Final Report

PROSPECTS FOR THE TELECOMMUNICATIONS SECTOR UNDER THE INDO-EU TRADE AND INVESTMENT AGREEMENT

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October 2008

INDIAN COUNCIL FOR RESEARCH ON INTERNATIONAL ECONOMIC RELATIONS

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Acknowledgments

I would like to thank participants of a workshop held in ICRIER on 13th September 2007. I am also grateful to Rajiv Kumar, Director and Chief Executive, ICRIER, Amit Yadav of the Ministry of Commerce, and Arpita Mukherjee of ICRIER for their support during the course of this study. I also appreciate the able and invaluable assistance provided by Indu Sharma and Sushmita Waraich.

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Abstract

The dynamism of global telecommunications markets is widely attributed to rapid technological development and an increasingly liberal policy environment. Over the last few years the European Community (EC) and India liberalized their telecom sectors, which have resulted in significant expansion of the networks in these economies. While the timing of telecom reform and liberalization has been different, there are certain commonalities in the reform process. All countries have introduced competition in the provision of telecommunications services with dramatic results such as reduction in prices of these services. Further, introduction of competition in a sector once considered a natural monopoly has necessitated the setting up of independent regulators.

Since telecommunications is one of the main drivers of economic growth and globalization, WTO negotiations and "new age" FTAs have focused on liberalizing trade in this sector. In this context, this paper analyzes the possibilities of liberalizing trade in telecommunications services if India and EU enter a bilateral agreement.

This report focuses on the EU and Indian telecommunications sectors and finds that it is an important sector in the TIA negotiations. The report identifies certain areas such as broadband and R&D related to telecommunications where collaboration between companies of both countries would be mutually beneficial. The study also found that telecommunications services have been significantly liberalized in the EU, much more than in India. While the current policy regime in India is consistent with some of the requests made by the EU in the WTO, for others the policy regime needs to be re-examined and, if required, reformed. It suggests certain reforms which would enhance the productivity, efficiency and global competitiveness of the sector and enable India to benefit from bilateral liberalization.

List of Abbreviations

ADC	Access Deficit Charge
ARPU	Average Revenue per User
ASEAN	Association of Southeast Asian Nations
BPO	Business Process Outsourcing
BSNL	Bharat Sanchar Nigam Limited
CCI	Competition Commission of India
CDMA	Code Division Multiple Access
CECA	Comprehensive Economic Cooperation Agreement
CPS	Carrier Pre-Selection
CS	Carrier Selection
DoT	Department of Telecommunications
DTH	Direct to Home
EC	European Commission
ECTA	European Commission Telecommunications Authority
ENT	Economic Needs Test
EU	European Union
FDI	Foreign Direct Investment
FII	Foreign Institutional Investment
FTA	Free Trade Agreement
GATS	General Agreement on Trade in Services
GDP	Gross Domestic Product
GSM	Global System for Mobile Communications
GVA	Gross Value Added
HSDPA	High-Speed Downlink Packet Access
ILD	International Long Distance
IP	Internet Protocol
IPR	Intellectual Property Right
IPTV	Internet Protocol Television
ISP	Internet Service Provider
ITES	Information Technology Enabled Services
ITU	International Telecommunication Union
IUC	Interconnection Usage Charge
MFN	Most Favored Nations
MNC	Multinational Corporation
MRA	Mutual Recognition Agreement
MTNL	Mahanagar Telephone Nigam Limited
MVNO	Mobile Virtual Network Operator

NAFTA	North American Free Trade Agreement
NLD	National Long Distance
NRA	National Regulatory Authority
NTP	National Telecommunication Policy
OECD	Organisation for Economic Co-operation and Development
R&D	Research and Development
RTA	Regional Trade Agreement
SAS	System of Accounting Separation
SMP	Significant Market Power
STD	Subscriber Trunk Dialing
TDSAT	Telecom Dispute Settlement Appellate Tribunal
TEC	Telecom Engineering Center
TRAI	Telecom Authority of India
UASL	Unified Access Service License
UMTS	Universal Mobile Telecommunications Service
UNCPC	United Nations Central Product Classification
USO	Universal Service Obligation
USTR	United States Trade Representative
VoD	Video-on-Demand
VoIP	Voice over Internet Protocol
VPN	Virtual Private Network
VSAT	Very Small Aperture Terminal
VSNL	Videsh Sanchar Nigam Limited
WLL	Wireless Local Loop
WTO	World Trade Organization

Prospects for the Telecommunications Sector under the Indo-EU Trade and Investment Agreement

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1. Introduction

The role of telecommunications in economic development, although long recognized, has gained focused attention only in the past two decades. Technological developments and growth in telecommunications and computation have been the drivers for economic liberalization and globalization. The introduction of competition in the provision of telecommunications services, once considered a natural monopoly, resulting in dramatic reduction in the pricing of these services, is one of the main reasons for the expansion of the knowledge-based services sector in which India enjoys a recognized competitive advantage.

Prior to liberalization in the 1990s, the telecommunications sector in India was under a public monopoly, which was considered essential due to the 'public good' nature of the service. In the 1990s, the government gave up its monopoly and gradually introduced competition to enhance investment and improve productivity and the growth rate. The entry of private and foreign players led to significant expansion in the telecommunications network, the introduction of new technologies, and striking improvement in productivity. As a consequence, today India has one of the largest telecommunications networks in the world. Given the rapid growth of the sector and huge investment potential, India is an attractive destination for foreign direct investment (FDI). On its part, India needs to enhance the growth of the telecommunications sector to sustain its global competitiveness in knowledge-based services.

While services play an increasingly leading role in the global economy, trade in services is a relatively recent development. In the EU, services (including construction) is by far the most important sector in terms of contribution to gross value added (GVA) and employment. In 2005, the sector accounted for 77.7% of the GVA of the EC 25 and employed 77.1% of its labor force; in the Euro area, the corresponding figures were 77.6% and 77.9%, respectively. The share of services in GVA tends to rise significantly with Member States' level of income, ranging from 58.7% in the Czech Republic to 89.2% in Luxembourg.[1] In India, too, services account for the dominant share of GDP and is the fastest-growing sector of the economy. It also accounts for about 37% of the country's exports in the combined basket of goods and services. These statistics unambiguously reveal the importance of the sector for India[2].

The Uruguay Round, for the first time, brought services into the multilateral trading system. The General Agreement on Trade in Services (GATS), which came into force in January 1995, established rules and disciplines governing trade in services. The

[1] European Commission, 2006.
[2] TPR, WTO, 2007. www.moc.nic.in

Agreement aims at progressive liberalization of trade in services through successive rounds of negotiations. However, the Uruguay Round failed to achieve any but modest levels of liberalization, except for certain sectors such as telecommunications. The slow progress of multilateral liberalization prompted several countries, both developed and developing, to enter into bilateral/regional agreements in order to increase the pace of liberalization. Other factors, such as similar regulatory regimes, trade complementarities, economies of scale in regional services integration, and network externalities also encourage countries to opt for the bilateral/regional route.[3] A unique feature of the post-Uruguay Round agreements or the "new age FTAs" (Free Trade Agreements) is that they not only liberalize trade in goods but also trade in services, investment and trade facilitation among others. Liberalization of trade in services under the FTAs has so far concentrated on high-growth services sectors such as telecommunications, transport, finance, and Information Technology (IT).

However, various entry barriers still hamper trade in services and act as an impediment to economic growth. In virtually every country performance of the services sector can make the difference between rapid and sluggish growth, as services constitute essential inputs in the production of goods and other services. They encompass a vast and disparate range of economic activities and dominate the economies of developed and many developing countries. Access to high-quality services, in particular infrastructure-related services such as telecommunications, transport, and financial services, benefit the whole economy by increasing productivity across sectors and are crucial for economic development.

The EU is India's major trading partner in services. As members of the World Trade Organization (WTO), both India and the EU have been actively participating in the Doha Round of negotiations. With the suspension of the Doha Round on July 24 2006, the two countries have renewed their focus on bilateral/regional agreements, while remaining committed to the multilateral process. In total, the EC has concluded 22 Regional Trade Agreements (RTAs) with 24 countries and territories. India too attaches significance to its participation in regional trade agreements. Besides the South Asian Free Trade Area (SAFTA), and BIMST-EC (Bangladesh, India, Myanmar, Sri Lanka, Thailand Economic Cooperation) formed in 1997, India has bilateral trade agreements with its two neighboring countries, namely, Bhutan and Nepal. In addition, an FTA between India and Sri Lanka was made operational in March, 2000. The Asia Pacific Trade Agreement (APTA) is operational among five countries, namely, Bangladesh, PR China, India, the Republic of Korea, and Sri Lanka. An India-Singapore Comprehensive Economic Cooperation Agreement (CECA) was signed on June 29, 2005 and came into force on August 1, 2005. A Framework Agreement on Comprehensive Economic Cooperation between ASEAN and India and an India-Thailand Framework Agreement has also been signed and an FTA in Goods, Services and Investment is under negotiation.

In keeping with this trend, the EU-India Summit held in September 2005 deliberated on ways to improve trade in goods and services between the EC and India. In October 2006, the EU-India summit considered the possibility of launching negotiations on a broad-based trade and investment agreement. On 28th June 2007, India and the EU began negotiations on a broad-based bilateral trade and investment agreement in

[3] See Hoekman and Braga (1997); Rajan and Sen (2002).

Belgium. India and the EU expect to promote bilateral trade by removing barriers to trade in goods and services and investment across all sectors of the economy. Both India and the EU believe that a comprehensive agreement consistent with WTO rules and principles would open new markets and thereby expand opportunities for Indian and EU businesses.

Services in general, and telecommunications services in particular, is an important sector in almost all regional trade agreements. For example, it is an important sector covered under the Indo-Singapore Comprehensive Economic Cooperation Agreement (CECA) – the first (and so far only) bilateral agreement signed by India encompassing the service sector. Trade in services between India and the EU is highly dependent on the growth of the telecommunications network, connectivity and charges. Hence, any discussion of the Indo-EU TIA would be unfinished without examining barriers in the sector and providing options for further liberalization.

1.1 Objective and Structure of the Study

The objective of this study is to analyze the possibilities of liberalizing the telecommunications sector under the proposed Indo-EU TIA. It discusses recent trends and developments in telecommunications sectors in India and the EU, identifies the areas (and modes) of bilateral trade interest, and barriers to trade in telecommunications services. It highlights the demands that the EU is likely to make of India and India's negotiating strategies and options. It suggests various reforms which would enhance the efficiency and global competitiveness of the Indian telecommunications sector.

The structure of the paper is as follows: The first section discusses the coverage of the telecommunications sector under the GATS, and the Indo-Singapore CECA. The second section analyzes developments in the telecommunications sector in the EU in general, and certain EU countries in particular, and India. The third section evaluates multilateral liberalization in this sector. The fourth section discusses bilateral liberalization in telecommunications; more specifically, it discusses the liberalization commitments undertaken in the Indo-Singapore CECA. The fifth section discusses the barriers faced by foreign, especially EU, companies in India and Indian companies in the EU. It also presents India's possible negotiating strategies, emphasizing the demands that the EU can make on India and the latter's negotiating strategies and options. The sixth section presents reform measures that are needed for the overall development of the sector and to gain from liberalization commitments undertaken unilaterally, bilaterally and in the WTO. The sixth section draws the main conclusions.

1.2 Coverage of the Sector

The telecommunications sector covers a wide range of services. The Annex on Telecommunications in the GATS defines "telecommunications" as the transmission and reception of signals by any electromagnetic means. The Annex further defines "public telecommunications transport service" as any telecommunications transport service required, explicitly or in effect, by a Member to be offered to the public generally. Such services may include, inter alia, telegraph, telephone, telex, and data transmission typically involving the real-time transmission of customer-supplied

information between two or more points without any end-to-end change in the form or content of the customer's information. It also defines "public telecommunications transport network" as the public telecommunications infrastructure which permits telecommunications between and among defined network termination points.

After considerable debate during the course of the Uruguay Round, members adopted a classification in order to provide comprehensive coverage for all service sectors. The classification list, generally used for scheduling purposes, can be found in document MTN.GNS/W/120 of July 10, 1991 (hereafter W120). Telecommunications services in W120 are classified into the following 14 sub-sectors (a.-n.) and an "other" category (o):

Table 1.1: Classification of Telecommunications Services under W/120

a.	Voice telephone services 7521
b.	Packet-switched data transmission services 7523**
c.	Circuit-switched data transmission services 7523**
d.	Telex services 7523**
e.	Telegraph services 7522
f.	Facsimile services 7521**+7529**
g.	Private leased circuit services 7522**+7523**
h.	Electronic mail 7523**
i.	Voice mail 7523**
j.	On-line information and data base retrieval 7523**
k.	Electronic data interchange (EDI) 7523**
l.	Enhanced/value-added facsimile services, incl. store and forward, store and retrieve 7523**
m.	Code and protocol conversion (n.a.)
n.	On-line information and/or data processing (incl. transaction processing) 843**
o.	Other

***Indicates that the service specified constitutes only a part of the total range of activities covered by the CPC concordance (e.g., Voice mail is only a component of CPC item 7523).*

Contrary to most other services sectors under W120, there is no unequivocal link between that classification and the UNCPC classification, which lists telecom services according to the following broad categories: i) geographical local, long-distance, international, ii) means of technology--wire-based or wireless, iii) means of delivery, facilities based or resale, and iv) clientele for public or non-public use in the

following manner (Table 1.2)[4]. The UNCPC classification is more comprehensive than W120 and provides a description of sectors/sub-sectors, thus acting as a cross-reference for the scope of a specific commitment[5] (see Annex I for a description of each service).

Table 1.2: Classification of Telecommunications Services (752) under UNCPC

7521	Public telephone services
• 75211	Public local telephone services
• 75212	Public long-distance telephone services
• 75213	Mobile telephone services
7522	Business network services
• 75221	Shared network services
• 75222	Dedicated network services
7523	Data and message transmission services
• 75231	Data network services
• 75232	Electronic message and information services
7524	Programmed transmission services
• 75241	Television broadcast transmission services
• 75242	Radio broadcast transmission services
7525 75250	Interconnection services
7526 75260	Integrated telecommunications services
7529	Other telecommunications services
• 75291	Paging services
• 75292	Teleconferencing services
• 75299	Other telecommunications services n.e.c.*

**Telecommunications services, not elsewhere classified. This class includes mobile maritime and air-to-ground communications services*.

Although the UNCPC classification is more comprehensive, most WTO Members have made commitments using the W120 structure. There are, however, significant disparities across members (see Annex II for more details). Only a few who acceded to the WTO after the "basic telecom negotiations" systematically used W120 with its

[4] Telecommunication Services Background Note by the Secretariat, accessed from www.wto.org/english/tratop_e/serv_e/w74.doc

[5] South Centre Analytical Note January 2005 SC/TADP/AN/SV/11, accessed from www.southcentre.org/publications/AnalyticalNotes/Services/2005Jan_GATS_ClassificationIssues.pdf

CPC references. While in many ways the use of W120 along with the CPC reference corresponds to liberalization calendars that vary according to the types of services, it is also an indication of several problems in the classification per se. In telecom, there have been significant technological developments and the distinction between many of the sub-sectors has become blurred with not only the adoption of new transmission technologies, but with the advent of service suppliers who distinguish themselves not by specialization in particular telecom services, but by the market segment they serve. For example, W120 is not technologically neutral (e.g., it differentiates between two ways of transmitting data: packet-switched and circuit-switched transmission), some categories potentially overlap, the CPC does not explicitly envisage mobile data service, and W120 also introduces overlaps with the computer-related services sector since on-line information and/or data refers to CPC843, which covers data base processing. In addition "code and protocol conversion" is one of various entries that are increasingly dated, especially considering that W/120, like the CPC, are classifications that are nearly 20 years old. In the old days software (i.e., software that performs such conversions) was needed so that different types of telecommunications and data communications systems could "talk" to one another, but it was not yet built into the end-user terminals or network equipment, as it is today, so there was a need for telecom companies and their engineers to perform these programming services for themselves and others. Today, not only is the software usually built into equipment (so the service probably takes place more typically as the supply of computer programming services at the manufacturing end), but it is in general increasingly difficult to distinguish between many of the computer and related services and certain telecom services, value-added services in particular. The EC has suggested that the sub-sector of "code and protocol conversion" be left out of the telecom sector, as it would be covered under the computer services commitments, but no specific agreement or understanding has been reached because the focus of telecom negotiations has been on market access.[6]

Although the GATS classification is somewhat out of date, the use of W/120 is not mandatory and governments do have their own sets of classifications; most members have 'adapted' the classification for scheduling commitments in the Uruguay Round and for submitting requests and offers in the Doha Round. For instance, India has deleted sub-sectors d) and e), i.e., Telex and Telegraph Services, respectively, from its revised offer dated August, 2005 and V-Sat Services and Cellular Mobile telephone are grouped under item o), i.e., others.

In the Indo-Singapore CECA, telecommunications services are covered in the *Trade in Services* chapter. The CECA has an Annex on telecommunications services which provides definitions of different terms such as public telecommunications transport service, public telecommunications transport network, interconnection, essential facilities, and major supplier. The definitions are similar to that in the GATS. The CECA follows a positive list[7] approach and the sub-sectors in which Singapore and India scheduled commitments are given in Table 1.3 and Table 1.4, respectively.

[6] Given that computer services is often a fairly open sector where there isn't a lot in the way of restrictions, there is probably not much "risk" is committing on code and protocol conversion services under telecom.

[7] A positive list approach gives countries the flexibility to choose the sectors/sub-sectors and modes within those sectors/sub-sectors for making commitments.

Table 1.3: Sub-sectors in which Singapore Scheduled Commitments in CECA*

1. Basic Telecommunications Services (facilities-based)

    a. Public Switched Services^ (local and international)
    b. Leased Circuit Services (local and international)

2. Mobile Services

    a. Public Mobile Data Service (PMDS)
    b. Public Trunked Radio Service (PTRS)
    c. Public Radio Paging Service (PRPS)
    d. Public Cellular Mobile Telephone Service (PCMTS)

3. Resale Basis

    a. Public Switched Services (local and international) (not including the use of leased circuits connected to the public switched network)
    b. Leased Circuit Services (local and international) (without connection to the public switched network)
    c. Public Cellular Mobile Telephone Services
    d. Public Radio Paging Services

4. Value-Added Network (VAN) Services

    The services covered are:

    a. Electronic-mail
    b. Voice mail
    c. On-line information and data-base retrieval
    d. Electronic data interchange
    e. On-line information and/or data processing

Source: Compiled from Indo-Singapore CECA, http://commerce.nic.in/ceca/toc.htm Singapore's sectoral coverage of telecommunications services does not mention corresponding CPC.
*Note: * Excludes services licensed and regulated under the Broadcasting Act (Cap.28).*
^This includes voice, data and facsimile services

Table 1.4: Sub-sectors in which India Scheduled Commitments in CECA *

1. Public Telephone Service (CPC 7521**)

   a. Public Local Telephone Service
   b. Public Long-distance Telephone Service
   c. Mobile Telephone Service

2. Packet Switched Data Transmission including telex Services (CPC 7523**)

3. Circuit switched data transmission services (CPC 7523**)

4. Facsimile Service (CPC 7521** + CPC 7529**)

5. Private Leased Circuit Services (CPC 7522** +CPC 7523**)

6. Data and message transmission services:

   The services covered are:

   a. Electronic mail (CPC 7523**)
   b. Voice mail (CPC 7523**)
   c. On-line information and data base retrieval (CPC 7523**)
   d. Enhanced / value added facsimile services, including store and forward, store and retrieve (CPC 7523**)
   e. On-line information and/or data processing (CPC 843**)

7. Other

   a. V-Sat Services
   b. Radio Paging Service

8. Internet and Infrastructure Services

   a. Internet Services (with gateways)
   b. Internet Services (without gateways)
   c. Infrastructure Providers (Cat I)
   d. Infrastructure Providers (Cat II)

Note: India has not tabled resale in the CECA

Source: Compiled from Indo-Singapore CECA, http://commerce.nic.in/ceca/toc.htm
*Note: * Excluding broadcasting services and measures affecting such services. Broadcasting is defined as a form of uni-directional telecommunications intended for large number of users having appropriate receiving facilities and carried out by means of radio or cable network. This may include sound transmission, television transmission or other types of transmission.*
^ India's sectoral classification follows CPC.
*** against individual CPC codes indicates that the specific commitment for that code shall not extend to the total range of services covered under that code.*

The foregoing examination reveals a degree of obsolescence in the existing classification of telecom services under W120. This induced the EU to table a proposal which captures technological progress in the sector and at the same time is forward-looking. In fact, the EU's revised offer[8] dated June 29, 2005 is based on their proposal that telecom services ought to be defined as the services of "transmission and reception of signals by any electromagnetic means". Incidentally this is the manner in which the Annex on Telecommunications Services to the GATS describes telecom services.

It is necessary to ensure that services that ride on telecom networks are excluded from the coverage because traditional telecom operators (in the sense of telecom operators at the time W120 was conceived) have entered into many business fields (acting as financial intermediaries, information providers, database managers, etc.) that are no longer only transmission and reception activities. This is addressed by excluding those services which require telecommunications services for their transport. In particular any economic activity consisting of the provision of content is not classified as a telecom service. Accordingly, the phraseology of the EU proposed classification for telecommunications services is as follows:

- All services consisting of the transmission and reception of signals by any electromagnetic means.

- Services of broadcasting transmission of TV and radio programs to the public are not included.

- Telecommunications services do not cover the economic activity consisting of the provision of content services which require telecommunications services for their transport.

Not only does this definition avoid the uncertainty in the existing classification, but it is also neutral across different business models, ways of providing services, and technology. Regulatory principles remain a separate issue and could be addressed, if necessary, separately in terms of additional commitments that Members would wish to make.

The proposed EU classification greatly simplifies the task of scheduling commitments in the sector. For example, India's revised offer (see Annex 3) can be recast based on the 'proposed forward looking' EU classification without affecting the quality of the offer. However, while the recast revised offer is easy to understand and obviates the need to precisely define each service, it introduces the possibility (risk) of scheduling an unintended commitment. Even in the Indo-Singapore CECA which came into force as recently as 2005, each telecommunications sub-sector for which commitments are made by both parties has been explicitly specified (see Tables 1.3 and 1.4 above), leaving no ambiguity in coverage. *While it is tempting to adopt the definition proposed by the EU both for its simplicity and its wide coverage, Indian negotiators will be well advised to abide by the tried and tested positive list approach in the*

[8] http://www.wto.org/english/tratop_e/serv_e/s_negs_e.htm

ongoing Indo-EU TIA negotiations. If and when the proposal is adopted in the WTO, India could use it as a basis for future negotiations.

2. Telecommunications Sector in the EU and India

2.1 Telecommunications Sector in the EU

The EC's telecommunications services market was valued at €291 billion in 2005 (up from €270 billion in 2003), roughly on par with the United States market. In 2005, revenue from the sub-sector increased by around 2.2%, due largely to an increase in mobile and broadband investments. According to one estimate, it is expected that the market will be valued at €302 billion in 2008.[9] Growth has, however, been uneven across Member States, and 23 percentage points separate the best from the worst in terms of broadband penetration.[10]

A noteworthy feature of the European market has been the inexorable decline in fixed voice revenue that has forced operators to shift focus to revenue-rich sectors such as mobile data and to content delivered over upgraded IP networks. This service, including Video-on-Demand (VoD) and Internet Protocol Television (IPTV), is nascent in most markets, but promises considerable growth in 2008 as consumers gain a greater understanding of the concepts and as broadband infrastructure to carry the services is expanded. In most markets, mobile telephony and broadband remain the drivers of telecom sector growth. Massive investments were made during 2006 in ADSL2+ and fiber roll-outs, and in new mobile technologies such as High-Speed Downlink Packet Access (HSDPA), which is commercially available in 24 of the 27 EU countries.

