercial implementation, telecommunication facilities, in most countries, were provided under the governmental control. Thus, telecommunication market in most countries assumed the nature of a natural monopoly (government being the only provider) because of its legal insulation and the patronage of the ruling class for various reasons, from commercial interference.

### ***Market Structure***

A market is characterized by a product / service and players in the market- i.e. Buyers and sellers. It is based on the number of buyers/ sellers and the level of competition in an industry that the market structure is decided. The concept of market is relative. It may be a geographical market or product

market (Kotler, 1998). An example for the concept of a geographical market is the territory of the political India for providing the telecommunication service. A product market is often misunderstood by many. But the concept becomes clear if it is thought of with the market share of a particular company in the geographical market.

The concept of market structure is very important and central to the disciplines of economics and marketing. Both these disciplines are concerned with strategic decision making. In economics, markets are classified according to the structure of the industry serving the market. Industry structure is categorized based on market structure variables that determine the extent and characteristics of competition. The variables which have received the most attention are number of buyers and sellers, costs, extent of product substitutability, ease of entry and exit, and the extent of mutual interdependence (Baumol, Panzar and Willig 1982). In the traditional theoretical framework, these structural variables are distilled into the following taxonomy of market structures:

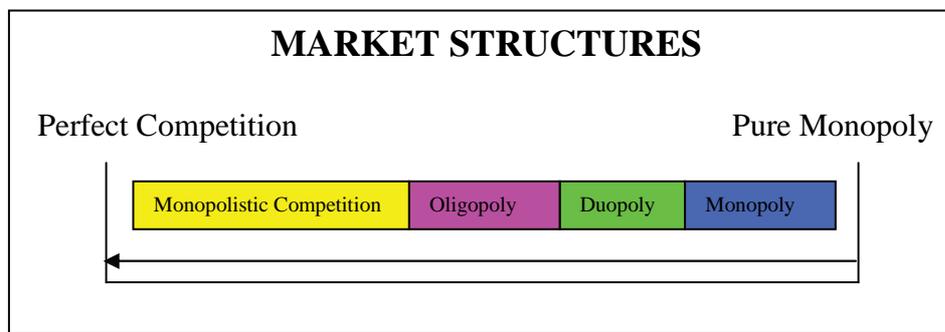
- (1) Monopoly- a single seller of a product for which there is no close Substitute,
- (2) Oligopoly- few sellers of a standardized or a differentiated product,
- (3) Monopolistic Competition- many sellers of a differentiated product, and
- (4) Perfect Competition- many sellers of a standardized product,

Market structure is important as it affects market outcomes through its impact on the motivations, opportunities, risks and decisions of those participating in the market and that of other stakeholders.

The concept of market Structure refers to those characteristics of the market that significantly affect the behaviour and interaction of buyers and sellers (Boyes and Melvin 2002). An analysis of the possible forms of market

structures would enable an analysis of the Indian Telecommunication market and the market structure. Following is a diagrammatic presentation of various forms of market structures from the point of view of the number of sellers in the market. A market structure would embrace a form as lying between perfect competition and pure monopoly- two hypothetical extremes- arranged on the basis of the degree of competition prevailing in the market (Ohyama, 1999). A sequentially arranged graphical presentation from most to least competitive would be seen as below:

**Figure 1.1- Market Structures**



(Source: Business Economics, K. Jothi Sivagnanam & R. Srinivasan, Tata Mc Grow Hill-Modified)

**The more competitive a market, the fewer imperfections & lesser control**

It is a continuum from right to left. The two extremes are pure monopoly on the right most of the continuum and perfect competition on the left most side of the continuum. This diagram shows the forms of market arranged in such a way that it is depicted on the basis of the degree of competition prevailing in the market. Market structure is determined by the number of firms producing identical products/ or providing homogeneous service. The elements of Market Structure include the number and size and distribution of firms, entry conditions, and the extent of differentiation.

### *Types of Market Structures*

Perfect competition is just a theoretical market structure that features no barriers to entry besides an unlimited number of producers and consumers with an expected perfectly elastic demand curve. Monopolistic competition is a competitive market, where there are a large number of firms selling the product, each having a proportion of the total market share and dealing in differentiated products. Oligopoly is a market run by a small number of firms (i.e a few firms) that together control the majority of the market share. Duopoly is only a special case of an oligopoly with two firms operating in the market. Monopsony is a one buyer in a market. Oligopsony is a market with many sellers present but only a few buyers. Monopoly market is where there is only one provider of a product or service, in a given geographical area (Ottoesen, 1990).

Natural monopoly is a monopoly where economies of scale, leads efficiency to increase continuously along with the size of the firm. A firm is considered as a natural monopoly if it is able to serve the entire market demand/requirement at a cost, lower than possible for any combination of two or more smaller and more specialized firms.

The imperfectly competitive structure is very close to the realistic market conditions where some monopolistic competitors, monopolists, oligopolists or duopolists etc. exist and control the market and in economics, market structure is the number of firms producing identical products which are homogeneous. The main criteria by which one can distinguish between different market structures are: the number and size of producers and consumers in the market, the type of goods and services being traded, and the degree to which information can flow freely.

**Table 1.1 - Basic Market Structures**

Market Structure	Number		Entry Barriers	
	Sellers	Buyers	Sellers	Buyers
Perfect Competition	Many	Many	No	No
Monopolistic competition	Many	Many	No	No
Oligopoly	Few	Many	Yes	No
Monopoly	One	Many	Yes	No
Monopsony	Many	One	No	Yes

Source: Compiled

As the telecom services sector of the independent India adopted monopoly market structure<sup>8</sup> and thereafter moved from monopoly to duopoly and oligopoly and thereafter to competition and now swinging back to oligopoly, it may be good to see the basic features of monopoly market structure, first in detail.

#### ***Sources of Monopoly Power***

The word monopoly is derived from a combination of two Greek words namely, *monos* which means “alone or single” and *polein* which means, “To sell”. Thus, a monopoly exists where a specific person or enterprise is the only supplier of a particular commodity or service, in a given geographical territory. Thus, monopolies are characterized by absence of economic competition to produce goods or services and non-availability of viable substitutes. Therefore, a sellers market (i.e. the buyers have no option but to accept what is available in the market) gets created in a monopoly. In such a situation demand for the product or service exceeds the availability of it. There is no price mechanism to interact with other market forces so as to discover an

optimum function of other market forces. The entire market share of the product is held by that company alone.