Despite the fact that revenues in traditional fixed voice are falling at around 1.6% a year, this remains an attractive market for new entrants. Indeed it is still the largest source of revenue for fixed operators, with a value in 2005 of €85.8 billion. Competition in the fixed voice market has intensified over 2007 with prices for local, national and international calls continuing to fall.

Competition in the fixed voice market is largely based on indirect access wholesale products such as carrier pre-selection (CPS) and carrier selection (CS). These services allow customers to use the services of an alternative operator for calls while still using the access line provided by the incumbent operator. As such, these wholesale products have been key instruments in the development of retail competition in the fixed voice market. Thus, while there are over 2400 registered fixed operators in the EU, the incumbent retains more than 90 per cent of the market share in most countries. The total number of major competing operators (i.e., operators that along with the incumbent operator have a combined market share of at least 90% of the global telephony market) in the EU is around 84. Only in seven Member States are there more than five major competing operators.

[9] European Information Technology Observatory (EITO) 2007, Telecommunications at present represents 44% of the ICT market which is expected to be worth €687 billion in 2008.

[10] European Commission (2005b).

There was a significant increase in broadband take-up in 2007, with 30% of EU households broadband-enabled. This equates to over 52,000 new broadband lines per day across the EU, up from 38,000 per day in 2004. Faced with intensifying competition and the challenge of finding new growth opportunities, players are investing in new markets and technologies such as broadband and Next Generation Networks (NGNs), with growth by acquisition being a significant feature of the market in 2005. Technology change is having an impact as Voice over Internet Protocol (VoIP)[11] becomes more widespread.

Direct access competition is still relatively weak in Europe. Only 8.3% of subscribers (for EU 20) use direct access from a new entrant player. In this case direct access means that the alternative operator provides the voice services over a line forming part of its own network to the customer. This could be a cable line, an unbundled line or some other means of access such as wireless. The fact that only 8.3% of subscribers use direct access reflects the incumbent players' continuing dominance of the local access market. Competition is accordingly largely based on CS and CPS.

Turnover in mobile telephone services in the EU has increased more slowly in 2007 compared to the two previous years. In 2008 the mobile market is likely to increase 2.3%, down from 3.1% the previous year. The proximate causes for the decline are increased competition, the effect of the August 2007 Roaming regulation and regulatory pressures to reduce mobile termination rates (MTR). Greater user numbers and increased use of services cannot compensate for falling prices that result in lower net turnover. Nevertheless, mobile turnover has received additional impetus from the deployment of Universal Mobile Telecommunications Service (UMTS) and emerging technologies such as High-Speed Downlink Packet Access (HSDPA).

Data on the number of licensed operators indicates the real magnitude of the choice of operators for customers of digital mobile services. Most operators have licenses for both GSM 900 and DCS 1800. There are 100 mobile network licensed operators and over 200 service providers in the EU. Mobile service providers are defined as entities authorized to offer mobile service under their own brand name (dealing with marketing, billing, etc.), using a third party's mobile network. In the mobile market, competition has increased as the leading operators' market shares have declined over the last few years. Local loop unbundling, both full and shared access, is the main wholesale access for new entrants.

Competition is driving both fixed and mobile telecommunications operators to invest in new technologies to reduce costs to meet the challenges of a converged environment. Operators are beginning to offer a portfolio of services, with different combinations of low-cost voice (including mobile), internet access, and audiovisual content to attract and retain customers. During 1998-05, the cost of national calls in

[11] Voice over Internet Protocol (VoIP) allows voice calls via a broadband internet connection, instead of a regular (or analog) phone line.

the EC fell by 17%, while the price of international calls decreased by 45%.[12] The differences in telecom prices are very small between old and new Member States.[13]

As a result of increased regulatory certainty, cross-border investment, in terms of capital expenditure and acquisitions/mergers, is becoming a key feature of the EU market for electronic communications. In 2005, M&A activity in particular increased significantly, and cross-border transactions, driven by the search for economies of scale and the implementation of pan-European strategies, was estimated at an overall value of more than €70 billion, the highest level since 2000.[14] Capital expenditure by incumbent operators reached approximately 15% of their revenue; the number of operators offering VoIP services has recently increased significantly, and these services are now available in most Member States. The largest European incumbent players had non-domestic EU revenue shares of on average 15% – ranging from 5% to 27%.[15] Most of the larger players are present in other national markets and there has been a notable trend in investment in the new Member States by some of the more established players to benefit from economies of scale.

Consumer-driven content and further refinement in business models focused on mobile broadband plans are tipped to be the likely winners in coming years. Other key developments expected in 2008 include further progress towards Next Generation Networks (NGN), moving infrastructure to an IP packet-based, full-service typology. The principal innovators in this sector − British Telecom, KPN, France Telecom and Deutsche Telekom − have set the pace. In addition, many of the major players that have consolidated businesses to strengthen their positions in the face of increased competition will begin to launch additional services (such as Vodafone with broadband), capitalizing on growth areas in other sectors and further contributing to the convergence of technologies.

Table 2.1 shows summary telecom indicators for the EU for 2005. The average penetration for mobile is almost 100 per cent, while that for fixed and internet is about 46 per cent. In September 2006 average Internet penetration was 52%. The market for fixed lines has been steadily eroding. A study by IDC in 2005 estimated that the European fixed voice market may fall to €79.5 billion in 2008 from €90.4 billion in 2003, a compound annual decline of 3%. Service providers will thus need to consider the viability of offering traditional fixed-voice services at all. In addition, the switch to DSL technology eliminates the need to dial over the local telephone network for Internet access, and the adoption of VoIP, which has reached between 12% and 20% in some markets, has further eroded traditional fixed voice traffic. The data services market experienced a boom across Europe in 2005, having grown by an estimated 9.4%, but growth in coming years was expected to fall (Table 2.2).

[12] Since 2000, the EC's weighted average charge for a 3-minute call has decreased by 65%, while that of a 10-minute call has fallen by 74%.
[13] European Commission (2005d).
[14] Based on data from Thomson Financial, Dealogic and UNCTAD.
[15] European Commission, 2008.

Table 2.1: Selected Telecommunications Indicators, 2005

	Main telephone lines ('000)	Main lines per 100 inhabitants	Cellular mobile subscribers ('000)	Cellular subscribers per 100 inhabitants	Internet users ('000)	Internet users per 100 inhabitants	PCs ('000)
Austria	3,705	45.32	8,160	99.82	4,000	48.93	4,996
Belgium	4,801	45.96	9,460	90.80	4,800	46.07	3,627
Cyprus	420	50.30	719	86.09	298	36.93	249
Czech Republic	3,217	31.48	11,776	115.22	5,100	49.97	2,450
Denmark	3,350	61.69	5,469	100.71	2,854	52.55	3,543
Estonia	442	33.26	1,445	108.75	690	51.92	650
Finland	2,120	40.39	5,231	99.66	3,286	63.00	2,515
France	35,700	59.01	48,058	79.44	26,154	43.23	35,000
Germany	55,046	66.57	79,200	95.78	37,500	45.35	45,000
Greece	6,303	56.69	10,042	90.31	1,955	17.62	986
Hungary	3,356	33.24	9,320	92.30	3,000	29.71	1,476
Ireland	2,033	49.01	4,210	101.49	1,147	27.64	2,011
Italy	25,049	43.12	72,200	124.28	27,900	48.03	18,040
Latvia	731	31.69	1,872	81.13	1,030	44.65	501
Lithuania	801	23.39	4,353	127.10	1,222	35.67	533
Luxembourg	245	52.58	720	154.83	315	67.74	290
Malta	202	50.40	324	80.79	127	31.73	67
Netherlands	7,600	46.63	15,834	97.15	10,000	61.63	11,110
Poland	11,803	30.63	29,166	75.70	10,000	25.95	7,362
Portugal	4,234	40.35	11,448	109.09	2,951	28.03	1,402
Slovak Republic	1,197	22.16	4,540	84.07	2,500	46.29	1,929
Slovenia	816	41.50	1,759	89.44	1,090	55.41	808
Spain	18,322	42.92	41,328	96.81	15,119	35.41	12,000
Sweden	6,447	71.54	8,437	93.31	6,800	75.46	6,861
United Kingdom	33,700	56.35	61,091	102.16	37,600	62.88	35,890
EC 25 Average	**9,266**	**45.05**	**17,847**	**99.08**	**8,298**	**45.30**	**7,972**
Bulgaria	2,484	32.14	6,245	80.83	1,592	20.60	461
Romania	4,391	20.22	13,354	61.51	4,500	20.76	2,450

Source: ITU (2006), Telecommunications Indicators, Geneva.

Table 2.2: European Carrier Services Market Growth, 2006 – 2008

Operator	2006	2007	2008 (e)
Fixed voice	-5.10%	-5.10%	-5.10%
Fixed data	8.50%	6.40%	5.90%
Mobile	4.60%	3.10%	2.30%
CATV	2.80%	2.30%	1.90%
Total carrier services	2.30%	1.40%	1.00%

Source: Paul Budde Communication, based on EITO data.

Box 2.1: Key Highlights of the EU 2007

- Mobile penetration rates across the European (EU) reached about 111% by mid-2007, with continuing growth despite clear market saturation. Subscriber growth was largely in the Third Generation/ Universal Mobile Telecommunications Service (3G/UMTS) Sector as many subscribers migrated away from GSM networks.
- The number of fixed lines steadily declined in most countries, as users turn from Public Switched Telephone Network (PSTN) and ISDN to ADSL for fixed-line broadband access, and to mobile telephony for voice. The VoIP market has also grown quickly in many countries, particularly in France where VoIP accounted for almost a quarter of all residential traffic by mid-2007. Retail VoIP may account for 12% of total voice revenue by 2012.
- About 30% of EU households were broadband-enabled in 2007, which may rise to 70% by 2012. The popularity of broadband will reverse years of decline in household fixed-line penetration in some markets; while dial-up connections will become largely unavailable.
- Local Loop Unbundling (LLU), Carrier Pre-Selection (CPS) and Wholesale Line Rental (WLR) are increasing competition in the local loop – although in a delayed and piecemeal fashion in many countries. France, Italy and Germany together accounted for 79% of all unbundled lines in March 2007.
- About 55% of the populations were regular users of the Internet – 268 million people in June 2007– representing 215 of the global Internet user base.
- 3G subscriber growth was particularly strong in 2007. The number of 3G subscribers reached more than 64 million by mid-2007 and continued strong growth is likely in coming years as cheaper and improved handsets become available, unlimited data tariffs become common, and a greater number of services align with more widespread networks to deliver them.
- Many member states have started the digital switchover process, with countries such as Sweden a leader in migrating to Digital Terrestrial TV (DTTV). By 2010 about 70% of European households would have made the transition to digital services. Growth is being driven in part by the availability of digital terrestrial services, and to a lesser extent IPTV services. The UK will remain the most highly penetrated digital TV market, with almost 95% of households expected to receive digital services. Freeview in the UK remains a leading example of DTTV in Europe.

The EC's electronic communications regulatory framework consists of six directives: (i) Framework Directive setting out the key principles, objectives, and procedures;

(ii) Authorization Directive introducing a light system of general authorization for electronic communication services and networks (e.g., fixed and mobile networks, data and voice services), instead of individual licenses, to facilitate entry in the market and reduce administrative burdens on operators; (iii) Access and Interconnection Directive stipulating procedures and principles for imposing pro-competitive obligations (regarding access to, and interconnection of, networks) on operators with significant market power (SMP);[16] (iv) Universal Service Directive requiring a minimum level of availability and affordability of basic electronic communication services and guaranteeing a set of basic rights for users and consumers of electronic communication services; (v) Privacy and Electronic Communications Directive setting out rules for the protection of privacy and of personal data processed in relation to communications over public communication networks; and (vi) Commission Competition Directive, which consolidates the legal measures that have liberalized the telecommunications sub-sector over the years.[17]

Other legislative instruments of the telecom regime include: the Radio Spectrum Decision, which establishes principles and procedures for the development and implementation of an internal and external EC radio spectrum policy (it does not require transposition by Member States); the Commission guidelines on market analysis and the assessment of SMP, which set out a common methodology and principles for the national regulatory authorities (NRAs) charged with these tasks;[18] and the Commission recommendation on relevant markets, which defines a list of 18 relevant electronic communications markets to be examined.

Four institutions are in charge of the management, implementation, and further development of the new regulatory framework: (i) the Communications Committee has regulatory and advisory functions on implementation issues arising from the six Directives; (ii) the Radio Spectrum Committee deals with technical implementing measures aimed at harmonizing frequency allocation and developing common external radio spectrum policy objectives; (iii) the European Regulators Group contributes to consistent application of the new framework in all Member States; and (iv) the Radio Spectrum Policy Group provides a platform for high-level national decision-makers to coordinate their views on radio spectrum policy, and to provide the Commission with relevant policy advice.

Experience since liberalization of the telecommunications markets at the EU level in 1998, and of the implementation of the regulatory framework supporting it shows that while progress towards sustainable competition and consumer benefits has taken place, further reforms are needed to bring the sector to its full potential. Although the average EU charge for a 10-minute call has fallen by 74% in the past ten years, competition bottlenecks persist, in particular, in the important broadband market. In EU broadband markets the incumbents have an overall market share of 55.6%. In many Member States the incumbent's dominance is well over 60%; in Poland (60.2%), Malta (61.3%), Italy (64.8%), Denmark (65.1%), Germany (66.7%, Finland

[16] An undertaking is deemed to have SMP if, either individually or jointly, it enjoys a position equivalent to dominance.

[17] *EU TPR 2007.* The Commission is currently undertaking a review of the electronic communications framework to examine how well it has achieved its objectives, and whether it should be changed in the light of recent and forthcoming technological and market developments.

[18] National regulators, in cooperation with the Commission, monitor the regulatory regime, along with the national competition authorities, and ensure that rules are applied consistently in all Member States.

(69.1%), Portugal (70.1%), Luxembourg (84.8%), and Cyprus (89.89%). The lack of effective competition in prices or in network choice leads to consumers losing out. In the fixed voice telephony market, infrastructure competition is also in its infancy. In July 2006, on average only 10% of subscribers in the EU used an alternative provider for direct access to telecommunications services. In the case of mobile phone calls abroad ("roaming"), the transnational aspect made it difficult for national regulators to intervene successfully. It thus required a directive from the EC to bring down tariffs for voice calls when roaming in other Member States. The ceiling charges were specified at €0.49 per minute for making calls and €0.24 per minute for receiving calls. These will decrease to €0.46 and €0.22 respectively on August 30, 2008 and to €0.43 and €0.19 on August 30, 2009.[19] While voice roaming tariffs have been forced down by the EC, data charges continue to be high, with the EC threatening to intervene unless the service providers can bring down prices on their own. Sending an SMS from abroad costs up to 10 times more than to send a text message within your home country, which currently costs around 5 to 15 Eurocent per SMS. For other data roaming services, such as browsing the internet or downloading music, consumers can pay on average €4.98 to download 1 Megabyte while abroad. In some cases, the charges are even higher than €16 per MB. On average, a consumer pays €15 to download a song when roaming, €10 to download a PowerPoint presentation or €1 to €2 to download a single newspaper article. Compared to domestic tariffs, the difference is striking: consumers rarely pay €1 to download 1 Megabyte at home.[20] It is not surprising therefore to note that cross-border competition and pan-European services are hampered by 27 different, partly inconsistent regulatory systems.[21] Further, radio spectrum, the lifeblood of all wireless services, is under-utilized in the EU, despite its strong potential to enhance competition and to extend broadband coverage. A reform of the EU Telecoms Rules is therefore imperative if Europe wants to achieve its full potential.

2.2 Major Telecom Players in Europe

Western Europe is the home territory of some of the world's major telecoms. Despite their recent travails, companies such as British Telecom (BT), Deutsche Telekom, France Telecom, Telefónica, KPN and Vodafone have a global presence.

Table 2.3: Top 7 European telecoms by revenue, 2003 – 2005

Operator (Home Country)	2003	2004	2005
British Telecom (UK)	£18.5	£18.6	£18.6
Deutsche Telekom (Germany)	€25.20	€23.90	€29.90
France Telecom (France)	€46.10	€49.00	€58.00
Telefónica (Spain)	€36.50	€42.20	€38.90
KPN (Netherlands)	€12.90	€12.10	€11.90
Telecom Italia (Italy)	€30.90	€31.20	€29.90
Vodafone (UK)	£34.1	£33.6	£34.1

Source: Paul Budde Communication, based on company data.
Note: Numbers are in billions.

[19] Regulation (EC) no 717/2007 of the European Parliament and of the Council of 27 June 2007 on roaming on public mobile telephone networks within the Community and amending Directive 2002/21/EC Article 11, http://ec.europa.eu/roaming
[20] http://ec.europa.eu/roaing
[21] Memo/08/167 Brussels, 19 March 2008

Due to their historical status as former State monopolies of telecom services, national incumbents have always been in very strong market positions. Despite deregulation and general privatization, the incumbents remain dominant, although alternative operators are slowly gaining market share. Changes to the telecom landscape in Europe will continue as incumbents face competition from broadcasters, which hitherto have traditionally operated in separate markets, providing entertainment and, increasingly, Internet rather than telephony services. As an indication of how the market will evolve, Europe's largest pay TV broadcaster, BSkyB, purchased the ISP Easynet in October 2005, thus providing the company with 40% population coverage through unbundled lines. BSkyB has indicated its intention to increase the reach to 70%, and to offer VoD, IPTV, Internet and telephone services in direct competition to BT. In addition, in late 2006 a number of mobile operators such as Vodafone and O2 in the UK began to extend their reach into the provision of broadband services, adding a further dimension to competition.

2.3 Telecommunications Sector in Select EU countries

2.3.1 The United Kingdom

The UK telecommunications sector was worth some £47 billion in 2006, a 1% increase over 2005 and equating to 4.1% of GDP. Fixed-line penetration has been falling since 2000 while mobile penetration has increased to the extent that in March 2006 about 10% of households had mobile access but no fixed-line access, compared with only 6% in 2001, and the number of fixed-line-only households fell to 10% compared to 20% in 2003. The fall in telecom prices has been driven by increased competition, falling costs, the opening up of BT's networks, and regulatory intervention. BT still dominates the fixed market despite the entry of alternative operators since 1984, but its share has been decreasing year by year and accounted for about 51% of market revenue in 2005 compared to 64% in 2004.[22] There were 127 operators providing voice telephony, with 11 major competing players, of which nine controlled 90% of the market. About 32% of subscribers used other operators for fixed voice telephony. The increased growth in broadband lines has been one of the main success stories with the broadband penetration rate rising to 25.68% in January 2008 compared to 21.69% in January 2007. As of December 31, 2006, the difference in broadband coverage between urban and rural areas was 4.5 percentage points in the case of DSL coverage (95% coverage in rural areas compared to 99.5% at the national level) and 45.3 percentage points in the case of cable coverage (4.8% coverage in rural areas compared to 50.1% at the national level According to Ofcom[23], the independent regulator and competition authority for the UK communications industries, the number of broadband lines now exceeds those using dial-up Internet. By the summer of 2006, 99.6% of the population fell within the area of a broadband-enabled exchange.

[22] BT's market share of 51% is the lowest among all incumbents in the EU.

[23] In the UK, Ofcom is a converged regulatory authority with responsibility for oversight and regulation of both electronic communications networks and services on the one hand and broadcasting on the other. Ofcom has one of the widest ranges of powers and responsibilities of any regulator within the EU. While its dual responsibilities are clearly delineated within its internal structures, this broad remit is generally seen to offer a coherent and inclusive approach to the phenomenon of convergence and the resulting challenges for the industry. It has also given it an authoritative voice whose independence from vested interests or political interference has not been seriously questioned.

The UK mobile market is characterized by the presence of five mobile network operators and a large number of service providers and Mobile Virtual Network Operators (MVNOs). The rate of churn is high and much of the mobile operators' efforts are devoted to customer retention. Growth in mobile revenues has outstripped any other sector in the communications market, with mobile penetration at 119% in 2007 (up from 109% in 2006) representing 72.2 million subscriptions. The take-up of 3G progressed to reach 8.3 million users, or 11.6% of all mobile subscribers, in October 2007. The five established network operators continued to have market shares within a few percentage points of each other resulting in strong competition and therefore falling prices to attract users. While 3G services have not grown as quickly as expected, there is an increased focus by operators on new services and applications, such as music, ring tones and wallpaper downloads. One operator has launched an i-mode service to provide enhanced mobile Internet access, and a number of operators are engaged in trials of mobile television.

The regulatory conditions for mobile operators have been relatively stable, after Ofcom's finding in October 2003 that the market for mobile access and call origination was effectively competitive and its imposition in June 2004 of Significant Market Power (SMP) obligations in the markets for mobile call termination. A second-round review of the mobile termination market was completed by Ofcom in 2007. As a result of the market analysis, Ofcom introduced a set of new charge controls on mobile call termination rates that would run for four years from April 1, 2007. Ofcom concluded that each of the five MNOs still had significant market power for termination of voice calls on their networks and decided to impose charge controls on the mobile termination rates set by each network.

Convergence is beginning to have a strong impact in shaping the UK communications markets, with consolidation taking place in order to enable operators to provide a complete package of communications services, covering voice telephony, Internet access and audiovisual content, be it by cable, DSL or other means. VoIP services have been growing, particularly in the corporate market, but with the rapid expansion of domestic broadband connections, the prospects for significant growth in residential VoIP are also good. Ofcom has attempted to facilitate the development of VoIP by making geographical numbers available for these services.

The UK telecom market is expected to see relatively modest and stable annual revenue growth up to 2010, with falling fixed-line voice call volumes being offset by higher usage of mobile voice calls and increased data traffic. Overall, the volume of telecom traffic will grow to 2010 but it is estimated that price erosion in all markets will keep revenue growth at modest levels. Competitive pressures are likely to be intense for market share. The degree of consolidation is likely to vary across the main market segments; the mobile market is effectively controlled by five main operators, whereas the fixed-line market is fragmented, albeit dominated by BT. In terms of revenue, BT is the largest player, followed by Vodafone, France Telecom and O2, which also lead the mobile market. New developments in VoIP technology and usage, with operators preparing to bundle VoIP and broadband services, are likely to have considerable commercial potential and significant long-term implications for revenues generated from both fixed and mobile networks. Convergence between mobile and fixed-line services is also expected to be an important component in the market, with companies such as BT developing hybrid fixed-line and mobile handsets and services.

Table 2.4: Telephone Network Statistics in the UK, 2007

Telecommunications retail revenue	£47 billion
Telecommunications investments	£8.7 billion
Fixed telephone lines in service	33.7 million
Fixed-line teledensity	57%
Major public telecom operators	British Telecom Kingston Communications Cable & Wireless

Ofcom and its predecessor, Oftel, have regulated BT's pricing structure since the company was privatized in 1984. In February 2006 Ofcom decided that UK's fixed-services sector had sufficient effective competition so that the market would limit BT's ability to raise prices without regulatory intervention. Ofcom launched a public consultation to consider the removal of price controls applied to BT's fixed-line rental and call services, with a target switchover date of August 1, 2006 with a fresh market review scheduled for 2007. Since 1996, average call prices in the UK have fallen by more than 50% and there were more than 10 million households in the UK using providers other than BT, including more than four million on cable networks and an estimated 500,000 active VoIP users. Strengthened competition is also seen in the rapid development of Local Loop Unbundling, with more than 300,000 lines unbundled by February 2006.

Britain's national telecommunications infrastructure consists of an equal mix of cable, microwave radio relay, and fiber optic systems. BT has by far the most comprehensive national network, though Cable & Wireless also has an extensive national backbone owing to its legacy as the second national network licensee, Mercury Communications. At the local loop level, BT controls practically all the first mile outside of Hull, while, Kingston Communications owns and operates the local infrastructure in the Hull region. The number of fixed-line connections has stabilized at 57% in the past four years down 7 percentage points from 1995. DSL services are acting to reduce the number of Integrated Services Digital Network (ISDN) lines in use, and some customers are turning to mobile-only for their voice telecommunications (Table 2.5).

Table 2.5: Fixed lines in Service and Teledensity in the UK, 1995 – 2007

Year	Fixed lines	Teledensity
1995	29,411,000	50%
1996	30,678,000	52%
1997	31,879,000	54%
1998	32,829,000	55%
1999	34,197,000	57%
2000	35,177,000	59%
2001	34,710,000	58%
2002	35,290,000	59%
2003	34,898,000	59%
2004	33,600,000	57%
2005	33,700,000	57%
2006	33,500,000	57%
2007(June)	33,700,000	57%

Source: Ofcom and ITU data.

In June 2005, BT announced a five-year £10 billion (€15 billion) program to underpin the next generation of converged, multimedia communications services. It is scheduled to switch off its Public Switched Telephone Network (PSTN) network by 2010, and planned to convert the majority of PSTN lines to the new network by 2009, when 99.6% of customers will have access to the new IP infrastructure, dubbed 21CN. BT's move to IP is a logical technological progression stemming from the digitization of networks. It is also a response to customer concerns over billing duplication − the emerging triple play format (that provides telephony, data, and Internet services) is bundled with a single customer bill, and BT's IP infrastructure is similarly designed to simplify services and eliminate multiple billing.

A principal driver behind the move to NGNs is for services to function independently of the network, a factor that is likely to make many existing interconnection agreements untenable. While the International Telecommunications Union (ITU) will provide the technical framework for NGN interconnection, it will be up to operators to put interconnection agreements and network interfaces in place. The likely solution involves agreements made mutually between both parties to access each other's networks, but problems may occur regarding access to networks owned by operators judged by regulators to have SMP. Ofcom is concerned that heavy regulation early in the development of NGNs would prove a disincentive for NGN investment. Further problems could arise from NGNs being required to interconnect with, and emulate, legacy networks such as the PSTN. Both networks will need to run in tandem for at least five more years.

International services from the UK are in part transmitted over 40 coaxial submarine cables. There are at least eight international switching centers serving the UK, in addition to a number of connecting pan-European network operators. In September 2002, KPN purchased the UK division of KPNQwest's network, which ran approximately 500 km of fiber-optic cable connecting London with Paris and Amsterdam; KPN had taken over the Dutch and German part of the KPNQwest Euro rings earlier in the year. In September 2005, FLAG Telecom reported that in the first half of the year demand for capacity on its trans-Atlantic fiber-optic submarine cable network surged by 500% quarter-on-quarter. The increased demand for capacity was largely due to the company having signed contracts for additional capacity with six international carriers and a global Internet content provider. Volume growth was driven by the increased use of broadband services by businesses and by the deployment of 2Mb/s broadband contracts.

2.3.2. France

France has the third largest telecom market in Europe, behind Germany and the UK. The electronic communications market was worth €41 billion in 2006, representing 2.3% of French GDP. The three main segments (mobile telephony, fixed telephony and Internet) represented about 80% of the total market. Fixed call volumes increased by a modest 0.5% in the year to June 2006, but the growth of Voice over Internet Protocol (VoIP) resulted in a 10.2% fall in traditional switched traffic volume. VoIP accounted for 13% of all telephony users and 17% of fixed phone traffic.

France Telecom still dominates all market sectors, even though competition was introduced in 1998. Neuf Cegetel is the only operator in France to offer real fixed

network alternatives to the incumbent. The French mobile market is one of Europe's largest and represents about a third of the country's total telecom revenues, although it has lower levels of penetration than comparable European states, indicating that there is still room for growth. Mobile phone penetration was above 85% in mid-2007. 3G services have been licensed, but the process has been untidy, with delayed service launches. Mobile growth continues to be at the expense of fixed-line services; in 2006, fixed telephony's revenue fell 4.8% year-on-year.

Table 2.6: Telephone Network Statistics in France, 2006

Telecommunications retail revenue	€41 billion
Telecommunications investments	€7.1 billion
Fixed telephone lines in service	38.8 million
Fixed-line teledensity	59%
Major public telecom operators	France Telecom Cegetel Bouygues Telecom Tele2

The Internet was slower to take off in France than in many other European countries, partly because of the popularity of the Minitel service which was introduced by France Telecom in the early 1980s. However, broadband growth has been strong since 2003. France has reported some of the fastest growth in Europe, and was third to Germany and the UK in the number of broadband lines in mid-2006. Asymmetrical Digital Subscriber Line (ADSL) is the main means of access, although cable access also continued to develop strongly (with 22.5% growth in 2005). Revenue from high-speed access increased 44.1% in 2005 and represented close to 75% of total Internet revenues (€817 million), while the number of dial-up Internet subscriptions and revenues has declined sharply in recent years.

France has also seen some of the greatest innovation by market players, driven by investment from European Competitive Telecommunications Association (ECTA) members and other market entrants. Consumers have responded to the genuine choice in urban areas and embraced broadband widely. Initiatives by municipal governments have seen considerable investment in fiber roll-outs, particularly in Paris. The fall in the number of traditional telephone subscriptions (-1.7% during 2005) was offset during 2006 due to rapid growth in subscriptions to VoIP services (4.2 million in June 2006) helped by the development of unbundling, which allows a single line to have multiple subscriptions associated to it. The incumbent[24] is still very strong in the fixed voice market, with a 69.7% share (by revenues) as of January 2007, compared to 70.5% last year. VoIP operators reached 14% of voice traffic as of January 2007, while the incumbent's share was 57.5% of voice traffic. Most alternative operators use carrier pre-selection (67% of active operators) while 33% use carrier selection to provide their voice services. The broadband market has been exceptionally successful in France and it continued its strong progression, with a penetration rate of 23.26% in October 2007, compared to 20.38% in January 2007. France was the EU country with the second highest number of broadband lines, 14.7 million lines (as of October

[24] 27.4% of France Telecom is owned by the State and it continues to hold a very significant position in the market

2007), 94% of which were DSL lines. France had a total of 4.84 million unbundled lines as of October 2007, compared to 3.92 million in January 2007, most of them being fully unbundled lines. This growth has built on the development of the fully unbundled lines and the naked DSL offers, according to ARCEP. 3.21 million lines were fully unbundled as of October 2007, compared to 2.1 million as of January 2007. The incumbent's market share decreased slightly, from 48.2% to 47% of the total broadband retail lines as of October 2007. This trend was also observed in the DSL market, where the incumbent's share decreased from 51% to 49.37% as of October 2007. The importance of the incumbent's resale and bitstream access products decreased to the benefit of unbundling. DSL coverage in rural areas was high, 96.5% (in terms of population), close to the coverage at national level, which was 98.4% as of December 2006. Nevertheless, the coverage gap between rural areas and the national average was very significant for cable. France had the lowest coverage rate in rural areas in the EU (in countries where cable was present in rural areas), only 1.1%, compared to 26% at the national level as of December 2006.

The French mobile market has remained relatively unchanged in terms of penetration, market share, prices and competition for the past few years. The revenues growth of the mobile sector has continued its slowdown, from 12% in 2004 to 9% in 2005 and 4.1% in 2006. [25] The mobile penetration rate, at 82.87% as of October 2007, has increased by less than one point during this year (0.87%) and was still well below the average for the EU 27, which stands at 111.8%. The market shares of the three main mobile network operators (MNOs) have experienced no significant changes since last year, despite new rules on number portability and the presence of MVNOs in the market. The market shares of the leading operator and the main competitor were 44.3% and 34.1%, respectively (in terms of subscribers) as of October 2007, compared to 45.3% and 35.1%. The third operator's market share has not developed and even decreased from 17.6% in October 2006 to 17.4% in October 2007%. Prices are still relatively high compared to other Member States and have not experienced significant improvements over the last years. Thirteen MVNOs were on the market as of October 2007, none of them having control over network elements. It seems clear that MVNOs do not exercise much competition pressure on the mobile market. One reason could be the restrictive conditions imposed by the mobile operators for providing access to their networks, in the absence of any regulatory measure on access to mobile networks on this market. In December 2005, the competition authority (*Conseil de la Concurrence*) condemned the three mobile operators for sharing confidential information, dividing up the market, and for concerted practices. One issue is the alleged abuse of a dominant position by the two larger operators, although it has not been established. Furthermore, access to this market by new entrants through MVNO agreements is still difficult, and the national regulatory authority (NRA) is trying to promote competition by supporting such agreements.

While retail broadband rates in France are one of the lowest in Europe, alternative operators still complain about the lack of margin between the incumbent's reference unbundling offer and its telephony retail subscriptions. The same situation appears between the wholesale rental line and retail prices in areas that are not unbundled. In September 2005, ARCEP published its analysis of the retail fixed telephony markets, defining six relevant markets in which France Telecom had SMP. Obligations were imposed on France Telecom aimed at establishing fair competition between operators.

[25] ARCEP data

France Telecom is forbidden from practicing unfair bundling of services, discrimination, and excessive or predatory pricing, and ARCEP has applied a price control on some of France Telecom's retail offers to ensure that they can be replicated by efficient alternative operators.

2.3.3 Germany

Germany has Europe's largest population, at more than 82 million, and the largest telecom market. Market revenue increased 54% between 1998 and 2006. The total turnover of the German telecommunications sector was €66.1 billion as of 31 December 2006; the revenue from the fixed markets was €39 billion, and from the mobile markets €26.6 billion. The total value of tangible investments by alternative operators in fixed telephony networks was €3.7 billion. Mobile operators invested €2.7 billion. The incumbent fixed network operator invested €3.2 billion in its fixed and mobile infrastructure in 2006. Fixed-mobile convergence is becoming more and more a reality, with mobile offers aimed at persuading customers to give up their fixed subscription, and triple play offers continue to gain in popularity. Many mobile operators have added broadband and fixed telephony offers to their portfolio. Ten operators, including the incumbent and the major cable network operators, offer triple play. Alternative operators were able to significantly increase their market shares for retail access on the back of falling retail prices. In January 2007 the broadband penetration rate was 23.79% (up from 18.07%; the EU average is 20.04%). However, compared to leading countries in Europe weaknesses in infrastructure persist. In rural areas, in particular, additional infrastructure efforts appear to be needed to generate further penetration growth For example, whereas in urban areas DSL coverage is 99%, in rural areas this figure was only 58.5% at the end of 2006. Cable continues to be used mainly for television, but the cable network operators have continued to offer broadband internet services, and by January 2007 their market share was about 5% (up from 3.17%). The alternative operators´ share in the DSL retail lines market increased from 50.3% in January 2007 to 51.4% in January 2008. However, a closer look at these figures demonstrates that this positive development is to a large extent based on resale products from the incumbent. If DSL resale lines of new entrants were included in the incumbent's market share, this would still amount to 64.1% in January 2008 (down from 69.5% in January 2007).[26]

Table 2.7: Telephone Network Statistics in Germany, 2006

Telecommunications retail revenue	€67.5 billion
Telecommunications investments	€5.8 billion
Fixed telephone lines in service	54.5 million
Fixed-line teledensity	66%
Major public telecom operators	Deutsche Telekom Mannesmann Arcor BT Global Services Debitel

Like in the rest of the EU, the fixed network and services markets in Germany are also dominated by the incumbent Deutsche Telekom, although its share has been

[26] European Commission, 2008.

declining in recent years. The other major operators are Mannesmann Arcor, Mobilcom, Debitel and BT Global Services. By early 2005 there were about 550 companies holding unrestricted network and/or voice telephony licenses. Almost 400 companies provided voice services in the fixed network, of which more than 100 offered call-by-call, pre-selection and direct access over their own core and access networks. The others were resellers, buying call minutes from the network operators and marketing and billing these under their own names.

There is scope for further competition, since Deutsche Telekom still dominates in the provision of consumer broadband services, having about 87% of the market. With 97% of all broadband lines being DSL, the regulator is keen to promote facilities-based competition from cable and other broadband technologies, such as Broadband over Powerline (BPL). These changes are likely to be slow, since numerous legal and technical challenges remain. The incumbent lost more than a million customers during 2005 as an increasing number obtained telephone services from alternative providers; by early 2006, alternative providers accounted for three million direct subscriber lines. CPS services have also continued to grow in volume. In 2003, the introduction of call-by-call selection and pre-selection for local calls provided further competition in the fixed-line telephony market. Since the end of 1997, prices for Internet access and for mobile and long-distance calls have plummeted and are now among the lowest in Europe. In mobile telephony, in addition to four mobile operators providing services, there are a number of resellers and Mobile Virtual Network Operators (MVNOs). T-Mobile bought out tele.ring in late 2005, while E-Plus and O2 were awarded GSM 900 licenses in February 2006. In November 2007, BNetzA[27] had to decide again on MTRs as the previous decision on reducing termination charges proved ineffective. It decided to further lower the MTRs by about 10% for the two largest mobile network operators and by about 11% for the other two mobile network operators. The applicable termination fees are now 7.92 cent/minute and 8.8 cent/minute (EU average 9.78 cent/minute). Whether the lowering of MTRs by BNetzA has been the reason for growing competition on the retail mobile markets is still too early to judge. However, it is not clear how far the incumbent fixed network operator has passed on savings from the reduction of MTRs to its customers. The relatively stable level of prices of fixed to mobile calls for end-users seems to argue against a pass-on. Consequently BNetzA explicitly asked the undertakings concerned to pass on the reduced wholesale tariffs to their customers.

2.3.4 The Netherlands

The Dutch telecom market remains one of the most advanced in Europe, particularly in broadband infrastructure and use. More than two-thirds of the population uses the Internet, while the high broadband take-up has benefited from government support and competing cable and Digital Subscriber Line (DSL) platforms. Fibre-to-the-Home (FttH) networks are also a feature of the country's broadband landscape, with a

[27] BNetzA is the German NRA. Concerns continue to exist inasmuch as the members of BNetzA's presidential chamber depend on political appointment. It appears that in important political questions, like the treatment of VDSL-based markets, the presidential chamber plays a decisive role. Market players expressed concerns that regular meetings between representatives of the Ministry and members of the Presidential Chamber are allegedly used by the government to give guidance to the NRA.

unique collaboration between national, regional and municipal governments working with industry and academic institutions.

Mobile phones have proved at least as popular as elsewhere in Europe, with mobile penetration at about 107% in early 2007. The success in this sector during 2006 was largely due to strong competition among the network operators and the range of MVNOs which has kept consumers prices low. KPN is the market leader although the September 2007 purchase of Orange Netherlands by T-Mobile has created a significant challenger. SMS is the most popular mobile data service, while Premium SMS (PSMS) often involves the broadcasting industry for content. Four of the five UMTS/3G licensees have launched services.

Table 2.8: Telephone Network Statistics in the Netherlands, 2006

Revenue	€12.2 billion
Fixed telephone lines in service	7.6 million
Fixed-line teledensity	53%
Major public telecom operators	KPN UPC Versatel BT Ignite

Although in the European ranking of broadband penetration, the Netherlands (34.2% – October 2007 data) has been overtaken by Denmark and Finland, it is still one of the world leaders. As most households with a PC now have a broadband connection, growth is slowing down (2.4 percentage points between January and October 2007). The alternative operators' share of the retail market dropped to nearly 50% due to the take-over of a DSL provider by the incumbent. Within DSL retail lines, the incumbent therefore holds a very large and growing market share, with 83% (October 2007). The number of fully unbundled lines is still growing, while the number of shared lines is falling. The main competitors are, however, the cable operators (accounting for more than 77% of the new entrants' retail lines). Nevertheless, the number of retail broadband connections based on DSL is 1.5 times higher than cable connections. DSL rural coverage is close to 100%. For cable, however, there is a big gap between urban and rural areas (rural coverage is 40%, while the national coverage is over 90%). The success of broadband development in the Netherlands is to a large extent built on infrastructure competition. Cable operators were the first to offer broadband connections in 1998 (followed by an ADSL offer by the fixed incumbent in 2001), but since 2004 DSL has taken over.

On the regulatory front, interaction between the two bodies charged with NRA functions does not always result in a clear and predictable business environment for market players. Market players are concerned about the division of the role of he national regulatory authority between OPTA[28], which is the regulatory body, and the Ministry of Economic Affairs, and the legal uncertainty that this division sometimes produces. According to OPTA, the recent reduction of mobile termination tariffs was a response to an investigation by the Competition Authority rather than truly voluntary. OPTA concluded that each mobile network operator has SMP on its

[28] Onafhankelijke Post en Telecommunicatie Autoriteit (OPTA), started new market analyses in 2007.

network for the termination of mobile calls. As of July 1, 2006 tariffs for mobile call termination are based on a new accounting model developed by OPTA with the participation of market players. One view is that regulation of interconnection in the Netherlands is an example of overly detailed and complex rules. The documents to be taken into account by market players in order to understand their rights and obligations include the Government's explanatory memorandum to the Telecommunications Act, a parliamentary report on the draft Telecommunications Act, a ruling of the Dutch Trade and Industry Appeals Tribunal and OPTA's public consultation document. Consequently, mobile operators point to a degree of uncertainty as to operators' rights and obligations towards each other. For instance, the Interoperability Decree mandates voice end-to-end connectivity, but the scope of this obligation is not clear. On the other hand, a number of alternative fixed operators noted that direct interconnection with mobile operators remains an expensive option, if compared to indirect interconnection using the fixed incumbent's network.

In 2006, the incumbent sued the State, OPTA and the competition authority for "discriminatory and asymmetric regulation". Its claims were rejected by the court, but the incumbent is continuing to press the NRA to lift the price floor regulation it has been imposing on the fixed telephony retail market. OPTA sees no reason to carry out new market analyses, arguing that the incumbent has sufficient room for offering low tariffs to customers to compete in the market. Several heavy fines have been imposed on the incumbent for offering illegal discounts to business customers, but enforcement has raised several issues and alternative operators also complain about the effectiveness of the wholesale line rental process (tariff regulation decision adopted in December 2006).

The Dutch telecom market, however, remains one of the most advanced in Europe, particularly in broadband use and infrastructure. More than two-thirds of the population uses the Internet, while the high broadband take-up has benefited from government support and competing cable and DSL platforms. Fiber networks are also among the most extensive in Europe and mobile is popular largely due to strong competition among network operators and the range of MVNOs which have kept consumers prices low. The incumbent KPN has plans to switch to an open access all-IP network before 2010 in order to meet the increasing demand for bandwidth, reduce costs, and develop flexibility in implementing and launching new triple play and multimedia services. The all-IP network will affect the dynamics in both retail and wholesale markets.

2.3.5 Italy

Italy has the fourth largest telecom market in Europe, worth some €44 billion in 2006. Overall year-on-year growth was a modest 2.1%, though this was achieved despite poor domestic economic performance. The country's huge mobile market grew 4.58% in 2006 to €23.56 billion, while the 0.4% fall in the fixed-network sector, to €20.45 billion, reflected the dwindling revenue from dial-up Internet access and the propensity among Italians to favor mobile telephony. It is likely that revenue in this sector may fall a further 1% in 2007 as prices for telephony services continue to be squeezed. Internet services, largely from the broadband sector, grew 20% to €3.3 billion. Italy has one of the largest telecoms in Europe – Telecom Italia – which dominates all market sectors. The Italian mobile market is particularly strong, and

mobile penetration is far higher than the EU average, fuelled by the popularity for keeping multiple prepaid cards. Four 3G networks were active in 2007. Some key recent developments in the market are:

- Increase in operators' bundled offers (voice and broadband, both on PSTN network and VoIP);
- Convergence of services and networks, with a focus on Fixed-to-Mobile Convergence offers (permitted by the regulator from mid-2007);
- Focus on audiovisual content through fixed (IPTV) and mobile (DVB-H) broadband networks;
- Greater competition in the fixed, mobile and Internet sectors leading to lower prices and new product launches;
- Increased mobile revenue, partly offsetting lower fixed-line revenue, derived from value-added services such as SMS, MMS, mobile Internet, downloads and streaming content;
- Significant growth in 3G services;
- Significant growth in broadband resulting from the dramatic fall in access prices coupled with network upgrades (both fiber and DSL) enabling consumers to make use of high bandwidth services.

Table 2.9: Telecom Revenue and Investment Statistics in Italy, 2006

Telecommunications retail revenue	€36.8 billion
Telecommunications investment	€6.9 billion
Fixed telephone lines in service	26.9 million
Fixed-line teledensity	45%
Major public telecom operators	Telecom Italia Wind BT Italia

There were a number of operators active in the fixed market in 2007, though just four of these covered 90% of the market in terms of retail revenues. The incumbent's overall share in the fixed voice telephony market (in terms of retail revenues) has fallen to about 60%, reflecting a continuing fall in share each year in the face of competition from VoIP and mobile substitution. The incumbent's share in the lucrative broadband market was about 63%. Italy's Internet market continues to grow rapidly, with penetration about 52% in mid-2007. Italy's Internet market is growing rapidly. Penetration levels approached 50% in 2006, while the Asymmetrical Digital Subscriber Line (ADSL) broadband sector has also shown strong growth in the absence of competition from cable networks. Fibre-to-the-Home (FttH) projects are developing and are creating facilities-based competition to complement unbundled and resale competition over the DSL networks. There are around 220 licensed operators in Italy; about 100 operators offer public voice telephony at the national level, and more that 40 operators on a regional basis; some 34 operators have a national network license and about 25 have only a regional network license. Telecom Italia, the former state monopoly dominates the entire industry, with the Wind Group being the only real alternative operator. BT Italia is the largest new entrant targeting the business sector.

The Italian mobile market, with 148% penetration as of October 1, 2007, one of the highest in Europe, is nearing saturation in terms of subscribers. In this situation, mobile number portability represents a key factor in competition, as evidenced by the 14 million mobile numbers ported since its introduction in 2002, including 4.1 million ported in the last year. In terms of revenues, as of December 2006 the first two main operators held, respectively, 41.1% and 36.82% of the market**.** All mobile operators are gradually introducing advanced services such as mobile TV. The successful entry of the new 3G operator in the market created a long waiting list for numbers to be ported (up to 45 days) according to AGCOM, the Italian Regulator. Following an AGCOM initiative, mobile operators agreed to an increase in the ported numbers from 9,000 to 12,000 per day for the two largest operators from 2007. Consumer associations continue to ask for a national regulation that would oblige operators to transfer the residual credit of the pre-paid cards that represent 90% of the market. In October 2007, the National Competition Authority (AGCM) opened an investigation into possible abuse of a dominant position by the incumbent on both fixed voice and broadband markets. In particular, AGCM claims that the incumbent retail division may have made use of sensitive information from the wholesale division to retain users who were in the process of changing operators. The incumbent contests the allegations.

Like elsewhere in Europe, regulatory procedures in Italy can be time-consuming. To address the lack of human resources, in July 2007 the government approved an increase in AGCOM's staff; protests about lack of information on the handling of complaints however persist. Operators complain about a lack of information on the handling of their complaints. While access to the relevant documents and contacts with the case handlers are frequent, they would like AGCOM to set up more transparent internal procedures to handle formal complaints. Appeal procedures continue to take a very long time (around 2 to 3 years). However, provisional measures in urgent cases are ruled on by the Court within 2-3 months. The expected single access point for public consultations from the different national authorities has not been implemented. Measures to make the information more easily accessible are in progress.