Monopolies derive their market power from the barriers to entry (Friedman, 1962). Barriers to entry refer to the circumstances or factors that effectively prevent or greatly impede a potential competitor's ability or intention to compete in a market. There are three major types of barriers to entry. They are:-

- (a) Economic Barriers
- (b) Legal Barriers and
- (c) Deliberate Barriers

**(a) Economic barriers:** Economic barriers to entry include Economies of scale, huge capital requirements, cost advantages to existing monopolist, technological superiority, presence of well-established players with nationwide network, seemingly prohibitive licence fee, continuously evolving technology and lowest tariff in the world.

*Economies of scale:* Monopolies are characterized by decreasing per unit costs for a relatively large quantity of production. Decreasing per unit costs coupled with large initial costs give monopolies an advantage over the prospective competitors. Monopolies are often capable of bringing down the prices even to a level below a new entrant's operating costs and thereby prevent them from continuing to compete with the monopolist in the market. Besides, the size of the industry relative to the minimum efficient scale may limit the number of companies that can effectively compete within the industry as the existing monopolist operate at that near level. To illustrate, if the industry is large enough to support one company of minimum efficient scale (MES) then other companies entering the industry will be operating at a size less than MES, which means that these companies cannot produce at an average cost that is competitive with the existing dominant company. Another economic condition to be looked into

is that if long-term average cost (LAC) is constantly decreasing, the least cost method to provide a goods or service is by a single company. Such an economic situation if persists, promotes a monopoly as it is comparatively cost advantageous.

*Capital requirements:* Certain production processes require huge investment of capital or large research and development costs (R&D expenses) or substantial sunk costs. Such industries, whether manufacturing or service, limit the number of companies economically operating. Huge fixed costs make it unviable and difficult for a small company to feasibly enter the industry and grow.

*Technological superiority:* A monopoly may be in a comparatively better position to acquire, integrate and use the best possible technology in producing its goods or delivering services while the new entrants may not have the optimum size or required finances to utilize the best available technology. One large company may be able to produce goods cheaper than several small companies.

*A monopoly cum monopsony situation:* Monopsony refers to a market situation where, there is only one buyer for a product. For example: in the telecom industry, DOT (Department of Telecom Services) being the single service provider for long was a monopsony for the public sector company, ITI Ltd. (telecom equipment manufacturer).

*No substitute goods:* A monopoly deals with goods for which there would not be any close substitutes. The absence of substitutes makes the demand for the goods or services relatively inelastic enabling the monopolist to extract excessive profits from the market.

*Control of natural resources:* A primary source of monopoly power is the control over resources that are critical to the production of a final goods or delivery of services. For example, Government of India held the entire bandwidth of spectrum required for providing telecom services.

*Network externalities:* Network externality is defined as the increasing utility that a user derives from consumption of a product or a service as the number of other users who consume the same product or service increases (Varadharajan, 2012). In other words, the use of a product by a person can affect the value of the same product to other people. For example, the telephone was of little value to the first individual who had one. However, with each additional telephone user, this innovation became more valuable (Varadharajan, 2004). This is called the network effect. If network externality is in operation, there is a direct relationship between the proportion of people using a product and the demand for that product. In other words, as more people start using a product, the greater the probability of any individual starting to use the product and the utility of the product/service to an individual increases. This network effect also plays a crucial role in the development or acquisition of greater market power. Network externality increases manifold as national telecom networks are integrated into a single global telecommunication network. This is in fact globalization of telecommunication network as aimed by WTO – GATS through ‘progressive liberalization’ of national telecom networks.

**(b) Legal barriers:** Legal rights acquired may provide opportunity to monopolize the market of a goods or service. Intellectual property rights (IPRs), including patents and copyrights, give a monopolist exclusive control of the production and selling of such goods. Property rights may give a company exclusive control over the materials required to produce a goods or provide a service.

In India, the Constitution of India, the Industrial Policy Resolutions of 1948 and 1956<sup>9</sup>, the Indian Telegraph Act, 1885<sup>10</sup> and the Indian Wireless Telegraphy Act, 1933 reserved the legal rights to provide telecom services for the Government of India, although provision to provide licenses to companies existed in the original piece of legislation of 1885. It was recognized by the judicial system of the country on several occasions<sup>11</sup>.

**(c) Deliberate actions:** A company/entity desiring to monopolize a market may engage in various types of deliberate actions ensure that potential threat from prospective entrants is excluded. Such actions may or may not be legal. They include collusion, lobbying governmental/jurisdictional authorities and use of direct force.

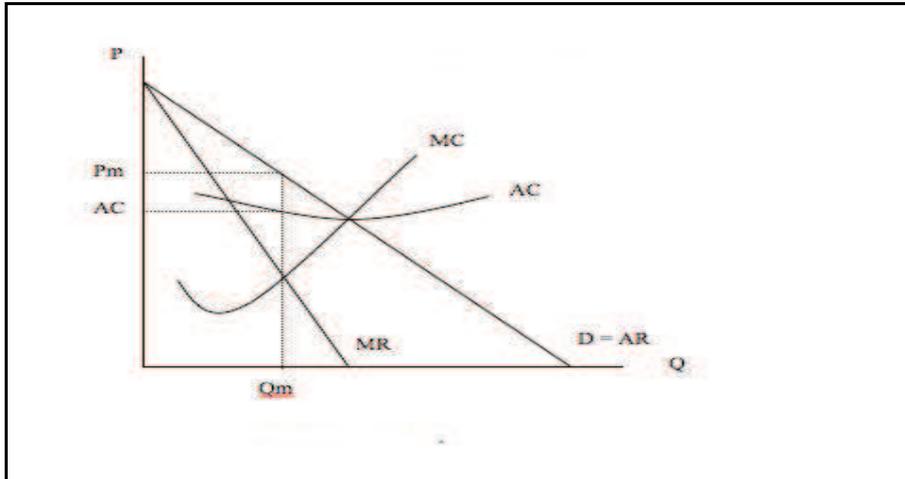
In addition to these barriers to entry and competition, barriers to exit may also be a source of market power. Barriers to exit are market conditions that make it difficult or expensive for a company to end its involvement (production and distribution of goods or providing services) with a market. Even high liquidation costs are a primary barrier for exiting. Following are the general characteristics of a monopoly form of industry.