2.4 Telecom Sector in India

When compared with other liberalizing infrastructure sectors such as electricity, telecom reform in India has been hailed as a success. The success has been characterized by increasing teledensity, declining prices, and elimination of waiting lists. These broad indicators however mask a number of micro issues that remain to be sorted to bring the sector to the world-class levels envisaged in the National Telecom Policy (NTP) of 1994. The NTP was drafted at a time when the government was also the sole provider of telecommunications services through a departmental enterprise – the Department of Telecommunications (DoT). NTP 94 aimed at easing the constraints imposed by the monopoly model, i.e., poor investment and scarce supply. At the same time it recognized the importance of universal service obligation (USO), namely, providing telephones on demand to all Indian villages. It also envisaged India as a major manufacturing and export base of telecommunications equipment and, for the first time, allowed private/foreign players to enter the 'basic' (or last mile wire line) and the 'new' cellular mobile sector. Private participation was allowed and Foreign Direct Investment (FDI) up to 49 per cent of total equity was permitted in

these two services. The policy allowed one private service provider to compete in basic services (fixed-line) with the incumbent DoT, and allowed duopoly in cellular mobile services in each service area as defined.[29] As part of policy implementation, licenses were issued against license fees through a bidding process. This policy initiated the establishment of an independent regulator, the Telecom Regulatory Authority of India (TRAI), in 1997. The main objective of TRAI is to provide an effective regulatory framework to ensure fair competition while at the same time protecting consumers' interests.

Although NTP 94 was a major step towards liberalization, there were implementation problems related to the provision of a transparent environment for the entry of private service providers. First, there were very high bids in many circles which made these projects financially unviable; as a consequence, many private operators were unable to make payments to the government. Second, lack of transparency and uncertainty in the tender process and tender documents led to anxiety for private firms. Third, the sequencing of liberalization was questionable with the regulatory body being established after private entry occurred. Finally, and crucially, implementation of the policy was entrusted to the incumbent, DoT, a body that combined within its administrative boundaries the roles of service provider, policy maker, and licensor.[30]

Gaps in the formulation and implementation of NTP 94 led the government to construct a new Telecom Policy, NTP 99, which tried to rescue private players by restructuring their licensing agreements. This policy was more comprehensive and reflected a new vision, direction and commitment. It recognized the role of investment in the economy and convergence of IT, media, telecommunications, and consumer electronics. It envisaged provision of telecom services to all Indian villages at affordable prices and the provision of high-level services. There was a shift to a system of a one-time entry fee combined with revenue sharing payments from the license fee bid system, while duopoly rights were discontinued in order to allow unlimited competition. The private sector was allowed to provide domestic long-distance services and, from April 2002 international long-distance voice service, with no restrictions on the number of participants, was also opened for private participation.

Following a comprehensive consultation procedure covering service providers, consumers, policy makers and parliamentarians, TRAI issued its Telecommunication Tariff Order (TTO) on March 9, 1999. The Order was a landmark for infrastructure regulatory agencies in India in terms of attempting to rebalance tariffs to reflect costs more closely and to usher in an era of competitive service provision. The chief features of the TTO were substantial reductions in long-distance and international call charges, increase in rentals and local charges, and steep reductions (an average of about 70 per cent) in the charge for leased circuits.

[29] India is divided into 23 telecom service areas (consisting of 19 circle service areas and four metro service areas). Licenses are issued for a specific service area; however, an operator can apply for a licence in more than one service area as long as it fulfils all the eligibility requirements set by the DOT. The eligibility requirements include restrictions on foreign investment, and that the majority of directors on the Board must be resident Indian citizens (DOT online information. Viewed at: http://www.dotindia.com)

[30] For details, see Virmani, A (2000, 2004), Mukherjee, R (2004) and Kathuria, R (2004).

Disagreements over implementation, followed by institutional conflicts between TRAI and DoT, led the government to amend the TRAI Act (1997) in 2000. The new legislation signaled an attempt to re-establish a credible regulator. In terms of interconnection arrangements, which were a source of numerous disputes between DoT and TRAI, the new Act gave TRAI the power to override the provisions of license agreements signed with DoT and to fix terms and conditions of interconnection. Further, the government would be required to seek a recommendation from TRAI when issuing new licenses. However, while there has been an increase in the powers of the Authority, the Act has led to a weakening of the guarantee that was provided in the previous Act with respect to the five-year working period for the TRAI Chairman and Members; the statutory guarantee was done away with and the revised Act provides for less stringent conditions for removal of any Authority Member or Chairman.

The adjudicatory role of TRAI has been separated and assigned to the Telecom Dispute Settlement and Appellate Tribunal (TDSAT)[31]. This Tribunal has been provided with the powers to adjudicate any dispute:

(i) between a licensor and a licensee;
(ii) between two or more service providers; and
(iii) between a service provider and a group of consumers.

TDSAT has been given additional powers compared to those that had been given to the erstwhile TRAI. For example, it can settle disputes between licensor and licensee, and the decisions of the Tribunal may be challenged only in the Supreme Court. TDSAT is also the appellate authority in respect of any directions, decisions and orders of TRAI.

In 2000 the service provision functions of DoT were separated and are now handled by a corporatized entity, Bharat Sanchar Nigam Limited (BSNL), while DoT continues to be the licensor and policy maker[32]. *Since then, the institutional structure of the sector in India has stabilized, although some concerns still exist relating to independence of the regulator and privatization of BSNL.* Nonetheless, driven both by regulatory initiative and technological advancement, liberalization of the sector has progressed leading to rapid developments in the sector.

India is the largest telecom market in South Asia and the second largest network in the world, edging ahead of the United States and second only to China. In terms of revenue it was worth US$27.5 billion in March 2008, up from about US$25 billion the preceding year. Average growth in revenue during the past three years has been 20 per cent, making it one of the fastest growing telecom markets. Every month more than 8 million mobile phones are being added, although overall teledensity is only 28.22 per cent. The country's huge mobile market grew strongly in 2007, despite

[31] In its present form, the Competition Commission of India (CCI) Bill also envisages the dispute settlement function to be performed by the Communications Dispute Settlement Appellate Tribunal (CAT).

[32] In October 2000 when the Department of Telecom Services (DTS) and the Department of Telecom Operations (DTO) were corporatized, the business of providing telecom services was transferred to BSNL, a newly established company under the Company's Act 1956. MTNL is majority government-owned (56.25% of total equity), and provides basic landline, mobile, long-distance, and trunk call services in Mumbai and Delhi.

evident saturation in urban markets. The fixed-network sector on the other hand is declining, reflecting, in part, fixed-mobile substitution. Internet and broadband penetration remain low at 1% and 0.35 per cent, respectively, but also hint at the great potential in the telecom market in the country. The government has introduced a few policies and investment incentives to ensure that the country takes full advantage of developments, and can properly integrate the entire production chain ranging from technology and products to services. Today, there are no restrictions on the entry of new players in basic, national long-distance (NLD), international long-distance (ILD), Internet service provider (ISP) and infrastructure businesses. Four operators are allowed in cellular mobile in each service area. This has led to intense competition in the market and a downward trend in tariffs.

In September 2002, the requirement for cellular service providers to obtain approval from the TRAI on tariff changes was removed. Currently, TRAI regulates tariffs for services where markets are not competitive; these are rural fixed-line telephone calls, national roaming in mobile phone calls, and leased circuits. Tariffs for all other telecom services have been liberalized. Increased competition as a result of deregulation, together with tariff rationalization measures, has resulted in significant tariff reductions: the peak national long-distance tariff (above 1,000 km) fell from US$0.67 per minute in 2000 to US$0.02 per minute in 2006, the international long-distance tariff to the United States fell from US$1.36 to US$0.16 per minute, and the mobile phone tariff for local calls fell from US$0.36 to US$0.009-0.04 per minute. In 2006, the public sector operators, BSNL and MTNL, launched a "One India" plan; from 1 March 2006, customers pay Rs 1 per minute for domestic long-distance calls (fixed-line and cellular).[33] Also from 1 March 2006, the authorities decided to change the access deficit charge (ADC) regime;[34] the ADC charges were recovered by a per-minute charge on incoming and outgoing international calls, and a 1.5% revenue share on the adjusted gross revenue (AGR) of all telecom service providers, apart from revenue generated from rural subscribers. ADC is to be phased out and incorporated into the USO regime with effect from September 30, 2008. A competitive telecom market reduces costs for business and private users and also induces service providers to be imaginative in their product offerings. While greater competition has led to segmentation across subscriber types, customization, bundling and ‘free life-time plans’, it has also triggered mergers and acquisitions of weaker providers and the emergence of a few big players. India now has one of the largest telecommunications networks in the world and its regulatory regime is at par with international developments. A chronology of Indian telecom reform is given in Annex IV.

2.4.1 Opportunities in the Indian Telecommunications Sector

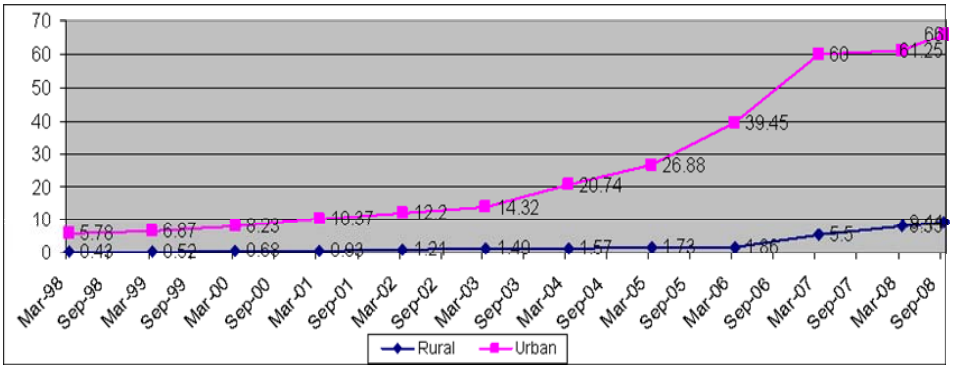
India offers significant investment opportunities in the telecommunications sector because there have been a series of reforms in the past decade and GDP is growing at a fast pace. Sizeable numbers of India’s huge population are not covered by telephones and the number of cellular phones per 100 people is low when compared

[33] India TPR, 2007. Available at http://www.commerce.nic.in/trade

[34] The ADC was an amount paid by telecom service providers at the caller’s end to telecom service providers at the receiver’s end on cellular to fixed-line calls and domestic long-distance calls. The ADC was charged to subsidize the cost incurred by service providers in providing services in rural areas and for local facilities.

with the EU countries profiled above. While mobile teledensity in Europe has breached 100 per cent, Indian mobile penetration although increasing rapidly is still less than 25%. This offers tremendous room for further expansion, particularly since mobile penetration is skewed in favor of urban areas.[35] Figure 2.1 reveals the widening gap between urban and rural penetration levels. The potential in rural India is therefore immense and there are indications that service providers are turning their attention to the underserved rural areas. With urban markets reaching saturation and USO funding now accessible to mobile services in rural areas, the gap between urban and rural teledensity can be expected to narrow over time.

Figure 2.1: Urban vs Rural Teledensity in India



Source: DoT Annual Report, Various Issues.

Table 2.10 presents a comparison of select telecom indicators for India and Europe for the year 2005, the most recent year for which data is available for all countries and therefore comparable. The data reveal that revenue from the Indian telecom sector was less than 5% of the entire EU telecom revenue. While growth in the last two years in India has been higher than in the EU, the Indian telecom sector is still a fraction of the sector in the EU; even when compared with individual countries' revenue, the revenue attributable to telecommunications services in the advanced European countries is 3 to 5 times higher than in India.

Table 2.10: Comparison of Countries by Telecom Indicators, 2005

	India	EU	Germany	UK	France	Netherlands	Italy
Revenue* (billion)	€12.67**	€291	€66.30	£46.6	40.40	€12.00	€36.00
Fixed Lines (000)	46,190	9,266	55,046	33,700	35,700	7,600	25,049
Fixed Teledensity	4.28	45.05	66.57	56.35	59.01	46.63	43.12
Mobile (000)	52,220	17,847	79,200	61,091	48,058	15,834	72,200
Mobile Teledensity	4.84	99.08	95.78	102	79.44	97.15	124.28
Internet (000)	40,570	8,298	37,500	37,600	26,154	10,000	27,900

** In € billion, except UK, in £ billion.*
*** At 2005 euro exchange rate.*

[35] At last count, rural teledensity was 9.44 per cent while urban teledensity was 66 per cent. *www.trai.gov.in*

Compared with other middle-income countries, India's teledensity is low[36]. In terms of contribution to the GDP, telecommunications revenue in India accounted for a little less than 2.75 per cent in 2007, which is below the world average of 3.1 per cent.[37] In order to reach the world average by, say, next year, other things remaining the same, the revenue of this sector needs to increase by about 45% or by an astounding US$10 billion. Looked at in any way, Indian telecom has enormous potential and needs a huge infusion of investment to reach its potential. Moreover, growth of India's knowledge-based sector is directly dependent on the speed of development of telecom networks. Hence, the country needs investment in this key infrastructure sector.

One similarity between the telecom sectors in Europe and India is the inexorable decline in fixed voice revenue and the shift to revenue-rich sectors such as mobile data and to content delivered over upgraded IP networks. These services, including Video-on- Demand and IPTV, are nascent in both markets, but promise considerable growth in the next few years. For India, TRAI has announced recommendations for IPTV and the regulatory bottlenecks related to content appear to have been cleared.[38] Mobile telephony and broadband remain the drivers fuelling the more positive outlook in India and Europe's telecom landscape. This was reflected in the massive investments during 2006 in fiber roll-outs, and in new mobile technologies such as HSDPA. Other key developments expected in the future include further progress towards Next Generation Networks (NGN) and moving infrastructure to an IP packet-based, full-service typology. The principal innovators in this sector are British Telecom, KPN, France Telecom and Deutsche Telekom in Europe, and Reliance Communications, Vodafone Essar, Tata and Airtel in India.

Since NTP 94 set the stage for liberalization of the telecom sector, foreign investment has been regarded as important for growth. The advantages of FDI are familiar; apart from sharing of risk, domestic operators used foreign equity to finance imported capital equipment. A Planning Commission report on FDI[39], submitted in 2002, pointed out that an investment of $37 billion is required to reach a teledensity of 7 per cent by 2005 (target set by NTP 99). Interestingly, the total capital employed in the sector in 2006 was approximately US$37 billion, delivering a total (fixed plus mobile) teledensity of 12.80.[40]

In the auctions of 1992-96, DoT made it mandatory for bidders to have a foreign partner and North American and European companies entered the Indian market at that time.[41] Apart from telecommunications companies, financial institutions (for example, American International Group, Inc.) and U.S. equipment manufacturers (for example, Hughes Electronics Corporation) entered into joint ventures with Indian private companies. As the following table reveals FDI inflows have been erratic and can be linked to the prevailing regulatory and institutional framework. The initial

[36] For example Chile's teledensity is 67.71 while Argentina's is 57.41. *Measuring the Information Society*, ITU, 2007.
[37] World Telecommunication Development Report, 2003, International Telecommunication Union (ITU).
[38] Draft Recommendations on provision of IPTV services, 28th Nov 2007. Can be accessed at www.trai.gov.in
[39] See Planning Commission (August 2002), Foreign Investment, India.
[40] www.trai.gov.in/achievement/ Targets are periodically set by the government. For example, the target of 250 million phones set by the government for 2007 has also been surpassed.
[41] Hong Kong was another country from which private companies entered the Indian market.

burst in FDI occurred soon after the mobile market was opened for private, including foreign investment, in 1995. However the optimistic bids, conflicts between the regulator and DoT, and the general uncertainty in the operating environment led a number of foreign players including AT&T, BelgaCom, SwissCom, BT, Singtel and Bell Canada to abandon India as an investment destination. The second surge in FDI occurred in 2001 after the new institutional framework for telecom came into being in 2000 accompanied by greater regulatory certainty. Finally, the third surge which is currently being witnessed, owes in part to the increase in FDI ceiling to 74% across almost all service categories; it can also be linked to the increased opportunities available for new technological deployment (IPTV, NGN, WiFi and WiMax) and expanding geographical coverage to rural areas.[42] Both BT and AT&T have since reinvested in India in joint ventures with Mahindra and Tata, respectively.

Table 2.11: FDI inflows into India since NTP 1994

Year	FDI Inflow
Till 1993	0.66
1994	4.47
1995	59.14
1996	213.40
1997	317.49
1998	417.31
1999	48.90
2000	73.33
2001	886.44
2002	160.97
2003	151.57
2004	136.52
2005	154.73
2006	934.18
2007	1,163.58
Total	***4,722.69***

Source: www.dotindia.com, converted at prevailing US$ exchange rates. Accessed from www.resevebankofindia.org.
Note: All figures in US$ million.

Easing regulatory restraints has been very much part of the evolving regime in India. To simplify licensing, a Unified Access Service (UAS) license regime for fixed-line and cellular services was introduced in November 2003.[43] This regime allows an

[42] In 2000 100% foreign ownership was allowed for Internet service providers (ISPs) without gateways, infrastructure providers providing dark fiber, and electronic and voice mail services; companies providing these services must, nonetheless, divest 26% of equity in favor of the Indian public in five years, if they are listed outside India. From 2001, 74% foreign ownership was permitted for ISPs with gateways, radio paging, and end-to-end bandwidth services. In November 2005, the limit on foreign investment equity was raised from 49% to 74% in certain areas, such as fixed-line, cellular, unified access services, national and international long-distance calls services.

[43] TRAI issued guidelines on the UAS, effective 11 November 2003. UAS operators are free to provide, within their area of operation, services covering collection, carriage, transmission, and

operator to provide any or all types of access services permitted in the license; thus, operators are no longer required to have separate licenses for each type of service provided. Further, in April 2004, license fees were reduced by 2%; current fees range from 6% to 10% of adjusted gross revenue (AGR) for UASs in the designated service area.

At the sub-sectoral level, unrestricted entry was permitted for national long-distance (NLD) calls in August 2000. Currently, there are two publicly-owned and 14 private NLD operators. The NLD license is issued for 20 years and can be extended once for ten years. From 2006, entry requirements have been reduced for NLD operators' entry fees from Rs 1 billion to Rs 25 million, and license fees from 15% to 6% of AGR. In addition, the mandatory roll-out obligations for NLD licenses were removed on December 14, 2005.[44]

Deregulation of international long-distance (ILD) calls has continued since the privatization of Videsh Sanchar Nigam Limited (VSNL) in February 2002.[45] Licenses for ILD services are issued initially for 20 years, with an automatic extension for five years. Like the NLD sector, there is no limit on the number of service providers. There are nine private and one public ILD service providers; private operators account for more than 90% of market share. In January 2006, a new ILD license agreement reduced entry fees from Rs 250 million to Rs 25 million, and license fees from 15% to 6% of AGR. Further, there are no mandatory roll-out obligations for ILD service licensees except to have at least one switch in India.[46]

The broadband policy announced by the DoT on October 14, 2004 allows service providers to access mutually agreed on commercial arrangements, so as to use the available copper-loop to expand broadband services. The authorities expect that there will be 20 million subscribers for broadband services along with 40 million internet subscribers by 2010.[47]

The liberalization of telecommunications in India has had a salutary effect on telecom indicators when compared to the sector's past performance. The fixed-line network has grown from 14.54 million in 1997 to about 40 million in 2008. Mobiles have overtaken fixed lines; from 0.34 million in 1997 the subscriber base crossed 260 million in March 2008 with around 8 million subscribers being added every month.[48] Competition ***for*** the market coexists with competition ***in*** the market. As stated above, there is virtually no restriction on entry in any of the sectors, save cellular mobile and

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delivery of voice and/or non-voice messages over the licensee's network. http://www.dot.gov.in/basic/basicindex.htm.

[44] "ILD and NLD Licences Simplified". http://www.dot.gov.in/ild/ILDNLD10NOV05.doc.

[45] The Government used to be the majority shareholder (53% of equity) of VSNL until February 2002, when it sold 25% stake to the Tata group. VSNL employees hold 2% of shares, and the Government currently holds a 26% stake.

[46] http://www.dot.gov.in/ild/ILDNLD10NOV05.doc. Under the previous mandatory roll-out obligations, within three years of obtaining a license an ILD operator had to set up four international gateways/switches in each part of the country (north, south, east and west), and be able to connect calls to an international destination via regional hubs in, for example, North America, Europe, and the Middle East.

[47] By the end of March 2008, there were 14.9 million subscribers, including 3.9 million broadband subscribers. If mobile internet subscribers are included, the Internet subscriber base jumps to 65.5 million as of March 2008 (TRAI).

[48] DoT Annual Report, 2007-08 accessed from http://www.dot.gov.in

that exists due to scarcity of spectrum. In an episode that unambiguously reflects and reiterates the attractiveness of Indian telecom today, DoT received 575 applications for UAS licenses, the spectrum for which is to be decided on a first-come and availability basis. Simultaneously, DoT also permitted existing UAS licensees to offer wireless services using either GSM or CDMA technology. This decision paved the way for existing CDMA operators to provide GSM-based services and vice-versa, subject to the availability of spectrum and payment of prescribed fees. This has intensified demand for spectrum and has become a bone of contention among operators, serving as a valuable resource for those who possess it and an entry barrier for those who do not, and a mobility barrier for those who do not have enough. In addition to trying to free up spectrum from Defense services, the challenge that currently confronts DoT is the assignment of additional 2G spectrum to existing licensees as well as to applicants of new licensees in a non-discriminatory and efficient manner. While there is still some ambiguity about the final regulatory policy, it does seem that the regulatory stance towards the industry is getting tougher.

Box 2.2: Recent Developments in India

Enhancement of subscriber criteria for allocation of additional 2G spectrum

DoT decided to increase the number of subscribers that existing GSM operators must have to be eligible for additional spectrum. The new subscriber norms are around three times higher than the existing ones. This led to vehement protests from GSM operators; the Cellular Operators Association of India (COAI) approached the Telecom Disputes Settlement Appellate Tribunal (TDSAT) against the decision. The High Court on August 22nd 2008 delivered its judgment on the issue in which it supported allocation of 2G spectrum on a first-come-first-served basis and brought back focus on efficient utilization of spectrum as underscored by both TRAI and TEC.

Access license made technology neutral

The government permitted existing universal access service licensees to offer wireless services using either GSM or CDMA technology. This decision paved the way for existing CDMA operators to provide GSM-based services and vice-versa, subject to the availability of spectrum and payment of prescribed fees.

3G spectrum auction to be open to all

The government announced that 3G spectrum would be auctioned, which would be open to all. This means that both existing operators and new entrants, whether owned by domestic entrepreneurs or foreign companies such as AT&T and Deutsche Telekom who currently do not have a presence in India, would be eligible to bid for 3G spectrum. This view is in contradiction with the Telecom Regulatory Authority of India (TRAI) recommendation of allocating 3G spectrum only to existing service licensees.

MNP from last quarter of 2008

To reduce entry barriers and increase competition, the government has decided to implement mobile number portability (MNP) in a phased manner. MNP would give subscribers the freedom to change their existing wireless operator while retaining the same number. To begin with, MNP would be implemented in the four metros of Mumbai, Chennai, Delhi, and Kolkata during the last quarter of 2008.

Source: Compiled by the author from various media reports, October and November 2007 and September 2008.

2.5 Findings: Indo-EU Trade in Telecommunications Services

The discussion in the above sub-sections reveals that the growing Indian telecom market offers significant investment opportunities for foreign investors and that the Indo-EU TIA may have trade complementarities in the sector which can be leveraged under the agreement. There are not many service provider companies from the EU in India at present, although in network and equipment the major European manufactures, Nokia, Ericsson and Alcatel, are present. The imminent expansion of mobile networks will create significant opportunities for service provision as well as for network deployment and in this context the Indian market could open a host of prospects for European players. The applicable foreign investment regime for telecom in India is liberal, much more than what India has committed under the GATS agreement (see below). There are, however, certain barriers in the Indian market and the expectation from the TIA would be to alleviate the restrictions to provide increased market access and to sustain growth of this sector.

For Indian companies, opportunities in the EU will in all likelihood be limited to the less advanced countries. Most of developed Europe has the most advanced telecommunications networks of any region in the world. All countries have dense PSTN networks, constructed over the twentieth century by publicly-owned national incumbents. Rival networks have been constructed since the 1980s with the development of ISDN, mobile telephony, data, cable TV (CATV) and fiber networks. Alternative technologies, including wireless networks, power line communications, 3G mobile networks and satellite broadband are now available. A key development during 2005 and 2006 was the deployment of NGN, moving the sector to a packet-based, full-service typology. Networks based on fiber backbone and Internet Protocol (IP) are gradually being deployed, notably in the UK, the Netherlands, Germany, France and Italy, using a single transport network for all voice and data services. British Telecom (BT) was the first incumbent in the region to state its plans for its 21st Century Network (21CN), in June 2005, declaring that the network would be fully migrated by 2009.

The enlargement of the EU has greatly increased the number of operators in Europe. Within the EU 15, there was a 17% increase in network operators and 3% increase in voice operators in 2005. In the 10 new Member States, where the liberalization process started later than in the EU 15, competition remains at an early stage and is largely concentrated in the international calls market. This can be the result of new entrants focusing their business on specific segments in the market, and thus having a limited impact on the overall level of competition. An indicator that can be used as a proxy for concentration on the market is the number of operators that have a combined share of 90%. Comparing this data to the previous years' shows that competition has increased. While in 2005 only 7 countries had five or more major competing players (including the incumbent), in 2006 there were 10 such countries. Capital expenditure in mobile is expected to pick up again in 2009 with the onset of a new investment cycle in response to likely future capacity constraints in mobile broadband. Also, with many EU markets reaching saturation levels for existing services, firms increasingly turned their attention to emerging markets such as India, South Africa or Latin America in evaluating investment propositions.[49]

[49] EU 2008.

Growth in Europe's consumer online content market has enormous potential on the back of developing mobile and Internet take-up. The market is expected to overtake the business segment by 2008. More than a third of the consumer online content market is based on online video, driven by the diffusion of wireline and wireless broadband access which has opened opportunities for industry restructuring and convergence. The main categories are music, games, video and publishing (text- and image-based content), as also value-added services. While there is no Indian company delivering content or data in the EU at present, an opportunity does exist in this respect. For example, in the US, Reliance Infocomm and Bharti Televentures have demonstrated intent of providing data services (see Table 2.12). It must however be understood that in the US there is a large community of interest (CoI) for Indian service providers.

Table 2.12: Indian Telecommunications Companies in the US

Name of company	Year of entry	Mode of entry	Area of operation
Reliance Infocomm	2003	Wholly-owned subsidiary: *Reliance Communication Inc (USA)*	Has obtained the International Common Carrier 214 License from FCC. However, yet to start any type of major operation in the US.
Bharti Tele-Ventures	2002	No commercial presence in the U.S. They have strategic alliances with 30-40 US carriers for termination of calls.	Exchange of voice and data. Has obtained the International Common Carrier 214 License from FCC. Provides services such as voice calls, calling cards, and Internet services.

Note: The information is as of May 2006.
Source: Arpita Mukherjee et al.

Although there are EU companies manufacturing telecommunication equipment and providing network services in India, they have not entered in a big way in provision of telecommunications services. Vodafone is the only European company in service provision, which entered recently through the acquisition mode. However as Box 2.2 shows, there may be enhanced interest in the Indian market following the opening of 3G spectrum for all service providers There is a widely-held belief that India is a growing telecommunications market and will offer significant opportunities for FDI on its own and also due to its complementarity with sectors such as software and business process outsourcing.

3. Multilateral and Bilateral Liberalization in Telecommunications

Signed and agreed in Marrakesh in April 1994 were eight Annexes to the GATS, including on telecommunications**.** The decision on Negotiations in Basic Telecommunications reflects the recognition by all governments that deeper liberalization of telecommunications services and telecommunications transport networks could be made through additional, voluntary negotiations. The GATS telecommunications agreement, entitled the 'Fourth Protocol', adheres to the overall

GATS principles of most-favored nation (MFN) treatment and voluntary commitments in market access. Through the MFN principle, it guarantees access to, and use of, public basic telecommunications networks and services in a transparent, reasonable and non-discriminatory basis (i.e., all trading partners are treated the same). Unlike MFN, which is a general obligation, provisions on market access (Art XVI) and national treatment (Art XVII) under the GATS apply only to specific commitments. The main provisions of GATS are summarized in Annex V.

Liberalization follows a positive list approach in which Members identify the specific sectors and modes of supply subject to any restriction.[50] Depending on their willingness, individual countries make various levels of commitments (which appear in 'schedules') to open their telecommunications sector and state how open the sector will be. This determines the ability of foreign firms to establish a commercial presence (a.k.a. Mode 3) and/or sell telecommunications services, both domestically and across borders (a.k.a. Mode 1). Table 3.1 outlines the four modes of trade in services as outlined in Art I of the GATS.

Table 3.1: Modes of Trade in Services as defined in GATS

Mode	Type of Service	Description
1	Cross-border Supply	The service is supplied from the territory of one Member to that of another member (e.g., telecommunications, the post)
2	Consumption Abroad	Involves the supply of the service in the territory of one Member to the consumer of another Member (e.g., tourism, ship repair).
3	Commercial Presence	The supply of a service through the commercial presence of a foreign supplier such as a corporation, branch office or joint venture.
4	Presence of Natural Persons	Involves admitting a national of one Member into the territory of another Member on a temporary basis for the purpose of providing a service. (e.g., a foreign employee of a service supplier of one Member having a commercial presence in the territory of another or foreign nationals of one Member operating as an independent service supplier in the territory of another Member).

Source: Compiled by the author from www.wto.org

These modes have been extensively applied in RTAs. Each participant country determines the scope (type of services covered) and scale (level of liberalization) of its commitments, and has the right to regulate the sector in the manner it deems

[50] Members identify any of six disciplines on quantitative restrictions that will apply for market access as well as those to which the principle of national treatment for 'like services or service suppliers' will apply.

appropriate, as long as firms from all trading partners are provided the same (MFN) treatment. In addition to commitment schedules, participant countries have the option to add onto their schedules a 'reference paper' that provides principles to guide the development of regulations in the context of competition in the supply of telecommunications networks and services (see next section).

3.1 Post-Uruguay Round Liberalization in Basic Telecommunication Services: The Agreement on Basic Telecommunications and the WTO Reference Paper

After an extended period of meetings and negotiations that began in May 1994, the Agreement on Basic Telecommunications (ABT) was signed on February 15, 1997. The ABT incorporated a broad definition of basic communications that included network-based and resale provisions for data transmission services, public voice services, Internet and satellite services, mobile/cellular services, and paging services among others. Contained within the ABT were the schedules of specific commitments and a list of exceptions from 69 Members, representing over 91 per cent of the telecommunications markets of WTO Members submitting offers. Following an extended ratification period, the ABT was incorporated into the GATS by the Fourth Protocol of the GATS that entered into force on February 5, 1998.

The ABT is significant since it introduces transparency and provides for greater scope and depth of liberalization, including pro-competitive regulatory disciplines and national treatment commitments that cover investment in basic telecommunications. In addition, incorporating basic telecommunications into trade policy implied an increased role for departments of trade, finance and industry. This broadening of the policy environment has led to a consolidation among groups in favor of liberalization consisting of political, bureaucratic and industry actors who 'have stakes in promoting liberalisation to the benefit of the economy as a whole rather than in protecting the prerogatives of traditional national carriers'.[51]

The purpose of the Annex on Telecommunications was to recognize the dual role of telecommunications – one, as a distinct sector of economic activity and, the other, as the underlying transport means for other economic activity. The core obligations of the Annex require each member to ensure that all service suppliers seeking to take advantage of scheduled commitments are accorded "access to and use of public basic telecommunications, both networks and services, on reasonable and non-discriminatory basis".[52] Members incur these obligations whether or not they have liberalized or scheduled commitments in the basic telecommunications sector. This is because the Annex addresses access to these services by users rather than the ability to enter the markets to sell such services; the latter is addressed in schedules of commitments.

During the course of the negotiations, members felt that the Annex on Telecommunications did not go far enough to ensure access for foreign telecommunications companies seeking to provide services in direct competition with dominant national incumbents. Hence, they drew up the Reference Paper which develops a set of pro-competitive principles on national regulatory regimes. The

[51] Noam, E. M. and Drake, W. *The 1997 WTO Agreement on Telecommunications: Big Bang or Little Bang?* Available at: http://www.citi.columbia.edu/elinoam/articles/wto_1997.htm

[52] http://www.wto.org/english/tratop_e/serv_e/12-tel_e.htm#fntext1

definitions and principles of the WTO Reference paper, to which the vast majority of governments, (57 out of the 69) agreed by the end of the negotiations, are outlined in the following table.

Table 3.2: WTO Reference Paper: Definitions and Principles

Definition/Principles	Description
Definitions	The Reference Paper applies rules to 'major suppliers' of telecommunications services who have 'control over essential facilities' or uses its position to 'materially affect the terms of participation'.
Competitive Safeguards	Governments must take appropriate measures to prevent suppliers of telecommunications services from using anti-competitive practices such as cross-subsidization, apply information obtained from competitors in an un-competitive manner, or denying competitors access to relevant technical information.
Interconnection	Governments must ensure that major suppliers provide interconnection of their networks to other service suppliers at 'any technically feasible point in the network'. Major suppliers will offer interconnection that is non-discriminatory, timely, and at a rate and quality 'no less favourable' than that provided for its own subsidiaries or affiliates.
Universal Service	Governments may set universal service obligations, as long as they are administered in a transparent, non-discriminatory, competitively neutral manner and are not more burdensome as necessary in reaching their policy objectives.
Transparency	Under circumstances where licenses are required, the licensing criteria, timeframe, and terms and conditions are to be made publicly available. Upon the request of the applicant, the reasons for denial of a license will be made known.
Independent Regulators	The regulatory body must be separate and not accountable to any supplier of basic telecommunications services and that its procedures be impartial.
Allocation and Use of Scarce Resources	Government procedures for the allocation and use of scare resources, such as frequencies and numbers, must be objective, timely, transparent and non-discriminatory.

The Reference Paper has been described as the touchstone for telecommunications services negotiations. Due in part to the successful conclusion of the ABT and the Reference Paper, and in part to technological advancement and competitive provision, the telecommunications services sector has experienced additional rule-making in the post-Uruguay Round period, i.e., developments at the multilateral level have been applied, and in some cases advanced at the bilateral and regional level.[53] As of January 2000, 93 WTO members have scheduled commitments in telecommunications services. Of these, 83 members (all industrialized countries and many developing countries) have scheduled commitments in basic telecommunications services, while 72 members (fewer developing countries) have made commitments in value-added services. In addition, 72 Members have committed on all or some aspects of the Reference Paper. While the majority have accepted it entirely, a few (including India) accepted it with certain modifications.

As members of the WTO, India and the EU are actively participating in the Doha Round of services negotiations. The negotiations are based on the request-offer approach, i.e., each country makes bilateral requests to its trading partners to remove barriers in areas of its export interest but commitments are multilateral. Accordingly, WTO members have made bilateral requests to their trading partners in areas of export interest and some members have submitted their initial/revised offers. India has received requests from many countries including the EU in telecommunications services but it has not made any requests in this sector. Both India and the EU have submitted their revised offers, which are examined below.

Modes 1 and 3 are the main modes of trade in telecommunications services and most WTO Members have made partial commitments under the Uruguay Round. An analysis of the commitments shows that countries have imposed more limitations on basic than value-added services across all modes, and developed countries expectedly have imposed fewer restrictions than developing countries. Further, such partial commitments were made much more for Mode 3, i.e. "commercial presence", than for other modes of supply. Another noteworthy feature is that the mode of supply "commercial presence" is also subject to the highest number of limitations. These relate mainly to limitations on number of suppliers, types of legal entities, and participation of foreign capital. For "national treatment", most limitations relate to "nationality requirement", followed by limitations relating to residency requirement, authorization requirements, and ownership of land and property. Certain countries have imposed "other measures" which include the requirement to use monopoly network facilities, prohibitions against interconnection with other leased circuits suppliers, and restrictions on resale of excess capacity of leased circuits.

Although there was general appreciation among Members that the accounting rate regimes in place would not be able to withstand the pressures brought about by competitive markets, it was decided to secure a shared understanding that Members would not challenge each other's accounting rates under the WTO's dispute settlement regime. Further, it was agreed that the understanding would be reviewed no later than the commencement of the new services negotiations, from January 1, 2000. However, certain countries (as mentioned above) included exemptions to the most favored nation (MFN) rules with respect to their accounting rate systems. Since, in the most

[53] Ullrich, H. *Assessing the Interaction between Multiple Levels of Rule-Making in Trade in Telecommunications Services*, LSE.

part, accounting rates are now negotiated between competitive suppliers rather than an incumbent government-owned monopoly, its relevance to the negotiating process is limited, if at all. Therefore, India faces no risk and may be well advised to withdraw its MFN exemption in this regard.

3.2 Comparison of WTO Commitments/ Revised Offer Made by India with the Applicable Regime

India's commitments in the Uruguay Round were limited both in terms of sectoral coverage and modes of delivery and the country did not even bind the existing regime. In data and message transmission services (value-added services) including electronic mail, voice mail, on-line information and data base retrieval, enhanced value-added facsimile services (including store-and-forward, and store-and-retrieve) and on-line information and/or data processing, India offered full commitments in Mode 1, left Mode 2 unbound and offered partial commitments in Mode 3 with 51 per cent foreign equity only with local incorporation. Under basic services, India's commitments covered voice telephonic services (limited to local/long-distance, for public use over a public telecommunications transport network, wire-based), circuit switch data transmission services, facsimile services, private leased circuit services and other services within which India offered commitments in cellular mobile telephone services. For basic services, the country left Modes 1 and 2 unbound. Commitments in Mode 3 were partial and subject to various restrictions such as limits on the number of operators, the private operator should be a company registered in India with total FDI not exceeding 25 per cent, etc. In addition, there were certain regulatory requirements such as licensing requirements. Mode 4 for this sector is covered by its horizontal commitments that are limited to the entry and temporary stay of business visitors, intra-corporate transferees, like managers, and specialists and professionals. The country offered additional commitments to review the (a) opening up of national long-distance services beyond service areas to competition in 1999, and (b) opening up of international services to competition in 2004. India was one of the few countries which did not accept some disciplines of the Telecom Reference Paper.

Comparison of India's WTO commitments with the applicable regime as it now stands after twelve years of liberalization and reform reveals a large gulf. The **applicable regime is far more liberal than the commitments made by India**. As shown above, some of India's recent policy initiatives render India one of the more liberalized telecommunication economies in the region. Given the liberalization of the sector at home and the limited nature of India's commitments, the gap between commitments and the applicable regime has widened over time. This picture can be seen, for example, from Table 3.3 below. The recent revised offer of August, 2005 made by India in the sector does little to change this picture. For example, the extent of foreign investment in Indian companies providing telecom services is much more than the maximum of 49% that has been offered. Likewise, for the Internet sector, which is likely to provide a basis for much of the dynamic telecom-based activity in the future, India has a very liberal regime. The main features of the policy, announced in 1998 and modified from time to time, include:

- No restriction on the number of service providers.

- Operation could be on national, regional or district basis.

- Service provider has option of building or leasing capacity from infrastructure owners (railways, energy utilities).

- Foreign equity participation capped at 74 per cent (100 % is also allowed but in that case the ISP cannot set up an International Gateway).

- No prior experience in IT and telecom required.

- Licenses to be issued for a period of 15 years, extendable by 5 years.

- No license fee for the first 5 years; token fee of Re 1 per annum thereafter.

- Service providers allowed to set up International Gateways after obtaining security clearance.

- Telephony on Internet permitted with effect from April 1, 2002 (except NLD).

- Access to the Internet through authorized cable operators shall be permitted without additional licensing subject to applicable Cable Laws (the Cable Television Networks (Regulation) Act, 1995) as modified from time to time.

- 'Last mile' linkages permitted from April 2004 within local area for ISPs to establish their own last mile to their customers.

- Freedom to fix tariffs. However, the TRAI may review and fix tariffs at any time during the validity of the license.

- ISPs with net worth of more than Rs. 100 crore are permitted to provide IPTV under their license without further registration.

Permission to establish their own last mile link is a significant and important change and underlines the liberal regime adopted in regard to Internet service. Another likely change in the near future is permission to allow Internet telephony within India; at present Internet telephony is only allowed for international calls. For market access, India's commitment is to allow duopoly in both basic and cellular services, while the applicable regime does not place any restrictions on the number of service providers. Similarly, for NLD and ILD services, the applicable regime provides for unlimited competition, while India's commitment is to allow two service providers for each service. There are, thus, no numerical restrictions on entry in NLD, ILD, fixed or mobile services. For mobile services, the restriction occurs in practice due to limited supply of spectrum.

A similar finding applies to India's commitment to the principles enshrined in the Reference Paper (RP). While India has not subscribed fully to the RP, the regime that operates in practice is fully compliant with those principles. For example India has **not** agreed to apply a non-discriminatory interconnection regime, but non-

discrimination is one of the principles of the interconnection regime that has been enforced by the regulator, TRAI. Likewise, a TRAI judgment has decreed that interconnection should be provided at any technically feasible point in the network. **We argue that the application of regulatory principles in India is much stricter than the commitments by India under the GATS.**

It is noteworthy that conditions relating to interconnection specified in the Reference Paper are also enforced by TRAI in its Regulations pertaining to interconnection. It is widely acknowledged that provision of interconnection in a timely fashion on terms and conditions that are transparent, reasonable, non-discriminatory and sufficiently unbundled are a necessary condition for developing a competitive environment in the sector. Had these principles not been applied in India in practice, the sector would not have shown its present vibrancy. Further an operator with Significant Market Power (SMP) must make a Reference Interconnect Offer (RIO) publicly available. SMP has been defined to mean a service provider holding 30 % of total telecommunications activity in a licensed service area.

Universal Service in India is also administered in a transparent and nondiscriminatory manner. With regard to licensing, India has resorted to an open tender process to award licenses and the national legal system provides for safeguards against any executive arbitrariness. It may also be pointed out that under Article VI (3) of the GATS, Members have an obligation to inform applicants of decisions concerning their applications. The Competent Authority of the Member is also obliged to provide, without undue delay, information concerning the status of the application to the applicant at his request. It is also noteworthy that in its most recent offer, India has committed to having a Regulatory Body, which is separate from and not accountable to any supplier of basic telecommunications services. In any case, the TRAI Act guarantees this separation. In respect to allocation and use of scarce resources, the text of India's commitment is exactly the same as in the RP. In sum, the deviation from the Reference Paper in India's commitments in the WTO does not have any material significance. In addition, and as shown below, the principles adopted by India in the Indo-Singapore CECA with regard to telecommunications go beyond the RP itself. The Telecom Reference Paper and the revised text as committed by India in the Uruguay Round (which excludes some provisions of the Reference Paper) are compared with the text of the principles in the India-Singapore CECA (see below) in Annex VI.

Further, India is embarking on liberalization in telecom and the actual extent of liberalization is likely to be further increased. Unilateral liberalization has brought in substantial direct and indirect benefits to the country in terms of access as well as availability. One implication of these various policy initiatives would be that India could improve its commitments under the WTO without any need to alter its policy. Another is that it could use these unilateral policy changes in the telecom sector to gain greater market access in any bilateral agreement such as the India-EU TIA.

Table 3.3: Comparison of India's WTO Commitments, Applicable Regime of 1997 and 2005

		Commitment in 1997			Applicable Regime in 1997			Applicable Regime 2005			Revised Offer 2005		
Type of Service	**Service Area**	**No. of Providers**	**Period of License (yrs)**	**FDI Limit**	**No. of Providers**	**Period of License (yrs)**	**FDI Limit**	**No. of Providers**	**Period of License (yrs)**	**FDI Limit***	**No. of Providers**	**Period of License (yrs)**	**FDI Limit**
ILD	International	1	10	25%	1	-	49%	Unlimited	20	74%	2	20	49%
NLD	National	1	10	25%	1	-	49%	Unlimited	20	74%	2	20	49%
Cellular Mobile	Circle	2	10	25%	2	10	49%	Unlimited	20	74%	2	-	49%
Fixed	Circle	2	10	25%	2	10	49%	Unlimited	-	74%	2	-	49%
VSAT	National							Unlimited	-	74%	2	-	49%
Internet Service Providers	National, Circle-wise, SSA-wise	2	Unbound	51%	Unlimited	10 years	49%	Unlimited	15	With gateways-74%; Without gateways-100%	2	10	49%
Reference Paper principles		Largely non-compliant in respect of core disciplines			Somewhat compliant			Fully compliant			Largely non-compliant in respect of core disciplines		

Source: Kathuria, R (2004) and updated.

3.3 EU's Requests in Telecom and India's likely response

Since the beginning of the Doha Round, countries have presented negotiating proposals that reflect their interest in liberalizing particular modes/sectors. That interest is strongly reflected in its request list to its trading partners. India received requests from 25 countries, including all major developed and developing countries, in a large number of sectors. Around half of them including the EC, the US, Japan, Singapore Malaysia, Australia, Brazil, Sri Lanka and China have made requests in the telecommunications sector. The large number of requests reflects the growing interest in India's telecommunications sector. Most of these requests focus on broadening the coverage of sub-sectors, and offering full commitments in market access, national treatment under Modes 1, 2 and 3, and full commitments to the Reference Paper. Countries have also requested India to improve transparency, explain the rationale for license fees, clarify the terms and conditions for licensing (the EU, Brazil, and Korea), clarify whether ENT (Economic Needs Tests) exist in basic telecommunications services (Korea and Japan) and, if it does, to remove it. This section analyzes each request made by the EU in telecom and puts forth India's response, keeping India's interests in sharp relief.

The requests from the EU can be summarized as under:

(i) Eliminate restrictions on the number of operators and on geographical coverage.
(ii) Remove restrictions on foreign equity.
(iii) Remove all remaining MA and NT limitations for telecommunications services.
(iv) Remove restriction on resale.
(v) Commit fully to the reference paper of the Basic Telecommunications negotiations.
(vi) Clarify 'the detailed terms and conditions for providing the service will be as per license conditions'.

(i) Licensing Regime: Restrictions on the Number of Operators and on Geographical Coverage

Implementation of Unified Access and other policy initiatives has ensured that there are no restrictions on the number of suppliers in a particular service area. Although it is often claimed that competitive entry could lead to inefficient network duplication, technological developments and the concomitant fall in network costs mean that the benefits of 'unrestricted' entry are presumed to outweigh the costs. Merger guidelines are also in place to ensure orderly exit from the market. In regard to the technical limitation imposed by the scarcity of radio spectrum needed for the provision of mobile services, TRAI has stated that it shall be regulated separately and will be "distributed in a manner that it is allocated optimally to the most efficient user". In fact, one contentious issue in India recently has been allocation of 3G spectrum and whether it should be limited to existing users of 2G spectrum. The policy has been resolved and 2x5 MHz of spectrum will be put up for auction through an on-line bidding process and both existing as well as foreign companies with 3G experience are eligible to bid. This issue is discussed further below.

- Since free entry has been provided, there should not be a major problem in giving the policy as a commitment in the TIA.
- With regard to geographical coverage a commitment to phase in unrestricted coverage could be considered, since this would require a change in the service area-based licenses given at present.