**Table 1.2 – Characteristics of Monopoly**

Sl	Characteristics	
(a)	Profit Maximization	Maximizes profits/revenue by setting output where $MR=MC$ . This will be at output $Q_m$ and Price $P_m$
(b)	Price Maker	Determines the price of the goods or product to be sold or service provided. As there is no competition, demand may be price inelastic.
(c)	High Barriers to Entry	Other sellers are effectively prohibited from entering the monopoly market
(d)	Single seller	In a monopoly market situation, there is only one seller of the goods being produced or service being provided. Therefore, the whole market is being served by a single entity.
(e)	Company and Industry become identical	As there is only one producer and seller for the Product/service that particular industry becomes identical with that entity.
(f)	Price Discrimination	A monopolist can change the price and quality of the product, based on the nature of demand. If demand is elastic he sells more quantities charging lower price for the product and sells less quantities charging high price in a less elastic market.

Source: Compiled

**Figure 1.2 - Monopoly Market Structure**



Source: Pindyck, R; Rubinfeld, D (2001). *Microeconomics*, Prentice-Hall

Where,    AC    =    Average Cost  
          MC    =    Marginal Cost  
          D     =    Average Revenue  
          MR    =    Marginal Revenue

### ***Disadvantages of Monopoly Market Structure***

In a monopoly market structure, where competition is lacking the invisible hand of market (Smith, 1759) forces are not in operation. According to Smith, it is competition between buyers and sellers that channels the profit motive of individuals on both sides of the transaction such that improved products are produced and at lower costs. This process whereby competition channels ambition toward socially desirable ends (Smith, 1776) is clearly described by Adam Smith in his *The Wealth of Nations*, Book I, Chapter 7. In a monopoly market structure, often there is stagnation in utilization of resources. Further, the market power may give leverage to the desire for greater profit. Therefore, economies of scale, optimum production, optimum price and profit and justifiable labour remuneration get ignored, due to desire for super normal profit. The following discussion, with the help of the above graph, explains the disadvantages of a monopoly structure in an industry.

- Higher Prices - Higher Price and Lower Output than under Perfect Competition. This leads to a decline in consumer surplus and a deadweight welfare loss.
- Allocative Inefficiency - A monopoly may become inefficient because in monopoly the price is greater than MC. i.e.  $P > MC$ . In a competitive market, the price would be lower and therefore, more consumers would benefit.
- Productive Inefficiency - A monopoly may be productively inefficient because it is not at the lowest point on the AC curve.
- X – Inefficiency - It is often argued that a monopoly has less incentive to cut costs because it does not face competition from other firms. Therefore, the AC curve will be higher than normal.
- Supernormal Profit - A Monopolist makes Supernormal Profit at  $Q_m$  \* (AR – AC) leading to an unequal distribution of income.
- Lower Prices to Suppliers - A monopoly may use its market power and pay lower prices to its suppliers. E.g. Supermarkets have been criticized for paying low prices to farmers.
- Diseconomies of Scale - A monopoly may experience diseconomies of scale because of its unwieldy size. Such a mammoth entity would face higher average costs because of its size.
- Inferior products/service - Lack of competition may lead to lack of value addition and stagnation in product quality due to lack of innovation.
- Charge higher prices from consumers - Monopolies may use their monopoly position to charge higher prices from consumers. This may lead to exploitation of consumers.
- Restriction on consumer choice – As a monopoly does not offer choices or alternatives, there is an inherent restriction on consumer choice.

## **Telecommunication Market in India: A Historical Reading**

Telecommunication services market and structure formation in India is an interesting area of protracted discussions. Just as the product – the telegraph - was started implementing commercially in Europe, it was brought to India by the East India Company. Until 1881, telecommunication was all about telegraph. In 1881, the British Government permitted Oriental Telephone Company Limited to implement telephones in India. In fact, the licensing provisions in the Telegraph Act, 1885 was invoked for allowing the entry of a private company to the telecommunications market. From the time of independence, telecommunications market in India became a legal monopoly of the government once again. In 1992, the Government of India invoked licensing provisions in the Telegraph Act and permitted private companies to introduce mobile telephony in selected geographical territories. But it could be fulfilled only with the declaration of the specific policy, NTP 1994. A presentation of it may be as follows:

- (a) From 1851 to 1881
- (b) From 1881 to the time of independence
- (c) Post independence era – until the declaration of NTP 1994
- (d) Post NTP declaration of 1994

### ***From 1851 to 1881***

Telecommunication services was brought to India by the East India Company and as the territorial administration was taken over by the British Crown post the 1857 war telecommunication was also under the administration of the Crown. The development of telecommunication took place on the Indian soil, just as it was happening in their country. Thus, the pre-independence era was characterized by the origin, establishment and development of the telecommunication services sector in India. Telegraph being the first product in the line of telecommunication using electric

signal, the laws passed<sup>12</sup> was named after the telegraph. The authority of provisioning the service was retained by the colonial government, even though licensing provisions were incorporated. The Telegraph Act, 1854 provided for absolute control of the Government over telecom facilities in Britain and its colonies. The same was followed by the East India Company also in India from the beginning. Even though a provision to license other companies was incorporated under section 4 of The Indian Telegraph Act, 1885<sup>13</sup>, it was not done. Initially, the facility was kept reserved only for the administrators for administrative purpose. That is to say that telecommunication market had only the government as its users (ie. a monopoly and a monopsony). At that time, government was the provider and the government was the user. It was an absolute political affair as telecommunication was used as a political tool. That telecommunication was essentially a political tool in the hands of the administrators from its inception in 1851 is clear as Lord Dalhousie is reported to have exclaimed that ‘telegraph saved India’ (Wenzlhuemer , 2013) after the suppression of the First War of Indian Independence in 1857. This aspect (communication as a political tool) is emphasized by the extensive destruction caused by the Indian side to the telegraph lines during the fight fearing the benefits it brings to the British. Gradually, it was opened for the use of the public and it became a societal technology under the government control, in India. The British Crown took over the administration of the country subsequent to the First War of Independence in India in 1857, but continued the same policy of governmental control. The Indian Telegraph Act, 1885 was just a continuation of same policy in this regard, without exercising the licensing power of government under section 4 of the Act. It followed the old PT &T (Post, Telephone & Telegraph) model of service. This was a ‘command and control model’ (McManus, 2009)<sup>14</sup> of service. Under this service model, the government exercised absolute control - from planning and policy formulation, implementation, running and maintenance to expansion- over all the telecom functions. The industry would be waiting for the budget allocations

or government funding for capacity addition, which was generally done on an incremental basis, which by itself is characterized by a very low pace of growth. Monopoly control by government over the telecom functions in many countries was legalized through legislation. Such decades/ century old practice from the initial stages of telecom development, made telecom and telegraph to be considered as a natural monopoly. This situation continued until 1881.

### ***From 1881 to the time of independence***

When a new product in the line - telephone – was emerged, license was granted to an incorporated private limited company<sup>15</sup> for installing, maintaining and running the system<sup>16</sup>. Even then the monopoly over telegraph continued and telephone, the new product/service was privatized. So, the history of telecommunication from its beginning seems to have followed a product market (Cravens and Piercy, 2012) concept. In early 1881, Oriental Telephone Company Limited of England opened telephone exchanges at Calcutta (Kolkata), Bombay (Mumbai), Madras (Chennai) and Ahmadabad. On the 28th January 1882 the first formal telephone service was established with a total of 93 subscribers. Thereafter, telegraph lines and telephone facilities were made available to various places – government offices, commercially important places and tourist centres - during the British era.

Because of the special political situation in India, where the local kingdoms/princely states (Naatturajyangal) enjoyed varying degrees of freedom under the British rule, some of the local kingdoms also on their own initiative implemented telecommunication facility, spending huge sums on their own. Some of these were interconnected and some were not. On obtaining independence in 1947, the new government at New Delhi decided to take control of all the telecommunication facilities in India *in toto*, and to convert it into a centralized command and control service model. Thus, 321 exchanges operating (installed and being operated by the

British government/Licensed company/any other) in India at that time and 11962 telephone connections all over India along with the telegraph installations were taken over by the Government of India on annexation of the local kingdoms under the Federal Integration legislation<sup>17</sup> and was synchronized to form a single network instead of their existence as separate and unlinked island networks. Thus, the telecommunications became a political technology of the democratic society of India and a monopoly market structure was formed for its centralized addition/expansion.

***Post Independence era - until the declaration of NTP 1994***

India attained freedom in the year 1947 and there began the concerted efforts to unify the geographical territories of the country and also set up a single geographical administration for the entire India. Along with this move of national integration, an effort to take over the diverse exchange systems used by the local kingdoms of India (i.e. the princely states) and those established by the Company that had obtained license under section 4 of the Indian Telegraph Act, 1885 were undertaken. Thereafter, the exchange systems were synchronized or replaced with new ones for interconnected communication facility. The Government of India incrementally allocated funds through its annual budgets for the sector. But, it was insufficient to meet the communication needs of a country as large as ours<sup>18</sup>. Consequently, teledensity remained at lower levels whereas the western counterparts were attaining near total teledensity. Here, lies the irony of the story. From the very origin of the telegraph/ telephone as communication apparatus, they were implemented in India. But even those countries that came to the stage at a later stage acquired greater teledensity whereas India could not do that for historical reasons. The massive investment required for the sector and the rampant poverty forced the country to view communication facilities as luxury<sup>19</sup>. Still efforts were seen to liberalize telecommunication from the year 1984 but it was concentrated to the telecom manufacturing sector in India in the Five year plans. The

post independence era of the telecommunication services market was a clear government monopoly market until 1986. In 1986, MTNL<sup>20</sup> and VSNL<sup>21</sup> were formed and licensed under section 4 of the Indian Telegraph Act, 1885, as companies to cater to the needs of Mumbai and Delhi (geographical bifurcation of tele-India and VSNL for international calls (product/service classification of the market). Thus, for the first time, the independent India returned in essence to the colonial model of telecom administration. During those times, telephones were run by other operators also; whereas telegraph was under government control.

Even though MTNL and VSNL were formed by geographical bifurcation and product/service classification, still it can be seen that the monopoly market structure was not given up by the country. MTNL and VSNL were also monopolies, just as DoT continued to practice monopoly. MTNL was the only telecommunication services provider in Mumbai and Delhi from 1986. There was no other company to compete with. Thus, Tele-India was geographically bifurcated. In other parts of India, DoT provided telecommunication services and MTNL was the sole telephone service provider in these two metro cities alone. Further, VSNL was entrusted with the traffic of International Long Distance (ILD) calls. All other services were handled either by MTNL (Mumbai & Delhi) or by DoT in other parts of India. There was no operator for VSNL to compete with. But almost four decades of virgin tele-Indian monopoly was shaken for the first time as licensing provisions were invoked by the Government. This was the beginning of changes in the telecom map of India and the ever first and matchless experiment in the world.

In 1992 the Central government decided to issue licenses to two companies each in the four metros – Delhi, Mumbai, Chennai and Kolkata – for providing cellular mobile services. Thus, a new technology of communication – wireless – was introduced in India and was implemented by companies under Duopoly, while there was a service provider – either

DoT / MTNL – for the wired segment. Thus, as far as communication as such is considered it was not a duopoly market but based on the technology of the service – it was monopoly and duopoly simultaneously. Details are discussed separately in the next Chapter.

***Formation of Circles in Indian Telecommunication Services Market***

The monopoly situation of Telecommunication Services in India continued for long. The changes in the market structure of Indian telecommunication services sector are dealt with in greater details in the next chapter. The telegraph authority in India was reorganized internally for several times. Apart from such internal reorganizations, the telecommunication market (i.e the geographical territory of India where telecommunication service is provided) was administratively divided into 22 service areas (Circles), in 1986 with the Secondary Switching Areas as basic units. This division into circles became the corner stone of changes in the market structure of the Indian telecommunication services sector. It also helped the government to reap higher revenues in terms of license fees from each circle, from each operator on granting licenses separately for Basic service and Mobile Services. Further, the division gave sufficient space and time for the government to experiment different market structures in different circles. It also helped the government to partially introduce new access services (Limited Mobility/Seamless Mobility) on an experimental basis in certain areas only before it was universalized in India. These service areas are categorized into four groups.

(a) Metros – Generating greater revenue to the government and better developed telecommunication system.