(ii) Restriction on Foreign Equity and other MA and NT restrictions

In several areas of major interest, up to 74% ownership is provided for foreign investors in telecom; in certain areas, it can go up to 100 per cent. This exceeds India's commitment for FDI capped at 25 per cent. While one view is that this is a reasonably flexible policy regarding foreign ownership, demands have been made for doing away entirely with this limit. In the CECA with Singapore, India's commitments are much more liberal than even the revised offer in the WTO, but still less liberal than the applicable regime.[54] In the TIA with the EU, India can therefore safely match the FDI policy agreed to in CECA. It can even be enhanced to match the applicable regime, depending on the offsetting concessions that India is able to get in areas of its interest. But India's commitment will also have to be seen in the context of the overall policy on foreign direct investment. While India's position with respect to Mode 3 has been certain, its stance towards cross-border trade, i.e., Mode 1, has been circumspect. Mode 1 has been left unbound for all telecom services, except for data and messaging services. This is true even for the CECA with Singapore, circa 2005. Most countries with liberalized telecom markets have taken full commitments in Modes 1, 2 and 3 with respect to both MA and NT. India's reluctance on Mode 1 appears to be aimed at eliminating the possibility of service provision which cannot be regulated by domestic laws, i.e., service which is provided from outside the country. In the current market situation the risk of this happening is negligible because intense competition has ensured that arbitrage possibilities in the Indian telecom market no longer exist. Therefore, India could consider committing to Mode 1 without linking cross-border trade to commercial presence.

(iii) Competition in Domestic Long-Distance, including Internet Telephony

The NLD and ILD markets have been liberalized with no restriction on the number of operators. In addition to the 14 service providers, there are a number of long-distance telecommunications infrastructure providers (IP-II) in the country, such as the Railways, Power Grid Corporation of India Ltd. (PGCIL) and Gas Authority of India Ltd. (GAIL) that lease facilities to long-distance operators. The opening of the telecom sector has witnessed intense competition in the long-distance market and a concomitant fall in the tariff for long-distance calls, both international and domestic. The dynamics of competition along with the implementation of a cost-based termination and carriage charges regime has led to a situation where operators are no longer in a position to take advantage of 'cross-subsidy' through long-distance traffic as was the case earlier. Thus concerns such as by-pass of NLD traffic due to cheaper options such as VoIP are no longer relevant.

[54] In CECA, the FDI cap is 49% for all sub-sectors except Internet and Infrastructure, where it is 74%, and data and messaging services, where it is 51%.

An important demand during the previous negotiations was to include Internet telephony in the list of commitments. Although Internet telephony is not allowed within India, this situation is unlikely to continue for long. TRAI has, in fact, recently stated that deployment of IP Networks by telecom service providers has been on the rise all over the world and a similar trend is being observed in India.[55] As per the Cybermedia Center, Osaka University, IP traffic growth is 100% year–on-year as compared to 8% growth of voice traffic. It has been projected that IP-based networks will be increasingly used to provide end-to-end telecom services including triple play services and may eventually take over conventional voice networks. Internet telephony is one such IP-based service. The increasing popularity of Internet telephony and the availability of enhanced network capabilities are posing serious regulatory challenges and, therefore, banning such services restricts the benefits of technological advancement from reaching the common masses, and also encourages illegal activity. India's present regulatory policies still reflect the pre-convergence era in which all the intelligence resides inside the network; this is contrary to Internet-centric architecture where the intelligence is at the edge of the network.[56] In this context, the challenge ahead for regulatory policy is to encourage seamless delivery of content and applications across the networks. Artificial restrictions are likely to be difficult to monitor as well as inimical to growth. The time is ripe for India to permit ISPs to provide Internet telephony to call PSTN (Public Switched Telephone Network)/PLMN (Public Land Mobile Network) subscribers within the country.

- India can consider binding its commitments in the TIA in tune with current policy, with a commitment to phase in Internet telephony within India, since this is likely to occur anyway, sooner than later.

(iv) Type of competition (Facilities-based or other)

A number of countries, including the EU, have requested that commitment be made on resale of leased circuits and that resale of voice telephone services be allowed without restriction. Although the basic thrust of NTP 1999 is towards facilities-based competition, it does consider the possibility of resale. India has not committed to resale in either its revised offer or in the CECA with Singapore.

Empirical evidence suggests that in the initial period, countries generally have facilities-based competition. The rapid strides that telecom has made in recent times suggests that India has crossed this initial phase and may be poised for the second or take-off phase. In this situation the possibility of resale could be considered in the TIA. There are a number of leased circuit providers namely Bharti Telenet, Reliance, Tata, HFCL, and VSNL along with the traditional provider, BSNL. Leasing of facilities by non-telecom companies has also been implemented; thus, IP-II service providers such as GAIL, Railtel, and Power Grid Corporation actively provide capacity to other telecom service providers but are not allowed to sell directly to customers. In addition, tariffs for leased circuits are regulated by TRAI through price caps, and these prices have fallen by over 170 per cent in the past 7 years. In December 2006, TRAI released a consultation paper on resale of international private leased circuits (IPLC) and stated that non-facility-based operators do not entail any

[55] Consultation Paper on relaxing restrictive provisions of Internet Telephony, TRAI, 12th May 2008, www.trai.gov.in

[56] *Op cit*

additional cost to the economy but provide additional benefits in terms of product innovations and prices customized to end user needs.[57] Non-facility-based competition does not adversely affect facilities build out; rather it has a positive impact on facility-based operators due to the expansion of the market facilitated by resellers. Although resellers corner some of the retail revenues, their presence in the long term results in growth and maturity of the market, which translates into higher revenues for facility-based operators. In any case, India has successfully come through the 'initial stage' of network development precluding the possibility of India getting stranded with an inadequate supply of network infrastructure. Recognizing this, TRAI recently proposed the introduction of the Mobile Virtual Network Operator (MVNO) model in India that has gained popularity in the past few years. MVNOs operate through commercial arrangements with a licensed Mobile Network Operator (MNO) and buy bulk minutes of traffic that they resell to their own subscribers. There are over 300 MVNOs registered throughout the world. The introduction of MVNOs can be seen as a natural progression towards the efficient use of existing telecommunications infrastructures.[58] Resale is likely, therefore, to become a reality in India.

- Given the market situation, India can perhaps consider committing to resale of private leased circuits. This policy is unlikely to impose any additional costs.
- TRAI has commenced the process of introduction of resellers through the MVNO model. In all likelihood this will be permitted by DoT. A commitment to allow resale of voice telephony can be phased in to follow the implementation of the MVNO model.

(v) International Long-Distance and Accounting Rates

In accordance with the commitment to WTO, the question of opening up international long-distance to competition was to be reviewed by 2004 and this position is re-stated in NTP 1999. As is now well known, technological and policy developments led to VSNL's monopoly being terminated two years ahead of schedule, in April 2002, and simultaneously ISPs were allowed to offer VoIP for international calls. Several changes need to be noted: there has been a sharp decline in international call tariffs; the accounting rate regime does not serve the purpose it did earlier; privatization of VSNL through strategic sale of equity to Tata means that the revenue source from settlement for calls 'exported' from India is no longer available to fund rural telecom investment; and BSNL has entered the ILD market along with competition from ISPs. These have exerted downward pressure on tariffs and therefore margins. In any case, India has implemented a non-distortionary USO regime which is funded by a share of revenue from all service providers.

- In such a scenario, India may consider withdrawal of its MFN exemptions in regard to settlement rates.

(vi) Regulatory Principles

In general, those investing in telecom lay particular emphasis on regulatory principles,

[57] Consultation Paper on Resale in IPLC Segment, December 2006. www.trai.gov.in
[58] Consultation Paper on Mobile Virtual Network Operator (MVNO) May 2008. www.trai.gov.in

because these principles provide the basis for successfully operating in a market which is normally dominated by a large service provider that has links with the policy maker. In such a situation, it becomes difficult to function smoothly in a multi-operator environment without certain well-defined and accepted regulatory principles. **Countries therefore focus much more on the disciplines contained in the Reference Paper in multilateral or bilateral negotiations.**

As stated above, India has not fully committed to the RP, but the deviations are not material. Many countries have requested India to commit fully to the principles in the RP. The disciplines actually applied in practice meet or better the disciplines of the Reference Paper. In this situation India could consider converting the actual policy into a commitment in the TIA. The regulatory disciplines applied in the Indo-Singapore CECA are stricter than those India has committed to in the WTO. For example, India has committed to a regulatory/dispute settlement body that is independent and separate from the service provider. Further the CECA with Singapore improves India's commitment to interconnection principles in that 'each party shall endeavor to make available for inspection to suppliers of public telecommunications transport networks or services which are seeking interconnection, interconnection agreements in force between a major supplier in its territory and any other supplier of public telecommunications transport networks or services in such territory, including interconnection agreements concluded between a major supplier and its affiliates and subsidiaries, subject to any requirement which the telecommunications regulatory body may impose to protect the commercial confidentiality of information contained in these interconnection agreements.'[59] A comparison of the texts of the RP, with the corresponding texts of the revised offers by India and the EU, and that of the Indo-Singapore CECA are provided in Annex VI.

When EU requests are juxtaposed with the present policy regime it becomes apparent that no major changes are needed to meet the demands made by the EU. However, the issue is whether India should bind its regime in the Indo-EU TIA at the level of the present regime. To the extent that further liberalization is necessary compared to the existing regime, these concessions can be used to extract other concessions from the EU, such as in Mode 4**.**

In its revised offers in the Doha Round, the EU (excluding Cyprus and Malta) offered full commitments in market access and national treatment under Modes 1 and 2. In Mode 3 there are no national treatment restrictions, but for market access there are some restrictions on ownership in four countries; for the rest there are no market access limitations.[60] Commitments in Mode 4 are to the extent stated in the horizontal schedule. The EU also offered additional commitments which meet the provisions of the Reference Paper.

A noteworthy feature of the revised EU offer is that it significantly simplifies the definition of telecom services. All sub-sectors have been subsumed under the broad definition *"All services consisting of the transmission and reception of signals by any electromagnetic means, excluding broadcasting"*. It also excludes content. This is also the definition proposed in the chapter on telecom for the Indo-EU TIA. While the definition is compelling because it is neutral with respect to technology and

[59] Indo-Singapore CECA, http://commerce.nic.in/ceca/toc.htm
[60] For details see EC Revised Offer, Annex VII.

accommodates convergence, a positive list approach that was adopted in the recently concluded Indo-Singapore CECA would achieve just as much and perhaps reduce (or eliminate) the risk of tabling unintended commitments.

India submitted its revised offer in August 2005. The revised offer shows significant improvement over the Uruguay Round commitments and the initial offer (submitted in January 2004). Compared to the Uruguay Round, in the revised offer the sectoral coverage has been broadened to include sub-sectors such as packet-switched data transmission services and radio paging services. The FDI limit has also been increased in different sub-sectors. In the revised offers, India did not commit fully to the Reference Paper. A comparison of the EU and Indian revised offers (see Annex VII) reveals the following:

a. India's revised offer is weaker than the EU offer; and
b. India's revised offer is significantly less than the existing liberal regime.

If India were to bind its existing regime in telecom and perhaps go beyond it in the proposed TIA with the EU, there are no concessions that India can leverage in the telecom sector itself due to the following reasons. On paper, there does not appear to be any major constraint on India's telecom operations in EU countries, including with respect to any planned investments in other developed countries. However a complete and nuanced examination of the EU market reveals significant entry barriers. These are discussed in detail in Section 5.2. In any case, Indian telecom companies are not planning major investments in telecom ventures in European markets. In certain cases where investment abroad may be considered by major Indian companies, request for such investment comes from the governments of the concerned countries, such as Sri Lanka, Nepal and Afghanistan. Two, at the present time and in the near future, the Indian market is likely to be the focus of attention for Indian players. As described in detail above, the sector in India is on the verge of a second burst of high growth due to the opportunities in rural areas and as a result of the coming of 3G. Boston Consulting Group (BCG) has estimated that India can enlist 521 million mobile subscribers by 2010 through innovative approaches, which is roughly double the number that exists today.[61] In such a scenario, the major Indian providers such as Airtel, Tata Tele-Services, Vodafone-Essar, BSNL/MTNL, Reliance and Idea will focus on consolidating their business in the Indian market and easy to penetrate markets such as South Africa. And finally, although the EU is a growing market there is intense competition among domestic players, who are expanding into markets where opportunities exist. If we divide the EU into old and advanced versus new and relatively less developed markets (see Table 3.5), greater opportunities for telecom service providers would appear to exist in the latter category. The big European players are looking to benefit from these opportunities and, therefore, on balance Indian companies are unlikely to force their way into such markets. Moreover, as stated above, mergers and acquisitions (M&A) are becoming a key feature of the EU market for electronic communications. In 2005, M&A activity increased significantly, and cross-border transactions, driven by the search for economies of scale and the implementation of pan-European strategies, is estimated at an overall value of more than €70 billion, the highest level since 2000.[62] Capital expenditure by incumbent operators reached approximately 15% of their revenue.

[61] Ringing in the Next Billion Mobile Consumers, BCG, December 2007.
[62] Based on data from Thomson Financial, Dealogic and UNCTAD.

The number of operators offering VoIP services has recently increased significantly, and these services are now available in most Member States. The largest European incumbent players had non-domestic EU revenue shares of on average 15%, ranging from 5% to 27%.[63] Most of the larger players are present in other national markets and there has been a notable trend in investment in the new Member States by some of the more established players to benefit from economies of scale.

Table 3.4: EU Member States Segregated by Development

S. No.	Old & Advanced	New & relatively less developed
1.	Austria	Cyprus
2.	Belgium	Czech Republic
3.	Germany	Estonia
4.	Denmark	Hungary
5.	Greece	Lithuania
6.	Spain	Latvia
7.	Finland	Malta
8.	France	Poland
9.	Ireland	Slovenia
10.	Italy	Slovak Republic
11.	Luxembourg	Romania
12.	The Netherlands	Bulgaria
13.	Portugal	
14.	Sweden	
15.	United Kingdom	

In the market for data services, companies such as VSNL already exist in the UK as Table 3.5 shows. VSNL's presence is however limited and even its limited presence is largely due to it being a consortium member of the SEA-ME-WE4 (South East Asia-Middle East-Western Europe 4) cable system. This consortium owns the high-capacity fiber-optic submarine cable that stretches from France to Singapore; the 16 companies that form the consortium are Algerie Telecom, Bharti (India), BTTB (Bangladesh), CAT Telecom (Thailand), Etisalat (UAE), France Telecom, MCI, PTCL (Pakistan), Singapore Telecom (SingTel), Sri Lanka Telecom (SLT), Saudi Telecom (STC), Telecom Egypt, Telecom Italia Sparkle (Italy), Telekom Malaysia, Tunisia Telecom (Tunisia), and VSNL.

[63] European Commission, 2008.

Table 3.5: Major Subsidiaries of VSNL in the EU

Subsidiary Name	Country of Incorporation	Revenue (2005-06)
VSNL UK Ltd	UK	26.80
TLGB International Germany GmbH	Germany	3.13
Teleglobe Spain Communications S.L	Spain	2.77
Teleglobe Italy S.r.l	Italy	1.87
VSNL Telecommunications (UK) Inc	UK	1.57
Teleglobe France International S.A.S	France	0.76
TLGB Netherlands Holdings B.V	The Netherlands	0.42
VSNL International (Portugal) Instalacaoe Manutencao de Redes LDA	Portugal	0.08
VSNL (Germany) GMBH	Germany	0.08

Source: VSNL Annual Report.
Note: All figures are in € million.

4. Bilateral versus Multilateral Liberalization

Services negotiations received a temporary set back due to the suspension of the Doha Round. With the slow progress of multilateral liberalization, countries have started focusing more on bilateral and regional agreements. In recent years, the EU and India have signed several bilateral agreements, both with developed and developing countries, and are in the process of negotiating many more. India has already signed the Indo-Singapore CECA and the EU has signed an agreement with Chile. These agreements encompass liberalization of services trade focusing, inter-alia, on high-growth services sectors such as telecommunications.

Empirical evidence to date suggests that the interaction between the multiple levels of rule-making (bilateral, regional and multilateral) in telecommunications services has been largely synergistic, characterized by each level applying broadly similar approaches and objectives towards the objective of progressive liberalization of trade in services.[64] In the RTAs where telecommunications services are covered, the impact of the WTO Reference Paper is clearly evident in the negotiated agreements. The pro-competitive principles agreed to in the Reference Paper have been largely transferred to the bilateral and regional agreements agreed to after it came into force. More recent US bilateral (e.g., US-Australia, US-Singapore) and regional agreements (e.g., CAFTA-DR) have to some extent added greater detail to these principles. RTAs such as EU-Chile are GATS-plus in telecommunications services. On the other hand, some of the agreements have found it difficult to offer deeper or faster liberalization in trade in services, including in basic telecommunications.[65]

The Indo-Singapore CECA, which came into force on August 1, 2005, is based on the positive list of sectors and follows a request-offer approach similar to the GATS. India made commitments in 9 sectors and Singapore in 12 sectors. In the telecommunications sector, the requirement of ownership and/or control by persons of

[64] Heidi Ullrich , Assessing the Interaction between Multiple Levels of Rule-Making In Trade in Telecommunications Services, LSE, *op. cit. 35.*
[65] OECD study prepared by Sauvé, 2003.

India and/or Singapore would apply for a period of three years, after which it would be reviewed. It has been agreed that 17 telecommunications companies of Singapore, which are owned and controlled by persons of Singapore, would continue to be treated as juridical persons of Singapore even if they were to later divert their majority shareholdings to persons of third country(s). India agreed to bind for Singapore the FDI limit of 74 per cent for Internet and infrastructure services. On the remaining telecommunications services, except in the case of value-added services which continued to be at 51 per cent, the FDI level would be at 49 per cent. Mode 3 has thus been bound at a level that exceeds India's revised offer, but is still less than the applicable regime. There is an Annex on Telecommunications which has taken elements from the GATS Annex on Telecommunications and the Reference Paper. India has not subscribed fully to the Reference Paper in the WTO and this is also reflected in the CECA. For instance, both in the CECA and the revised offers, India has not subscribed to cost-based interconnections.[66] Although commitments under CECA are less than the applicable regime, they are more liberal than India's revised offer.[67]

Telecommunications under the EU-Chile Agreement goes considerably beyond earlier EU RTAs and reflects the GATS Telecommunications Reference Paper nearly word-for-word. Telecommunications **regulatory agencies are to be both independent** from any supplier of basic telecommunications services as well as non-discriminatory (Art. 110). There is to be **public availability of the terms and conditions of license requirements** as well as an announcement of the expected date of a decision (Art. 111.1). Alternatively, if a request for a license is rejected, the reasons will be provided to the applicant if requested (111.2). There are **competitive safeguards** to prevent anti-competitive practices among large telecommunications service suppliers, including anti-competitive cross-subsidization, to address which 'appropriate measures shall be maintained' (Art. 112.2). Public suppliers of telecommunications transport networks or services shall offer **interconnection** to other suppliers that are not discriminatory in terms of rates, conditions and quality (Art. 113.2). Interconnection procedures and agreements shall be available to the public (Art. 113.4). Any procedures for the allocation of scare resources are to be objective, timely, transparent and non-discriminatory (Art. 114). Finally, each Party is granted the right to specify its **universal service obligations** as long as the provisions are 'transparent, objective and non-discriminatory' as well as 'neutral with respect to competition and be no more burdensome than necessary' (Article 115.2).[68]

In the Community's schedule of services restrictions, market access and national treatment for domestic and international telecommunications services for Mode 4 (Presence of Natural Persons) are unbound with a few exceptions (Annex VII, Part A). In addition, interconnection with the Public telecommunications network is disallowed for certain kinds of Closed User Group (CUG) services. Accordingly, Chile specifies that for basic telecommunications services, private services which have as an objective the satisfaction of "specific telecommunications needs of particular companies, entities or persons by prior agreement, the supply of these services does not give access to traffic from or to the users of the public telecommunications networks" (Annex VII, Part B).

[66] In practice, this exception is not going to be material since interconnection is regulated by TRAI.
[67] The benefits given to the 17 Singaporean companies are not applicable to other WTO members.
[68] Op cit 35, 37.

Liberalization undertaken in the telecommunications sector under the US FTAs is much deeper and wider than the market access commitments under GATS and the regulatory disciplines covered by the Reference Paper. However, the extent of liberalization varies across different FTAs, with US-Singapore having the most extensive commitments. The US-Singapore Free Trade Agreement was signed in May 2003 and went into effect on January 1, 2004. For the US, this was the first such agreement with an Asian country. Chapter 9 of the US-Singapore Free Trade Agreement on telecommunications incorporates significant progress in terms of detailed language as compared to earlier telecommunications services agreements. For Singapore, this agreement incorporated greater telecommunications services rule-making and application of the WTO Reference Paper than previous agreements such as the Agreement between Japan and Singapore for a New-Age Economic Partnership (JSEPA) that came into force in November 2002. Standard interconnections provisions are included, although there is a **privacy element** and a provision covering **enforcement and resolution of domestic telecommunications disputes.** Accordingly**,** the commitments made by Singapore in the US-Singapore FTA are much deeper than commitments made by Singapore in the Indo-Singapore CECA, although CECA was signed after the US-Singapore FTA. The following table outlines where some of the agreements have met (√), surpassed (+), or not met (-) the principles established in the WTO Reference Paper.

Table 4.1: Degree to which Select RTAs Reflect the WTO Reference Paper

Agreement	Definitions	Competitive Safeguards	Interconnection	Universal Service	Transparency	Independent Regulator	Scarce Resources
NAFTA	-	√-	√-	-	√	-	-
EU-Chile	√	√	√	√	√	√	√
US-Singapore	√	+	+	√	√	√	√
India-Singapore	√	√	**-***	√	√	√	√

** But beyond India's revised offer.*

The previous discussion shows that in the "new age" FTAs one cannot infer a "one size fits all" approach. Each agreement incorporates its own distinctive elements, reflecting the nation's or region's interests and comparative advantages. While some FTAs have been GATS plus, the same cannot be claimed for others such as EU-Mediterranean, Indo-Singapore, etc.

5. Indo-EU TIA: Implications for India and the EU

This section discusses the barriers in the EU and Indian telecom markets, the issues that the EU is likely to raise during the TIA negotiations, and India's possible strategies and options.

5.1 Barriers in the Indian market

While the Indian telecom market has seen significant liberalization in the last decade, some barriers remain that will be the subject of discussion in the negotiations with the EU. Some of the barriers are general in nature and some are specific to the

telecommunications sector. The general issues relate to the costs of doing business in India and are documented by the World Bank in their document, "Doing Business". For telecom this would imply lack of proper ancillary infrastructure such as power, and delays in setting up infrastructure, such as laying of cables for which multiple clearances are required at local/municipal and state levels. In addition, the high tax rates on equipment at 30 per cent could also be a deterrent.