(b) A  
(c) B  
(d) C

} A, B & C classification is also based on the generation of revenue and development of infrastructure 'A' ranking higher and so on

A division of the entire India into Circles is tabulated and explained below:

At present, there are 22 telecom circles or service areas. They are classified into 4 categories: Metro, A, B and C.

**Table 1.3 - Classification of Telecom Circles**

Metros	Delhi, Mumbai and Kolkata. Chennai service area is a part of Tamil Nadu circle (service area) since 2007.
Category A	Andhra Pradesh(as was before the formation of Telengana state), Gujarat, Karnataka, Maharashtra and Tamil Nadu
Category B	Haryana, Kerala, Madhaya Pradesh, Panjab, Rajasthan, U.P (East), U.P (West), Paschim Benga.
Category C	Assam, Bihar, Himachal Pradesh, J&K, North East, Odisha

Source: [www.dot.gov.in](http://www.dot.gov.in)

**Table 1.4 – Telecom Circle Organization in India**

<b>Sl. No</b>	<b>Service Area</b>	<b>Metro</b>	<b>A</b>	<b>B</b>	<b>C</b>
1	Andhra Pradesh	-	A	-	-
2	Assam	-	-	-	C
3	Bihar	-	-	-	C
4	Delhi	Metro	-	-	-
5	Gujarat	-	A	-	-
6	Haryana	-	-	B	-
7	Himachal Pradesh	-	-	-	C
8	Jammu & Kashmir	-	-	-	C
9	Karnataka	-	A	-	-
10	Kerala	-	-	B	-
11	Kolkata	Metro	-	-	-
12	Madhya Pradesh	-	-	B	-
13	Maharashtra	-	A	-	-
14	Mumbai	Metro	-	-	-
15	North East	-	-	-	C
16	Odisha	-	-	-	C
17	Panjab	-	-	B	-
18	Rajasthan	-	-	B	-
19	Tamil Nadu	-	A	-	-
20	Uttar Pradesh (East)	-	-	B	-
21	Uttar Pradesh (West)	-	-	B	-
22	Paschim Banga	-	-	B	-

(Source: TRAI Report on Organization of Telecommunication Service Areas, 1999)

From the time of reorganization of Indian telecommunication market geographically into circles with SSAs as basic units in 1986, certain circles were reorganized. But, the scheme of circle formation has come to stay.

### ***Post NTP declaration of 1994***

This is the most turbulent era, where the market structure altered continuously from one form to another. After the issue of license to private companies in four metros ( Delhi, Mumbai, Kolkata and Chennai) for installing and running cellular services the market structure of Cellular Services changed from monopoly to duopoly and to oligopoly and to competition and thereafter back to oligopoly. A detailed discussion follows in the next chapter.

### **Telecommunication Market: Constitutional Provisions of India**

Independent India came out with the ever largest written constitution in the world. India stood as a quasi federal (a federation of states with many features of a unitary state) governing system. The Seventh Schedule to the Constitution has three lists –

- List I - Union List with subjects under total control of the Union Government
- List II - State List with subjects kept under the total control of the State Governments
- List III - Concurrent List -Subjects on which the Central Government or the State Government can administer, enact laws etc. but subject to the supremacy of the Parliament of India.

Telecommunications was placed under List I (Union List) of the Seventh Schedule to the Constitution. Entry 31 & 96 of this list cover all the matters related to telecom and associated fees. These are reproduced below:

“31 – Posts and telegraphs; telephones, wireless, broadcasting and other like forms of communication.

“96 – Fees in respect of any of the matters in this List, but not including fees taken in any court.”

Therefore, the absolute power to enact laws with respect to telecommunication is vested with the Parliament of India. It was practically ensured through compensating the princely states before implementing Federal Integration of India w.e.f 1<sup>st</sup> April 1950. Thus, it became the privilege and power of the Central Government to frame policies and issue policy decisions regarding the sector.

***Department of Telecommunications (DoT) and the Telecommunication Services Market***

Section 4(2) of the Indian Telegraph Act, 1885<sup>22</sup> provides that the Central Government may delegate its powers under the Act to the telegraph authority, specifically designated. DoT became the telegraph authority for the exercise of all such powers. But exercising any power so delegated would be subject to such restrictions and conditions as the Central Government may impose.

Under the Government of India (Allocation of Business) Rules, 1961 made under Article 77(3) of the Constitution of India, Ministry of Communication and Information Technology (MoC & IT) having Department of Telecommunications (DoT) as one of the departments, is included in the First schedule to the said Rules. In Second Schedule the subjects allocated to DoT are enumerated which include *inter-alia*:

- (i) Policy, Licensing and Co-ordination matters relating to telegraphs, telephones, wireless, data, facsimile and telematic services and other like forms of communications
- (ii) Promotion of private investment in Telecommunications
- (iii) Telecommunication Commission
- (iv) Telecom Regulatory Authority of India
- (v) Telecom Disputes Settlement and Appellate Tribunal (TDSAT)

- (vi) Administration of laws with respect to any of the matters specified in this list, namely:-
- (a) The Indian Telegraph Act, 1885 (13 of 1885);
  - (b) The Indian Wireless Telegraphy Act, 1933 (17 of 1933); and
  - (c) The Telecom Regulatory Authority of India Act, 1997 (24 of 1997).

Thus, in fact, the entire spectrum of telecom activities came under the monopoly control of the DoT. It included: (a) Policy formulation, (b) Enacting laws, (c) Regulation of the sector and its players and (d) Service Provisioning – implementation of assets including expansion.

***Monopoly Telecom Market and Industrial Policy Resolutions of 1948 and 1956***

Through the Industrial Policy Resolution 1948 and the subsequent Industrial Policy 1956 “manufacture of telephone, telegraph and wireless equipment (excluding radio receiving sets)” was kept under the direct and exclusive control of the Central government. Thus, Indian Telephone Industries Ltd. (ITI Ltd.) came into being as the first public sector company in India, in the year 1948. The same position was articulated through the Industrial Policy Resolution 1956 by keeping seventeen industries in Schedule A reserving exclusive rights to the Central Government regarding manufacture of “telephones (14), telephone Cables (15), and telegraph and wireless apparatus (excluding radio receiving sets) (16)”. Thus, the Government of India ensured its absolute monopoly over the telecommunication industry encompassing all aspects from manufacturing handsets and cables/switches etc. to providing services (access service) to the subscribers. It was an absolute legal monopoly considered to be a natural monopoly. The Indian monopoly market of telecommunications so formalized in the aftermath of independence was when backed by the subsequent industrial policy resolutions for the manufacturing sector, became both a monopoly and a

monopsony at the same time. A detailed discussion of monopoly market structure is given in the chapter.

### ***Recognition of Monopoly Power of Government by the Supreme Court***

The monopoly power is in fact a proviso to the exclusive privilege granted to the government by the Indian Telegraph Act, 1885 to provide telecommunications services in India. The Supreme Court in *Delhi Science Forum v Union of India* (1996)<sup>23</sup> observed: “Central Government is expected to put such conditions while granting licences, which shall safeguard the public interest and the interest of the nation. Such conditions should be commensurate with the obligations that flow while parting with the privilege which has been exclusively vested in the Central Government by the Act.” The significance of the case was that it was against the NTP 1994 (New Telecom Policy, 1994) declared, by the Government of India, for bringing in private participation in the industry by granting them license under section 4 of the Indian Telegraph Act, 1885. Thus, this judgment was recognition of the monopoly rights of the government and at the same time validates the power of the government to grant licences subject to conditions it places. The landmark judgment clearly stands out unique in the telecom annals as it positively endorsed the absolute power of the Union Government over telecommunication, cleared the decks for opening up the sector to the private players, and emphasized the need for an independent regulator and tribunal.

After the independence of the country, consolidation process of the telecom infrastructure that existed on Indian soil was undertaken. For the purpose, all then existing exchanges were taken over by the new government. Through Industrial Policy Resolutions of 1948, Constitutional provisions of List of subjects of governance (List I, List II and List III) and Industrial Policy Resolution in 1956 etc. the monopoly of the telegraph authority was legally established and continued until the year 1984 (both manufacturing and services sectors). The monopoly telecommunication in India made it a

monopsony also. The Telecom manufacturing sector also was under the administrative control of the Central Government. In 1984 C- DoT was established for indigenously making available the required latest telecom technology for the bettering of the telecommunication services in India. Thereafter, VSNL and MTNL were formed in 1986 and in 1991 NEP were declared for the liberalization of the Indian economy. Intention of the government to ensure better communication access led to the introduction of the mobile telephony in India. Liberalization process was itself fuelled by international pressures and discussions on formation of WTO were going side by side internationally. Discussions on incorporation of services as an item trade as goods under GATT was progressing under the Uruguay Rounds<sup>24</sup> of WTO and GATS negotiations were agreed and taken forward by the participating countries even as WTO was born in 1994 and the international community brought telecommunication services under the GATS. India had already initiated its telecommunication liberalization but GATS gave it a definitive shape and logical push for the reforms in the sector. The telecommunication services in India faced a very interesting stage of having more than one geographical monopolies and product/service monopoly at the same time.

The next chapter would bring out the changes in the telecommunication structure of India from Monopoly to Duopoly in certain circles and thereafter to Oligopoly and then to free competition and now moving back to Oligopoly through the process of consolidation.

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<sup>1</sup> Ministry of Statistics and Programme Implementation, GOI (2011): Statistical Year Book India

<sup>2</sup> Posts and Telecommunications Code (Legislative Part), Chapter 31

<sup>3</sup> Indian Telegraph Act, 1885, Passed by the Governor General of India in Council.

<sup>4</sup> International telecommunication Union(1992): *Annex to the Constitution of The International telecommunication Union*, Geneva, ITU

<sup>5</sup> Jipp curve is a graphical presentation prepared by plotting the number of telephones (teledensity) against wealth measured by the Gross Domestic Product per capita. The Jipp curve shows across countries that teledensity increases as wealth increases or economic development (positive correlation), especially beyond a certain income. This positive correlation is sometimes also termed Jipp Law or Jipp's Law. It is recently analyzed and confirmed by Kelly, Tim (2005) in Redrawing the Jipp Curve for Africa, *Retraçons la courbe de Jipp pour l'Afrique. The Acacia Atlas* (retrieved 20 October 2008).

<sup>6</sup> Preamble, GATS Agreement, WTO, Geneva

<sup>7</sup> Indian Tax laws define 'telecommunication' as follows.

"Telecommunication service" means service of any description provided by means of any transmission, emission or reception of signs, signals, writing, images and sounds or intelligence or information of any nature, by wire, radio, optical, visual or other electromagnetic means or systems, including the related transfer or assignment of the right to use capacity for such transmission, emission or reception by a person who has been granted a licence under the first proviso to sub-section (1) of section 4 of the Indian Telegraph Act, 1885 (13 of 1885 ) and includes—

- (i) Voice mail, data services, audio tex services, video tex services, radio paging;
- (ii) Fixed telephone services including provision of access to and use of the public switched telephone network for the transmission and switching of voice, data and video, inbound and outbound telephone service to and from national and international destinations;
- (iii) Cellular mobile telephone services including provision of access to and use of switched or non-switched networks for the transmission of voice, data and video, inbound and outbound roaming service to and from national and international destinations.
- (iv) Carrier services including provision of wired or wireless facilities to originate, terminate or transit calls, charging for interconnection, settlement or termination of domestic or international calls, charging for jointly used facilities including pole attachments, charging for the exclusive use of circuits, a leased circuit or a dedicated link including a speech circuit, data circuit or a telegraph circuit;
- (v) Provision of call management services for a fee including call waiting, call forwarding, caller identification, three-way calling, call display, call return, call

screen, call blocking, automatic call-back, call answer, voice mail, voice menus and video conferencing;

- (vi) Private network services including provision of wired or wireless telecommunication link between specified points for the exclusive use of the client;
- (vii) Data transmission services including provision of access to wired or wireless facilities and services specifically designed for efficient transmission of data; and
- (viii) Communication through facsimile, pager, telegraph and telex, but does not include service provided by (a) any person in relation to on-line information and database access or retrieval or both referred to in sub-clause (zh) of clause (105);
- (b) A broadcasting agency or organisation in relation to broadcasting referred to in sub-clause (zk) of clause (105); and
- (c) Any person in relation to [internet telecommunication service] referred to in sub-clause (zzzu) of clause (105). (Section 65 (109a) of Finance Act, 1994 as amended)

"Telegraph authority" has the meaning assigned to it in clause (6) of section 3 of the Indian Telegraph Act, 1885 (13 of 1885) and includes a person who has been granted a licence under the first proviso to sub-section (1) of section 4 of that Act; (Section 65 (111) of Finance Act, 1994 as amended)

"Facsimile (FAX)" means a form of telecommunication by which fixed graphic images, such as printed texts and pictures are scanned and the information converted into electrical signals for transmission over the telecommunication system; (Section 65 (42) of Finance Act, 1994 as amended)

"On-line information and database access or retrieval" means providing data or information, retrievable or otherwise, to a customer, in electronic form through a computer network; (Section 65 (75) of Finance Act, 1994 as amended).