At the sector level, the major bottleneck appears to be the uncertainty in the **regulatory environment** and manner of implementation of recommendations of the regulator. There have been several instances in the past where the decisions of the regulator have not been implemented. This has been due to the conflict between regulatory institutions which has been used to strategic advantage by self-serving service providers; the apparent absence of coordination between regulatory agencies has exaggerated such attempts. For example if a service provider is convinced that chances of successfully challenging a TRAI or government order are high, it will do so. [69]

The assignment of additional 2G spectrum and new spectrum for 3G services is a case in point. The recent string of policy announcements[70] and subsequent wrangling amongst players created ambiguity about the final regulatory policy. It began when DoT decided to increase the number of subscribers that existing GSM operators must have to be eligible for additional spectrum, based on a recommendation by TRAI; the new subscriber norms were around three times higher than the existing ones. This was subsequently enhanced by a report on spectral efficiency by TEC.[71] This led to vehement protests from GSM operators; the Cellular Operators Association of India (COAI) approached TDSAT against the decision. Additional issues such as the need for more spectrum, prohibition of crossover licenses (see footnote 72), lack of transparency in TRAI and TEC's recommendations on spectral efficiency were also subjected to litigation. After a consultative process, the government permitted existing universal access service licensees to offer wireless services using either GSM or CDMA technology. This decision paved the way for existing CDMA operators to provide GSM-based services and vice-versa, subject to the availability of spectrum and payment of the prescribed fees[72]. The following table shows that the regulator-prescribed charges for **crossover** spectrum are significantly lower than the market valuation. On 22 August 2008, the High Court of Delhi pronounced judgment on all these matters[73]. It supported auctions for allocation of 3G spectrum, brought back focus on efficient utilization of spectrum quoting the TEC report, and did not find any internal inconsistency in government policy while permitting crossover licenses. The judgment itself is not material in the immediate context, but it is the incessant regulatory conflict that has been worrying for the sector. If the past is a guide to the future, litigation will also take centre stage when further liberalization, such as MNP, Unbundling the Local Loop (LLU), Fixed Number Portability, CS and CPS occur, and finally when unification of all licenses occurs.

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[69] See R Kathuria, *Telecom Liberalization: A Case Study of India's Experience with Regulation in SSP* 2007, for more details.

[70] See Box 1.2 above.

[71] http://www.tec.gov.in/Reports.htm Telecom Engineering Centre is a technical body representing the interest of Department of Telecom, Government of India.

[72] This has been termed **crossover** license.

[73] www.telecomlive.com and Telecom Live, September 2008

Table 5.1: Prescribed Spectrum Charges vs. Current Market Estimate

Area of operation	No. of circles	TRAI Recommendation One circle	Research Estimate (Weighted average bid in category)	Total value of bids (Research estimate)	Change compared to TRAI's recommendation
Metro	4	800	4,041	16,165	12,965
Circle A	5	800	2,237	11,185	7,185
Circle B	8	400	835	6,678	3,478
Circle C	6	150	128	765	(135)
All India	23			34,794	23,494

Note: Figures are in Rs. million
Source: CRISIL

There has been a tendency for affected stakeholders to resist regulatory change.[74] Outcomes of the regulatory process can be different if the institutions involved in policy and regulation are better coordinated. As a general rule, courts should not become heavily involved in the details of complex technical issues that are supposed to be addressed by expert agencies, since this would create a second layer of regulation. The telecom industry is highly capital-intensive and its returns vastly sensitive to regulation. If the costs of litigation are small compared to the gains that can be had from perpetuating the status quo, litigation can be and has been used effectively as a short-term entry barrier by service providers. Coordination between regulatory agencies can blunt this instrument. Specifically, in the current context, greater coordination between TRAI, TDSAT and DoT will send the correct signals to the regulated entities. In future, when the Competition Commission of India (CCI) begins its functions, another layer of regulation will be created, necessitating greater professional coordination between these regulatory agencies.

Another barrier stems from ownership of the incumbent and the corresponding neutrality and fairness (or the perceived lack thereof) of government policy. The government holds a 26 per cent stake in the international carrier Videsh Sanchar Nigam Limited (VSNL), a 56 per cent stake in Mahanagar Telephone Nigam Limited (MTNL) (which primarily serves the Delhi and Mumbai metropolitan areas), and 100 per cent stake in Bharat Sanchar Nigam Limited (BSNL). Although MTNL and BSNL have been corporatized, there has been no indication from the government regarding the privatization of these two government entities. It must, however, be pointed out that in Europe as well privatization of incumbents is not complete. In fact in its revised offer the EU mentions that "*Some EC Member States maintain public participation in certain telecommunication operators. EC Member States reserve their rights to maintain such public participation in the future. This is not a market access limitation. In Belgium, government participation and voting rights in Belgacom are freely determined under legislative powers as is presently the case under the law of 21 March 1991 on the reform of government-owned economic enterprises".* [75]

[74] See Ashok Desai, *India's Telecommunications Industry History, Analysis, Diagnosis*. Sage Publications, 2006.
[75] EU revised offer, 2005.

Although, the issue of privatization of BSNL/MTNL has been raised from time to time, the proposal has been contested. In a strict sense, the issue is not about privatization per se but about how to secure independence of the government-owned service providers from TRAI and DoT. Even without privatization, one could produce the desired autonomy, but it is more difficult to do so. For example, implementation of the Access Deficit Charges (ADC) regime has raised such issues. The ADC regime was implemented with the intention of compensating service providers for providing 'access' at rates that were below the estimated cost of provision. Expectedly these telephones are overwhelmingly rural, and because of BSNL's dominant presence in rural areas, it is the only company in India which is eligible for the subsidy collected through the ADC. The following table gives the current ADC regime with the amounts.

Table 5.2: Current ADC Regime in India

Stream	**ADC Rate**	**ADC (in Rs. crore)**
Revenue Share	1.5% of AGR for all telecom service providers after deducting revenue from rural subscriber from access providers' AGR	1278
International Incoming Calls	Rs. 1.60 per minute	1800
International Outgoing Calls	Rs. 0.80 per minute	257
Total		3335

One complaint of private players is that BSNL has been using the ADC amount to offer extremely aggressive tariffs which are detrimental to competition (BSNL received Rs. 4700 crore as ADC charges in 2003). TRAI has stated that the ADC regime will be merged with the USO and ADC will become zero by as of 30th September 2008. Whilst ADC is to be discontinued and merged with USO, it has raised issues relating to India's commitment in the Reference Paper to administer universal service obligations in a transparent and non-discriminatory manner.

Another dimension of independence relates to financing of the regulatory body. International best practices suggest that TRAI be funded from a percentage of the revenues of the sector. While this has been proposed a number of times by TRAI, it has not found favor with the government. A central purpose of telecom reform was to create regulatory capacity so that judgments could be made according to neutral criteria, thereby establishing the second type of independence, that is, independence from industry. This is also mentioned in the RP on regulatory principles in the WTO. This was based on the view that the telecom sector normally has a dominant supplier who could alter the market situation to the disadvantage of a newcomer. The regulatory principles contained in the reference paper address situations where major suppliers exercise control over essential facilities or where these suppliers are capable of abusing their dominant market position. The reference paper includes, inter alia, commitments to establish an impartial regulator independent of any service supplier. On this score, the regulatory process in India has not been ideal. Staffing and funding

of the regulatory bodies impact the neutrality of the regulatory process with respect to government-owned operators.

A related issue is the dichotomy between the role of TRAl and DoT. As a regulator, TRAI makes recommendations on certain issues but does not have the power to implement those recommendations or to issue licenses; this role is performed by DoT. If DoT does not agree with the recommendations of TRAI, the process mandates DoT to make public its reasons for not accepting the recommendations. On both 2G and 3G spectrum TRAI's recommendations have not been fully accepted by DoT and the ultimate policy announcements have differed from the regulator's recommendations.[76] The fact that the policy is different is not the point; TRAI has not been given the opportunity to reconsider the recommendations and the rationale for the deviation from the recommendation has not been made public. Another example of DoT not agreeing with TRAI happened when TRAI recommended allowing domestic Very Small Aperture Terminal (VSAT) operators to secure bandwidth from international satellites since they offer better-quality bandwidth at lower rates than the Department of Space (which has a huge capacity crunch and offers low-quality capacity at higher rates). DoT has not implemented it. The recent decision by DoT to prohibit existing ISPs from providing Virtual Private Network (VPN) services under the licenses issued to them and requiring them to obtain amended/new licenses by paying an additional license fee of Rs.10 crore and giving financial bank guarantees is another such example.

At present the Indian market is segregated geographically as well as by service categories. One of the demands likely to be made on India is to unify all licenses and remove geographical barriers. In this context, on October 27, 2003 TRAI came up with recommendations that envisage a two-stage process to introduce a Unified Licensing Regime. The first phase which includes a Unified Access Service License (UASL) at circle level had already been implemented from November 2003.[77] Thus, fixed and mobile have been brought under a single unified access license regime. TRAI's second set of recommendations to unify all telecom services was made on January 13, 2005.[78] The recommendations proposed reducing the licensing fee burden for operators in order to facilitate growth, introduce niche operators in telecommunications, introduce internet telephony, etc. While unified licensing has not been implemented, the government has already taken steps to lower entry fees and annual license fees for NLD and ILD services (discussed above). Access service providers have been permitted to provide internet telephony, internet services and broadband services (including triple play, that is, voice, video and data). NLD service providers are now permitted to access subscribers directly only for provision of leased circuits; similarly ILD service providers can access subscribers directly only for provision of international leased circuits. MNP is on the cards which will perhaps be followed by LLU, CS and CPS that will make it easier to implement the Unified Licensing Regime.

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[76] TRAI recommended auction of 3G be limited to existing licensed operators, whereas the policy allows all qualified applicants to bid for 3G.

[77] Recommendations on Unified Licensing (27th Oct. 2003), http://www.trai.gov.in/ Recomodifiedfinal.pdf

[78] Recommendations on Unified Licensing (13th Jan. 2005); http://www.trai.gov.in/recom13jan05.htm

Barriers in India relating to market access and the likely EU demands have been discussed in detail in Section 3.3 above. Along with each perceived barrier, a suggested strategic option to liberalize has also been suggested.

It is worth mentioning that India has benefited immensely from unilateral liberalization in telecom. These benefits have accrued in the sector itself and have 'spilled over' to other sectors such as IT, BPO and industry in general. Technological developments in telecom have had a huge role to play in the sector's advancement, but the role of policy and regulation cannot be emphasized enough. The open and competitive environment has spawned such players in India as Airtel, Reliance, Vodafone-Essar, Idea, Tata Teleservices, VSNL and the incumbent BSNL. Each of these providers has invested heavily in the telecom business and is today running very successful operations across the country; Airtel, Reliance, MTNL and VSNL also have a presence abroad. Contemplating increased market access to EU companies in this scenario is therefore a no-risk offer from India's point of view. In fact, it may serve to increase the contestability of the market and provide a further competitive fillip to telecommunications services in the country.

5.2 Barriers in the EU

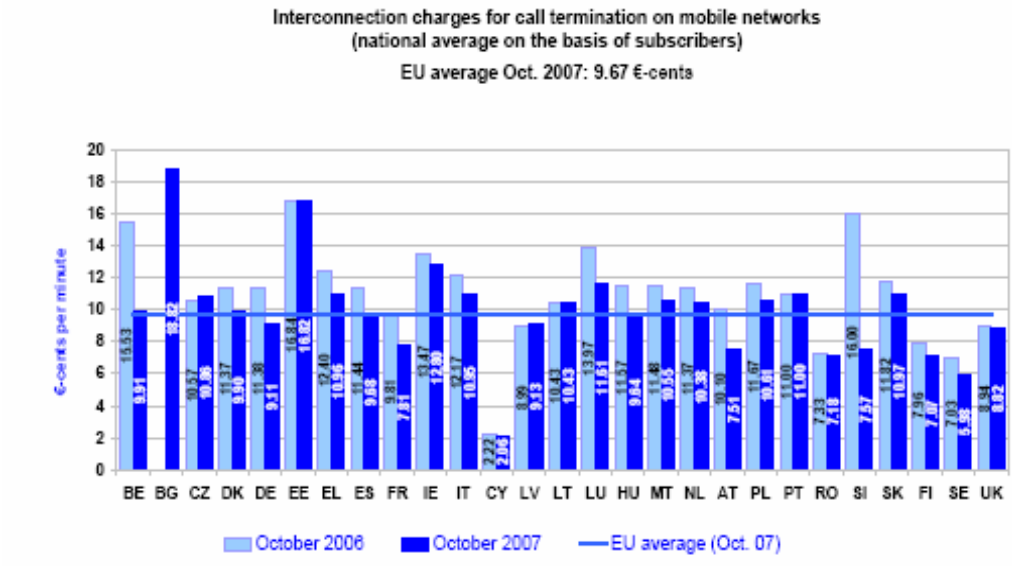
The EU is more liberalized than the Indian telecommunication market and it does not have any apparent entry barriers. As mentioned above, VSNL is the only service provider that has a presence in the EU market, but the reason perhaps lies in the strong domestic companies in the EU and the high costs of infrastructure. If other Indian operators plan to invest in Europe, the target will be the relatively less developed markets where competition is emerging or is yet to emerge. But those are weaker markets with lower immediate potential.

One barrier common to Europe (and India) is that telecom regulators are often close to the dominant operator, which in many EU countries continues to be owned by the national government. Government shares in telecom incumbents are still 100% in Cyprus, Luxembourg and Slovenia, and considerably high in many other EU countries. A close relationship between regulators, incumbents and governments can lead to ineffective regulation, national protectionism and delays in enforcing consumer rights.

The former state monopolies still hold a position of structural dominance linked to their networks. This stifles competition and the creation of a single EU telecommunications market. In EU broadband markets the incumbents have an overall market share of 55.6%. In many Member States the incumbent's dominance is well over 60%; examples include Poland (60.2%), Malta (61.3%), Italy (64.8%), Denmark (65.1%), Germany (66.7), Finland (69.1%), Portugal (70.1%), Luxembourg (84.8%), and Cyprus (89.89%). Further, in the fixed voice telephony market, infrastructure competition is still in its infancy with on average 87.8% of subscribers still using the incumbents' network for direct access. Alternative operators for direct access are used by almost no one in Malta, by only 1.5% of the population in Latvia, and by 1.7% in Slovakia. In contrast in Portugal the corresponding figure is 25.1%. For telephony, while 42% of subscribers in Sweden and 36.3% of subscribers in the UK use an alternative operator for national and international calls, only 3.2% in Slovakia and 5% in Slovenia use alternative operators. There are only a few transnational or EU-wide

communication services, and telecom companies with a European footprint are still very rare. Most providers are mainly active nationally, while in the US providers offer their services coast-to-coast. Europe is still fragmented into 27 markets in telecommunications. Practical conditions or operating telecom services often differ among the 27 EU countries. For example, mobile termination rates vary considerably. Downward pressure on MTRs through regulatory intervention continues, although a lack of consistency of approach is a hindrance to the single market.[79] The average dropped below 10 cents for the first time in 2007 (see Figure 5.1), to 9.67 cents, a fall of 12% compared to October 2006. There are, however, major differences between the MTRs in different Member States, from 1.93 cents in Cyprus to 22.37 cents in Estonia, and the average MTR is 8.7 times higher than the average fixed termination rate. The crucial point is that mobile termination rates are on a downward trend only as a result of regulatory intervention. Left to themselves, individual operators do not feel competitive pressure to lower termination rates. The disparate levels across different Member States is the result of inconsistent and divergent approaches to the regulation of termination rates, which hampers the consolidation of the internal market and the realization of consumer benefits from cross-border competition and services. Furthermore, inconsistent approaches to the regulation of fixed and mobile termination rates tilt the playing field in favor of mobile networks and services to the detriment of fixed networks and their customers. In addition, allowing termination rates above an efficient level of cost can lead to higher retail tariffs for consumers. The EC is providing guidance to both operators and national regulatory authorities on an effective regulatory treatment of fixed and mobile termination rates in the EU. For example in 2007, the French regulator ARCEP decided to lower the wholesale *mobile* termination rates and the Italian regulator ACGOM also agreed to move to lower, symmetric termination rates for *fixed* alternative operators by July 1, 2010, but only after the Commission had intervened. Symmetric termination rates means that the termination rates which the relevant phone operators are allowed to charge are the same.

Figure 5.1: Mobile Termination Rates across Europe



Source: 13th Report of the European Commission on the Electronic Communications Market, 2008

[79] EU Commission 2008.

Another example of disparate regulation hampering development in an internal market in Europe is the case of mobile phone calls abroad ("roaming"). The transnational aspect made it difficult for national regulators to intervene successfully. And operators themselves did nothing to reduce the charges unilaterally, due to lack of competition in the 'roaming state'. It thus required a directive from the EC to bring down tariffs for voice calls when roaming in other Member States. The ceiling charges were specified at €0.49 per minute for making calls and €0.24 per minute for receiving calls. These will decrease to €0.46 and €0.22 respectively on August 30, 2008 and to €0.43 and €0.19 on August 30, 2009. [80] While voice roaming tariff have been forced down by the EC, data charges continue to be high, with the EC threatening to intervene unless the service providers can bring down prices on their own. Sending an SMS from abroad costs up to 10 times more than to send a text message within your home country, which currently costs around 5 to 15 eurocents per SMS. For other data roaming services, such as browsing the Internet or downloading music, consumers can pay on average €4.98 to download 1 Megabyte while abroad. In some cases, the charges are even higher than €16 Euro per MB. On average, a consumer pays €15 to download a song when roaming, €10 to download a PowerPoint presentation or €1 to €2 to download a single newspaper article. Compared to domestic tariffs, the difference is striking: consumers rarely pay €1 to download 1 Megabyte at home. It is not surprising therefore to note that cross-border competition and pan-European services are hampered by 27 different, partly inconsistent regulatory systems.[81] Further, radio spectrum, the lifeblood of all wireless services, is under-utilized in the EU, despite its strong potential to enhance competition and to extend broadband coverage. A reform of the EU Telecoms Rules is therefore imperative if Europe wants to achieve its full potential.

EU is also planning to introduce more competition by forcing functional separation, which requires a dominant incumbent operator to separate its network infrastructure from the units offering services using this infrastructure. This is a reflection of the fact that competition in the access market has been slow to take off in Europe. Functional separation allows network access to new entrants and the incumbent's own retail division on the same terms. It gives new entrants a fair chance to build services using the incumbent's existing infrastructure. In the UK, functional separation has spurred a new wave of investment and infrastructure-based market entry as evidenced by the explosion of local loop unbundled lines in UK which jumped from less than 100,000 in June, 2005 to 3.3 million by the end of October, 2007. In addition, the EU Telecom Reform requires a thorough cost-benefit analysis by national regulators before introducing functional separation. For example, the Dutch national regulator considered that, at the moment, functional separation would be inappropriate for the Netherlands in view of evolving infrastructure competition between DSL and cable.

The European Commission has admitted that some NRAs are unable to deal with non-competitive markets and that there is delay and inconsistency in disposal of cases. This is especially the case with regard to access to the broadband networks of dominant players as well as the level of mobile and fixed termination rates. Moreover, for access to the fixed public telephone network, the total number of remedies imposed varies significantly across Europe; in one Member State only one remedy has

[80] Regulation (EC) no 717/2007 of the European Parliament and of the Council of 27 June 2007 on roaming on public mobile telephone networks within the Community and amending Directive 2002/21/EC Article 11, http://ec.europa.eu/roaming

[81] Memo/08/167 Brussels, 19 March 2008

been imposed, whereas in others, the relevant operator is subject to five remedies. Consequently this does not provide a level playing field in Europe. These inconsistencies have an adverse effect on consumers in the countries concerned. At the same time, inconsistencies risk distorting the competitive conditions between telecom companies that are active in several of the EU Member States or provide cross-border services. To remedy this situation there is a plan to set up a new European Telecom Market Authority (ETMA) that will support the Commission and allow it to draw on the expert advice of national telecom regulators. However, regarding the most important element of telecom regulation, namely, concrete measures put in place to remedy a competition problem, the Commission can only issue opinions without a legally binding effect. The Commission can neither accelerate a remedy delayed without justification by a national telecom regulator, nor take measures to ensure that a remedy that is too weak to ensure competition is replaced by a more effective one. In a European Union of 27 Member States, having a common approach to regulatory issues is essential for a successful telecom economy. Today, telecom issues of cross-border interest (such as internet access, data roaming, VoIP, mobile phone usage on airplanes or business services) risk being dealt with in 27 different ways in Europe.

Table 5.3 demonstrates the limited amount of trade in telecommunications services between the EU and the rest of the world and also between India and the EU. EU exports and imports of telecommunications services are expectedly dominated by intra-EU trade. India's share of extra-EU trade is negligible; only 1% of extra-EU exports go to India, while imports from India are negligible. Another noteworthy aspect is that intra-EU export of telecom services is 363% of extra-EU export. This reflects the focus of 'local' operators to opportunities within the EU, making it difficult to penetrate the EU market despite it being a relatively open market. Moreover, only 31.7% of EU imports are from the rest of the world, with the US being dominant in this composition. This implies either of two possibilities. Either the EU is in reality a 'closed market' making it difficult to pry open due to regulatory impediments or else European operators enjoy significant first mover advantages, raising the new entrants' cost of doing business in Europe. It could also be a combination of two. Whatever the reason, a look back at Table 2.3 shows that there is not a single non-European telecom among Europe's top 7 service providers.

Table 5.3: Export and Import of Telecommunications Services by the EU

Export/Import	Value in 2005	World Rank
Exports Note: India did not belong to Top 15 Exporters		
EU Export	US$23.68 billion	1
Extra-EU exports	US$6.52 billion (27.5% of total EU exports)	NA
EU exports to India	US$73 million (1.1% of extra-EU exports)	NA
Imports Note: India did not belong to Top 15 Importers		
EU imports	US$23.31 billion	1
Extra-EU imports	US$7.39 billion (31.7% of total EU imports)	NA
EU imports to India	Not Available	

This study has demonstrated that while the EU market is apparently open for telecommunications services, trade in telecommunications does not represent a significant opportunity for Indian companies. On the other hand, EU telecom operators may be interested in entering the Indian market because of its growth potential.

6. Conclusion

Telecommunications is an important infrastructure service and there is a need for investment in this sector to sustain high economic growth and maintain export competitiveness in knowledge-based sectors, such as software and business process outsourcing. India and the EU have trade complementarities in this sector. However, as of date, the inflow of investment from the EU in telecom has been low compared to the total FDI in telecommunications. Collaboration with EU companies would enhance the inflow of technology, skills and best management practices. Apart from services, there is scope for collaboration in R&D related to telecommunications and in product manufacturing, since Europe is home to some of the most advanced telecom equipment and R&D companies such as Nokia, Ericsson and Alcatel. This can be addressed in the proposed TIA. Mutual Recognition Agreements (MRAs) for telecommunications product certification would also be mutually beneficial. The EU investment in telecommunication infrastructure such as broadband would be beneficial for India.

Telecommunications is an important sector in all "new age" FTAs and removal of barriers in this sector is essential for their success. Although India offered more liberal commitments under the Indo-Singapore CECA than in its revised offer in the WTO, these commitments are far less than the applicable regime in telecom. The Indian telecom market is growing at over 20 per cent per annum and the accompanying competition between companies has ensured that they have grown to be top-notch, embracing new technology and services. Therefore, if India were to bind its existing regime in the TIA with the EU, it would only add to the contestability of the Indian market. Since India's export interests in this sector are limited, India may explore the possibility of binding the unilateral liberalization in return for greater market access in areas/modes of export interest such as IT-enabled services and Mode 4.

The telecommunications sector in India has been liberalized and today presents a vastly different picture from a few years ago. The enduring problems, however, have been in the area of telecom policy and regulation. To address these, admittedly, is not an easy task, but it needs to be done not only from the point of view of the TIA, but also from the perspective of improving the investment environment for a growing sector like telecom. Coincidentally the EU is facing similar issues; creating a single market for telecom from among 27 different markets presents an equally formidable challenge. Already, muted protests are being heard with respect to the proposed institutional reform that would create another regulator, namely, EMTA, in the EU.

Both India and the EU acknowledge that telecommunications is an important infrastructure sector and modernization is imperative to sustain economic growth, enhance export potential, and serve consumer interests. Since it is one of the main drivers of economic liberalization and globalization, WTO negotiations and the "new age" FTAs have focused on liberalizing trade in telecommunications services. This

study has established that India needs investment in the telecommunications sector and collaboration with EU companies would benefit India in the form of greater FDI inflows accompanied with technical know-how and best management practices. EU is on the verge of setting up broadband infrastructure and so is India; collaboration between companies from the two countries would thus be mutually beneficial. Removal of barriers to trade in this sector would also enhance trade in allied sectors such as software and BPO as well as improve the productivity and efficiency of this sector in India. This study supports unilateral liberalization because of the immense benefits of telecommunications on the economy. While Indian companies are unlikely to flock to the EU market as a result of the TIA (since there are no major entry barriers in the EU), liberalization commitments in this sector would have to be traded for greater market access in knowledge-based sector where EU has imposed substantial barriers.