These definitions have thrown light in to the concept and definition of telecommunication, in India. TRAI (the regulatory authority has not defined differently, but follows the definition of the Indian Telegraph Act, 1885 for defining telecommunications. Whereas ITU revised its definition in 1932, Indian laws have taken the stand that all things and processes and its improvements over time, in the exchange of signals/voice/sound etc. fall in the definition of telegraph, which was the first invention in the line of communication between two distant places.

"Internet telecommunication service" includes,-

- (I) Internet backbone services, including carrier services of internet traffic by one Internet traffic by one Internet Service Provider to another Internet Service provider,

(II) Internet access services, including provision of a direct connection to the internet and space for the customer's web page,

(III) Provision of telecommunication services, including fax, telephony, audio conferencing and video conferencing, over the internet. (Section 65 (57a) of Finance Act, 1994 as amended) "Pager" means an instrument, apparatus or appliance which is a non-speech, one way personal calling system which alert and has the capability of receiving, storing and displaying numeric or alpha-numeric message. (Section 65 (77) of Finance Act, 1994 as amended). "Telegraph" has the meaning assigned to it in clause (1) of section 3 of the Indian Telegraph Act, 1885 (13 of 1885). (Section 65 (110) of Finance Act, 1994 as amended) "Telex" means a typed communication by using teleprinters through telex exchanges; (Section 65 (112) of Finance Act, 1994 as amended). (Notification no. 23/2007-S.T., dated 22.05.2007). Note that the ambit of telecommunication has significantly widened.

<sup>8</sup> Until the Federal Integration Act was implemented on 1<sup>st</sup> April 1950, the Indian telecom services sector did not follow a monopoly market structure. The British East India Company, a company formed and was engaged in trading, under Lord Dalhousie, the then Governor General of India, started controlling the Indian princely states and telegraph lines were implemented in Kolkata and certain other places of its power and influence. Followed by the First Independence War of 1857, the British crown liquidated the East India Company and took over the administration of the territories of the East India Company and embarked on an expansion strategy. During this time there were autonomous (partially/fully) princely states in the Indian subcontinent. The British government as well as such princely states continued to develop railways, telegraph/telephones, postal department etc.) . Such systems were not integrated systems and were developed independently. In 1880, two telephone companies - The Oriental Telephone Company Ltd. and The Anglo-Indian Telephone Company Ltd. approached the then Government of India (the British Government) for permission to establish telephone exchanges and provide telecommunication access in India. The permission was not granted on the grounds that the legal rights to establish telephones and to provide services were a recognised Government monopoly under the existing telegraphy laws and that the Government itself would undertake the task. Later, in 1881, the Government decided to reverse its earlier decision and a licence was granted to the Oriental Telephone Company Limited of England for opening and operating telephone exchanges at Calcutta, Bombay, Madras and Ahmedabad. 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 and thus the first formal telephone service was established in the country by the Oriental Telephone

Company Limited of England. The exchange in Calcutta (the then seat of British power) was named the "Central Exchange". Later that year, Bombay also witnessed the opening of a telephone exchange. Thereafter, many princely states independently, the British government itself and the Oriental company were providing services at various places. "After independence, the Government of free India took charge of a network in 1948, which was quite small and connected only 82,000 subscribers in 321 switching exchanges with a total capacity of 10,000 lines"( Varadharajan, Sridhar, *The Telecom Revolution In India*, Oxford University Press,2012). All these assets were taken over by the Government of India as the Constitutional Assembly had decided to place telephones & Telegraph under the Union list I of our Constitution. A committee was formed under the Chairmanship of Sri. V.T. Krishnamachary for the purpose to report and also to decide the quantum of compensation to be paid to the princely states on acquisition of assets. Details are given below:

Virendra Kumar ,*Committees & Commissions In India, 1947-1954*, Volume I , Concept Publishing Company New Delhi – 110059, Indian States Finances Enquiry Committee, 1948 - Report, New Delhi, Ministry of States, 1949, 138p. 85-88p. Chairman - V.T.Krishnamachary. The Indian States Finances Enquiry Committee was constituted under the Ministry of States; vide their Resolution Number F.60-IB/48, dated October 22, 1948. Excerpts from the Committee report are given below:

Ordinarily Federal Financial Integration should be effective from April 1, 1950, but the state governments would be willing to make effective from August 17, 1949 under the present Government of India Act. When Federal Financial Integration comes into effect, all "Central" Revenues and all "Federal" Services (including Railways, Post and Telegraphs, Telephones, Currency and Coinage), together with the administration of the Departments concerned, should be taken over by the Central Government. Accounting and Audit should be taken over... (This is reproduced from the general committee report).

Excerpts from report on Baroda state....

As from the date of merger, the Central Government will take over all "Central" sources of revenue and the administration of all the departments concerned with "Central" functions together with all connected unproductive capital assets, current liabilities, out standings, refunds etc. Similarly all specific productive capital assets connected with "central" functions (eg. Railways and Telephones), together with any debt, cash balances, liabilities and out standings specifically relating to them, should also be taken over by the Government of India. .... Productive capital assets of a "Central" nature will similarly be taken over by the Government of India; their book value less specific debts attached to the assets amounted to Rs. 624.17 lakhs on July 31, 1948. ( This report

relates specifically to Baroda state - Baroda State, an erstwhile princely state in India in the present-day Gujarat was ruled by the Gaekwad dynasty from the time of its formation in 1721 until 1949 its accession to the Union of India. It was one of the largest and wealthiest princely states existing alongside British India, with wealth coming from lucrative cotton business as well as rice, wheat and sugar. Baroda formally acceded to the Union of India, on 1 May 1949, prior to which an interim government was formed in the state, as in the case of many other princely states).

- <sup>9</sup> Creation of Schedules A, B&C of which Schedule A included manufacturing of telecommunication equipments.
- <sup>10</sup> Section 4 of the Telegraph Act, 1885 reads as follows: “Exclusive privilege in respect of telegraphs, and power to grant licenses. (1) Within 5[ India], the Central Government shall have the exclusive privilege of establishing, maintaining and operating telegraphs: Provided that the Central Government may grant a license, on such conditions and in consideration of such payments as it thinks fit, to any person to establish, maintain or work a telegraph within any part of 5[ India].
- <sup>11</sup> For example, The Supreme Court in *Delhi Science Forum v Union of India* (1996). *Delhi Science Forum & Ors. v. Union of India* [AIR 1996 SC 1356 = (1996) 2 SCC 405
- <sup>12</sup> The Indian Telegraph Act, 1885, No.13 of 1885(Passed by the Governor General of India in Council).
- <sup>13</sup> The Indian Telegraph Act, 1885 contains thirty five sections in five parts. Section 4 comes under Part II where the privileges and powers of the Government are narrated. It is reproduced below: 4. Exclusive privilege in respect of telegraphs, and power to grant licenses.— [(1)] Within [India], the Central Government shall have exclusive privilege of establishing, maintaining and working telegraphs:
- Provided* that the Central Government may grant a license, on such conditions and in consideration of such payments as it thinks fit, to any person to establish, maintain or work a telegraph within any part of [India]:
- [*Provided further* that the Central Government may, by rules made under this Act and published in the Official Gazette, permit, subject to such restrictions and conditions as it thinks fit, the establishment, maintenance and working—
- (a) of wireless telegraphs on ships within Indian territorial waters [and on aircraft within or above [India], or Indian territorial waters], and
- (b) of telegraphs other than wireless telegraphs within any part of [India].

[*Explanation*—The payments made for the grant of a licence under this sub-section shall include such sum attributable to the Universal Service Obligation as may be determined by the Central Government after considering the recommendations made in this behalf by the Telegraph Regulatory Authority of India established under sub-section (1) of section 3 of the Telegraph Regulatory Authority of India Act, 1997 (24 of 1997).]

[(2) The Central Government may, by notification in the Official Gazette, delegate to the telegraph authority all or any of its powers under the first proviso to sub-section (1).

The exercise by the telegraph authority of any power so delegated shall be subject to such restrictions and conditions as the Central Government may, by the notification, think fit to impose.]

- <sup>14</sup> Command and control model (CAC) refers to “the direct regulation of an industry or activity by legislation that states what is permitted and what is illegal” McManus, P. (2009) *Environmental Regulation*, Australia: Elsevier Ltd.
- <sup>15</sup> Oriental Telephone Company Limited- This company was established on January 25, 1881, as the result of an agreement between Edison, Alexander Graham Bell, the Oriental Bell Telephone Company of New York and the Anglo-Indian Telephone Company, Ltd.
- <sup>16</sup> Available at, [http://www.thehindu.com/multimedia/archive/00420/Shivaraj\\_Patil\\_Comm\\_420864a.pdf](http://www.thehindu.com/multimedia/archive/00420/Shivaraj_Patil_Comm_420864a.pdf) ( Retrieved on 29/04/2014).
- <sup>17</sup> *Supra* Note 8
- <sup>18</sup> Development of the telecommunications sector historically was seen as a relatively low priority and received limited budgetary support from the Government of India. As a result, the telecommunications infrastructure in India grew relatively slowly. (As filed with the Securities and Exchange Commission on October 2, 2006, *Securities And Exchange Commission*, Washington, D.C., Form 20-F, Annual Report Pursuant To Section 13 Or 15(D) Of The Securities Exchange Act Of 1934. For The Fiscal Year Ended March 31, 2006, Commission File Number 1-15252).
- <sup>19</sup> “The telephone was a luxury and not a necessity”- observed Sri. C.M. Stephen, the then Union Minister of Communications, in the Parliament – “India: From Midnight to the Millennium”, ShashiTharoor, Penguin India, 2007.
- <sup>20</sup> The Company, Mahanagar Telephones Nigam Limited, was incorporated in New Delhi, India, on February 28, 1986 under the Indian Companies Act, 1956.
- <sup>21</sup> VSNL was incorporated on March 19, 1986 as a successor to the erstwhile Overseas Communication Service (“OCS”), under the control of the Ministry of Communications, Government of India. (*History of India’s Overseas Communications*,

*C.N.N. Nair, Videsh Sanchar Nigam, 1988, The University of Michigan, p.42*). VSNL was initially a wholly owned Government Company. Subsequently, the Government of India diluted its holding in the year 1997 and 1999 and its shareholding of VSNL reduced to 52.97%. VSNL was engaged primarily in the business of providing international telecommunication services as per the license granted by the Government of India (GOI) under the Indian Telegraph Act, 1885 and enjoyed monopoly status for initial period. In the Court of Addl. Chief Metropolitan Magistrate 38th Court, Ballard Pier, At Mumbai, Case No. of 2011, Tata Sons Limited, Vs Outlook Publishing (India) Pvt. Ltd.,).

<sup>22</sup> (2) The Central Government may, by notification in the Official Gazette, delegate to the telegraph authority all or any of its powers under the first proviso to sub-section (1). The exercise by the telegraph authority of any power so delegated shall be subject to such restrictions and conditions as the Central Government may, by the notification, think fit to impose.

<sup>23</sup> Delhi Science Forum Vs. Union of India – AIR 1996 SC 1356, 1996 SCC (2) 405 ( hereinafter referred to as Science Forum Case)

<sup>24</sup> The Uruguay Round, 8th round of multilateral trade negotiations (MTN) was conducted within the general framework of the General Agreement on Tariffs and Trade (GATT), spanning from 1986 to 1994 and there were 123 countries as "contracting parties". The Round led to the formation of the World Trade Organization, with GATT continuing as an integral part of the WTO establishment. The broad mandate of the Uruguay Round was to extend GATT trade rules to areas previously exempted (agriculture, textiles) and new areas previously not included (trade in services, intellectual property, investment policy trade distortions). (Cline, William (January 1995). "Evaluating the Uruguay Round". *The World Economy*)