Annex 1: CPC Classification of Telecom Services

752 Telecommunications services

7521 Public telephone services

75211 Public local telephone services

Switching and transmission services necessary to establish and maintain communications within a local calling area. This service is primarily designed (used) to establish voice communications, but may serve other applications such as text communication (facsimile or teletext) and is generally provided for a flat monthly fee independently of the number of calls made by the subscriber.

Exclusions: Private line services and rental services of terminal equipment are classified in class 7522 (Business network services) and 7541 (Equipment rental services), respectively.

75212 Public long-distance telephone services

Switching and transmission services necessary to establish and maintain communications between local calling areas. This service is primarily designed (used) to establish voice communications, but may serve other applications such as text communication (facsimile or teletext) and may be provided on a toll or flat rate basis. This service provides the customer with access to the supplier's and connecting carrier's entire telephone network or, in some instances, to a limited number of exchange areas (WATS service).

75213 Mobile telephone services

Radio telephone services which, by means of transportable equipment, give both-way access to the public telephone network or other mobile telephones. Some versions of this service, with proper terminal equipment, may be used to transmit facsimiles as well as voice communications.

Exclusion: Air-to-ground and maritime mobile communications services are classified in subclass 75299 (Other telecommunications services n.e.c.).

7522 Business network services

75221 Shared network services

Network services necessary to establish telephone communications between selected (point-to-point or multi-point) locations (terminals) via a public (shared) network. This type of service is primarily used to establish long-distance voice communications but some versions can also accommodate facsimile and data transmission. It is provided on a pay-as-you-use basis at discount rates over regular long-distance telephone charges.

75222 Dedicated network services

Network services necessary to establish telephone communications between selected (point-to-point or multi-point) locations (terminals) via private line(s). This type of service is primarily used to establish voice communications between distant PBXs (tie line), between a distant location and a PBX (off-premises extension), between a PBX and a distant exchange area (foreign exchange) or between designated telephone sets, but may also accommodate data transmission. It is provided on a lease basis.

7523 Data and message transmission services

75231 Data network services

Network services necessary to transmit data between equipment using the same or different protocols. This service can be provided via a public or dedicated data network (i.e. via a network dedicated to the customer's use).

75232 Electronic message and information services

Network and related services (hardware and software) necessary to send and receive electronic messages (telegraph and telex/TWX services) and/or to access and manipulate information in databases (so-called value-added network services).

7524 Programme transmission services

75241 Television broadcast transmission services

Network services necessary for the transmission of television signals, independently of the type of technology (network) employed. This subclass does not include satellite-to-cable services where the provider sells T.V. signals via satellite to cable companies (as opposed to selling use of satellite facilities) nor does it include DTH (direct-to-home) satellite services where the provider sells television programme packages directly to households located in remote areas.

75242 Radio broadcast transmission services

Network services necessary for the transmission of audio signals such as radio broadcasting, wired music and loudspeaker service.

7525 75250 Interconnection services

Network services by one carrier to another when a communication originating in a carrier's territory must travel through another carrier's network to reach its destination.

7526 75260 Integrated telecommunications services

Private point-to-point or multipoint network services which enable the users to simultaneously or alternatively transmit voice, data and/or image. This type of service offers high bandwidth capacity and flexible, customer controlled network reconfiguration to accommodate changing traffic patterns.

7529 Other telecommunications services

75291 Paging services

The summoning of a person to the telephone through the use of an electronic pager. This subclass includes tone, voice and digital display paging services.

75292 Teleconferencing services

Network and related services necessary to hold a one-way or two-way fully interactive video conference.

75299 Other telecommunications services n.e.c.

Telecommunications services, not elsewhere classified. This class includes mobile maritime and air-to-ground communications services.

Annex 2: Classification of the Telecom Sector in Schedules of Commitments So Far

The few facts hereafter show the disparities in the use of W120 and CPC and some inconsistencies created by the use of W120 and CPC in existing GATS schedules covering the telecom sector:

- Only a few who acceded to the WTO after the "basic telecom negotiations" have systematically used W120 with its CPC references, all others do not.
- Most Members which made commitments for categories h to n (usually in the Uruguay Round) used the expressions of those categories but not CPC numbers and, in many cases, not even the letters h, i, etc.
- Many Members (e.g. Bangladesh, Belize, Chile, Czech Republic, Dominica, Ghana, Grenada, Guatemala etc.) quote CPC numbers for categories a to g
    - (usually committed after the Uruguay Round) but many others do not (e.g. Australia, Bolivia, Canada, China, Côte d'Ivoire, Croatia, El Salvador, EC, Hong Kong, China, Hungary, etc.). Among those who do not use CPC numbers, a few (e.g. Australia, EC) list at the top of the telecom section a list of CPC numbers to define their overall scope of commitments.
- Some Members use the same letters a, b, c, etc. of W120 but the sub-categories do not correspond to those of W120 (e.g. Pakistan which follows W120 only for a, b, and c).
- Some Members use their own expressions for some categories (e.g. Thailand for "database access services" to cover category j).
- Some Members have not used W120 at all: Gambia based its commitments on the CPC, Argentina used the CPC partly and its own list of services (mainly mobile, trunking and leased circuit services); also some Members use their own expressions for the whole list of services they commit (e.g. Brunei Darussalam, Colombia, Malaysia, Singapore, Sri Lanka, Uganda).
- The "o. other" category has usually been used to list services that were already liberalized contrary to the fixed network services, or services which had a calendar of liberalization different from that of the fixed network services: mobile services, satellite services, etc. On the other hand, Members who had already liberalized all services did not mention specifically those services under category o.
- Many Members have made specific references to some technologies and allocated them in very varied ways to the W120 categories (as they followed the structure of W120). For instance, Morocco and Tunisia registered "Frame relay" under a separate "o.-other" category. The most frequent case concerns Internet-based services: a number of Members mention specifically this technology, sometimes using detailed expressions (such as "internet and internet access services" for Antigua & Barbuda, Bangladesh, Barbados, Ghana, Grenada, Kenya, Suriname, or Data services TCPIP (internet) for Uganda) or more simply "internet services" (Belize, Oman). Most put it in the "o.-other" subcategory (Antigua & Barbuda, Bangladesh, Barbados, Ghana, Grenada, Kenya, Suriname, Uganda) others in "g. Private leased circuit services" (Oman), or in "b. Packet switched data" (Pakistan) or look at it from a pure technological point of view (e.g. Uganda, which mentions "a. basic voice services, including over value-added networks such as internet");

finally, some Members use CPC references for “internet services” (CPC75260 for Antigua & Barbuda).

- For mobile: a number of countries (Guatemala, Croatia, Georgia, Estonia, etc.) have committed voice services (CPC7521), and again separately mobile services under the category “o. other” with a specific reference to CPC75213, which normally is already covered under CPC7521.
- Some Members (e.g. Latvia, Pakistan, Antigua & Barbuda) mention Trunk radio systems, without any CPC number.

Source: www.wto.org see TN/S/W/27 S/CSC/W/44

Annex 3: India's revised offer following EU definition of Telecommunications

Sector	Market Access ***Note: Number of licenses, may, however be limited due to scarce resources***	National Treatment	Additional Commitments
2.C Telecommunications All services consisting of the transmission and reception of signals by any electromagnetic means. (*) Services of broadcasting transmission of TV and radio programmes to the public are not included Telecommunications services do not cover the economic activity consisting of the provision of content services which require telecommunications services for their transport	1) Unbound 2) None 3) The service will be permitted to be provided only after the operator gets a licence from the Designated Authority. **In the case of foreign investors having prior collaboration in that specific service sector in India, FIPB approval would be required.** The private operator should be a company registered in India in which total foreign equity must not exceed 49 per cent. Service operator will be permitted to provide long distance service within the licensed service area only. Resale of voice telephone services is not permitted. However, licensees can grant franchises on commission basis for providing public call offices (PCOs) service. The detailed terms and conditions for providing the service will be as per licence conditions. **For ISPs** Only through incorporation with a foreign equity ceiling of 74%.	1) Unbound 2) None 3) Unbound 4) Unbound except as indicated in the horizontal commitments	India undertakes the obligations contained in the reference paper attached here to for the following services: a) Voice telephone service (CPC 7521**) b) Packet Switched Data Transmission Services (CPC 7523**) Radio Paging Services (CPC 7523**) c) Circuit switched data transmission services (CPC 7523**) d) Facsimile Service (CPC 7521** + 7529**) e) Private Leased Circuit Services (CPC 7522** + 7523**) f) Electronic mail (CPC 7523**) g) Voice mail (CPC 7523**) h) On-line information and data base retrieval (CPC 7523**) i) Enhanced / value added facsimile services, including store and forward, store and retrieve (CPC 7523**) j) On-line information and/or data processing (CPC 843**) k) Others (i) V-Sat Services (ii) Cellular mobile telephone

Annex 4: Chronology of Reforms

1991-92	• On July 24, 1991, Government announced the New Economic Policy. • Telecom Manufacturing Equipment license was delicensed in 1991. • Automatic foreign collaboration was permitted with 51 per cent equity by the collaborator.
1992-93	• Value added services were opened for private and foreign players on franchise or license basis. These included cellular mobile phones, radio paging, electronic mail, voice mail, audiotex services, videotex services, data services using VSATs, and video conferencing.
1994-95	• The Government announced a National Telecom Policy in September 1994. It opened basic telecom services to private participation including foreign investments. • Foreign equity participation up to 49 per cent was allowed in basic telecom services, radio paging and cellular mobile. For value added services, the foreign equity cap was fixed at 51 per cent. • Eight cellular licensees for four metros were finalized.
1996-97	• Telecom Regulatory Authority of India (TRAI) was set up as an autonomous body to separate the regulatory functions from policy formulations and operational functions. • Coverage of the term "infrastructure" expanded to include telecom to enable the sector to avail of fiscal incentives such as tax holiday and concessional duties. • Agreement between Department of Telecommunications (DoT) and financial institutions to facilitate funding of cellular and basic telecom projects. • External Commercial Borrowing (ECB) limits on telecom projects made flexible with an increased share from 35 per cent to 50 per cent of total project cost. • Internet Policy finalized.
1998-99	• FDI up to 49 per cent of total equity, subject to license, permitted in companies providing Global Mobile Personal Communication (GMPC) by satellite services.
1999-00	• New National Telecom Policy 1999 was announced which allowed multiple fixed services operators and opened long-distance services to private operators.

	• TRAI reconstituted; clear distinction was made between the recommendatory and regulatory functions of the Authority. • DOT/MTNL permitted to start cellular mobile telephone service. • To separate service providing functions from policy and licensing functions, Department of Telecom Services was set up. • A package for migration from fixed license fee to revenue sharing offered to existing cellular and basic service providers. • First phase of re-balancing of tariff structure of the telecom sector started. Long-distance STD and ISD reduced by 23 per cent on average. • Voice and data segment opened to full competition and foreign ownership increased to 100 per cent from 49 per cent previously.
2000-01	• TRAI Act amended. The Amendment clarified and strengthened the recommendatory powers of TRAI, especially with respect to the need and timing of introduction of new services providers and licenses to a services provider. • Department of Telecom Services and Department of Telecom operations corporatized by creating Bharat Sanchar Nigam Limited. • Domestic long-distance services opened up without any restrictions on the number of operators. • Second phase of tariff rationalization started with further reductions in long-distance STD rates by an average of 13 per cent for different distance slabs and ISD rates by 17 per cent. • Internet Service Providers given approval to set up International Gateways for Internet using satellite as a medium in March 2000. • In August 2000, private players were allowed to set up international gateways via the submarine cable route. • Termination of monopoly of VSNL in International Long-distance services brought forward to March 31, 2002 from March 31, 2004.
2001-02	• Communication Convergence Bill, 2001 was introduced in August 2001. The bill aimed to promote and facilitate the carriage and content of communication in an orderly manner and develop the required infrastructure. The bill envisages setting up of a regulatory and licensing authority known as "Communication Commission of India" and making TRAI and TDSAT more effective regulatory bodies. • Competition introduced in all services segments. TRAI recommended opening up of market to full competition and introduction of new services in the telecom sector. The licensing terms and conditions for Cellular Mobile were simplified to encourage entry for operators in areas without effective competition. • Usage of VoIP permitted for international telephony service. • The five-year tax holiday and 30 per cent deduction for the next five years available to the telecommunication sector till March 31, 2000 was reintroduced for units commencing their operations on or before March 31, 2003. These concessions will also be extended to Internet services providers and broadband networks. • 13 ISPs were given clearance for commissioning of international gateways for Internet using satellite medium for 29 gateways.

	• License conditions for Global Mobile Personal Communications by Satellite finalized in November 2001. • National Long-distance Service was opened up for unrestricted entry with the announcement of guidelines for licensing NLD operators. Four companies were issued Letter of Intent (LOI) for National Long-distance Service of which three licenses have been signed. • Basic services were also opened up for competition. 33 Basic Service licenses (31 private and one each to MTNL and BSNL) stand issued up to December 31, 2001. • Fourth cellular operator, one each in four metros plus thirteen, were permitted with 17 fresh licenses issued to private companies in September/October 2001. The cell phone providers will be free to provide, within their area of operation, all types of mobile services equipment, including circuit and/or package switches that meet the relevant International Telecommunication Union (ITU)/ Telecom Engineering Center (TEC) standards. • Wireless in Local Loop (WLL) was introduced to provide telephone connections in urban, semi- urban and rural areas. • Disinvestment of PSUs in the telecom sector was also undertaken. In February 2002, the disinvestment of VSNL was completed by bringing down the government equity to 26 per cent and the management of the company was transferred to Tata Group, a strategic partner. During the year, HTL was also disinvested. • Government allowed CDMA technology to enter the Indian market. • Reliance, MTNL and Tata were issued licenses to provide CDMA-based services in the country. • TRAI recommended deregulating regulatory intervention in cellular tariffs, which meant that operators need no longer have prior approval of the regulator for implementing tariff plans except under certain conditions.
2002-03	• International long-distance business opened for unrestricted entry. • Telephony on internet permitted in April 2002. • TRAI finalized the System of Accounting Separation (SAS) providing detailed accounting and financial system to be maintained by telecom service providers.
2003-04	• Unified Access Service Licenses regime for basic and cellular services was introduced in October 2003. This regime will enable services providers to offer fixed and mobile services under one license. Consequently 27 licenses out of 31 licenses converted to Unified Access Service Licenses. • Interconnection Usage Charge regime introduced with a view to provide termination charges for cellular services and enable introduction of Calling Party Pays regime in voice telephony segment. • The Telecommunication Interconnection Usage Charges Regulation 2003 was introduced on 29th October 2003 which covers

	arrangements among service providers for payment of Interconnection Usage Charges, for Telecommunication Services, and covers Basic Service that includes WLL (M) services, Cellular Mobile Services, and Long-distance Services (STD/ ISD) throughout the territory of India. • The Universal Service Obligation fund introduced as a mechanism for transparent cross-subsidization of universal access in the telecom sector. The fund is to be collected through a 5 per cent levy on the adjusted gross revenue of all telecom operators. • Broadcasting notified as Telecommunication services under Section 2(i)(k) of TRAI Act.
2004-05	• In Budget 2004-05, it was proposed to lift the ceiling from the existing 49 per cent to 74 per cent as an incentive for cellular operators to fall in line with the new unified licensing norm. • 'Last Mile' linkages permitted in April 2004 within the local area for ISPs to establish their own last mile to their customers. • Indoor use of low power equipments in 2.4 GHz band de-licensed from August 2004. • Broadband Policy announced on October 14, 2004. In this policy, broadband had been defined as an "always-on" data connection supporting interactive services including internet access with minimum download speed of 256 kbps per subscriber. • The Telecommunications (Broadcasting and Cable Services) Interconnection Regulation 2004 was introduced on December 10, 2004. • BSNL and MTNL launched broadband services on January 14, 2005. • TRAI announced the reduction of Access Deficit Charge (ADC) by 41% on ISD calls and by 61 per cent on STD calls applicable from February 1, 2005.
2005-06	• Budget 2005-2006 cleared a hike in FDI ceiling to 74 per cent from the earlier limit of 49 per cent. 100 per cent FDI was permitted in the area of telecom equipment manufacturing and provision of IT-enabled services. • Annual license fee for National Long-distance (NLD) as well as International Long-distance (ILD) licenses reduced to 6 per cent of Adjusted Gross Revenue (AGR) with effect from January 1, 2006. • BSNL and MTNL launched the 'One-India Plan' with effect from March 1, 2006 which enabled their customers to call from one end of India to other at the cost of Rs. 1 per minute, any time of the day. • TRAI fixed Ceiling Tariff for International Bandwidth; Ceiling Tariff for higher capacities reduced by about 70 per cent and for lower capacity by 35 per cent. • Regulation on Quality of Service of Basic and Cellular Mobile Telephone Services 2005 was introduced on July 1, 2005. • BSNL announced 33 per cent reduction in call charges for all countries for international calls. • Quality of Service (Code of Practice for Metering and Billing Accuracy) Regulation 2006 was introduced on March 21, 2006.

2006-07	• Draft recommendation on Provision of IPTV services. • Direction under Section 13 on provision of value-added services to customers. • DOMESTIC LEASED CIRCUITS REGULATIONS, 2007(10 OF 2007). • Implementation of National Do Not Call Registry (NDNC). • TRAI issues Direction to Access Service Providers on Caller Line Identity Presentation (CLIP) charges. • TELECOMMUNICATION CONSUMERS EDUCATION AND PROTECTION FUND REGULATIONS, 2007 (6 OF 2007). • INTERNATIONAL TELECOMMUNICATION ACCESS TO ESSENTIAL FACILITIES AT CABLE LANDING STATIONS REGULATIONS, 2007 (5 OF 2007). • TRAI asks telecom service providers to ensure transparency in charging for SMS on Festival/customary days. • TRAI enlarges the panel of Auditors for the Metering and Billing System of Service Providers. • Consultation Paper on Access to Essential Facilities (Including Landing Facilities for Submarine Cables) at Cable Landing Stations. • Recommendations on Infrastructure Sharing. • TRAI recommends to Department of Telecommunications on Terms & Conditions for Resale in International Private Leased Circuits (IPLC) Segment. • TRAI announces lowering of Access Deficit Charge (ADC). • TRAI decides to lower port charges.

Annex 5: Provisions within the General Agreement on Trade in Services

Provision	Article(s)	Description
Coverage	I	Universal **with exception of air transport** Members apply a **positive list approach** to market access, national treatment and additional commitments in any of the four modes of delivery, for foreign service suppliers.
Principles	II XVII XVI	**MFN** – w/exceptions. **NT** – specific obligations. **Market access –** specific obligations. **Additional commitments –** specific obligations.
Transparency	III III(4)	Notification of all relevant measures of general application. Establishment of enquiry points.
Substantive	V.1(a) V.1(b) XIX	Progressive liberalisation: Requires economic integration agreements to provide 'substantial sectoral coverage'. Agreements must provide 'for the absence or elimination of substantially all discrimination […] between or among parties'. Builds in the progressive liberalisation of trade in services through periodic negotiations that were to begin no later than 1 January 2000 through 'bilateral, plurilateral or multilateral negotiations directed towards increasing the general level of specific commitments undertaken by Members'.
Cooperation	XXIV XXV Annex on Telecommunications	Council for Trade in Services established to facilitate cooperation. Subsidiary bodies as needed. Technical cooperation for Member governments and service providers. Members to support cooperation among developing countries at international, regional and sub-regional levels and assist in technology transfer to LDCs.
Exemptions (collective preferences, safeguards)	Telecoms Reference Paper	Governments must take appropriate measures to prevent suppliers of telecommunications services from using anti-competitive practices.
Institutionalisation	XXII XXIII	Consultation and Dispute Settlement. Dispute Settlement and Enforcement provisions.
Implementation	XXII XXV	State to State Consultation. Technical Cooperation.

Annex 6: Comparison of the Reference Paper on Basic Telecommunications with EUs and India's Revised Offer and the Indo-Singapore FTA

Text of the Reference Paper	Text of Reference Paper in Eu's Revised Offer	Text of Reference Paper in India's Revised Offer	Indo-Singapore FTA
Scope The following are definitions and principles on the regulatory framework for the basic telecommunications services.	Scope The following are definitions and principles on the regulatory framework for the basic telecommunications services underpinning the market access commitments by the European Communities and their Member States.	Scope The following are definitions and principles on the regulatory framework for the basic telecommunications services.	Scope Annex 7D (CECA between the The Republic of India and The Republic of Singapore) shall apply to measures affecting trade in telecommunications services. This Annex shall apply subject to rules, regulations and licence conditions, as applicable within the territory of each Party, within the framework of the provisions. 1.3 This Annex shall not apply to measures adopted or maintained by a Party relating to broadcasting services as defined in each Party's laws and regulations.
Definitions Users mean service consumers and service suppliers.	Definitions Users mean service consumer and service suppliers.	Definitions Users mean service consumers and service suppliers.	Definitions Users means service consumers and service suppliers.
Essential facilities mean facilities of a public telecommunications transport network or service that (a) are exclusively or predominantly provided by a single or limited number of suppliers; and (b) cannot feasibly be	Essential facilities mean facilities of a public telecommunications transport network and service that a) are exclusively or predominantly provided by a single or limited number of suppliers; and b) cannot feasibly be economically or technically substituted in order to provide a	Essential facilities mean facilities of a public telecommunications transport network or service that (a) are exclusively or predominantly provided by a single or limited number of suppliers; and (b) cannot feasibly be economically or technically substituted in order to provide	Essential facilities mean facilities of a public telecommunications transport network or service that (a) are exclusively or predominantly provided by a single or limited number of suppliers; and (b) cannot feasibly be economically or technically substituted in order to

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economically or technically substituted in order to provide a service.	service.	a service.	provide a service.
A major supplier is a supplier which has the ability to materially affect the terms of participation (having regard to price and supply) in the relevant market for basic telecommunications services as a result of: (a) control over essential facilities; or (b) use of its position in the market.	A major supplier is a supplier which has the ability to materially affect the terms of participation (having regard to price and supply) in the relevant market for basic telecommunications services as a result of: a) control over essential facilities; or b) use of its position in the market.	A major supplier is a supplier which has the ability to materially affect the terms of participation (having regard to price and supply) in the relevant market for basic telecommunications services as a result of: (a) control over essential facilities; or (b) use of its position in the market.	A major supplier means a supplier of public telecommunications transport networks or services which has the ability to materially affect the terms of participation (having regard to price and supply) in the relevant market for public telecommunications transport networks or services as a result of: (a) control over essential facilities; or (b) use of its position in the market.
1. Competitive safeguards 1.1 Prevention of anti-competitive practices in telecommunications Appropriate measures shall be maintained for the purpose of **preventing suppliers who, alone or together, are a major supplier from engaging** in or continuing anti-competitive practices. 1.2 Safeguards The anti-competitive practices referred to above shall include in particular:	1. Competitive safeguards 1.1. Prevention of anti-competitive practices in telecommunications: Appropriate measures shall be maintained for the purpose of preventing suppliers who, alone or together, are a major supplier from engaging in or continuing anti-competitive practices. 1.2. Safeguards: The anti-competitive practices referred to above shall include in particular: a) engaging in anti-competitive cross-subsidization; b) using information obtained from competitors with anti-competitive results; and	1. Competitive safeguards Appropriate measures shall be maintained for the purpose of **preventing service suppliers from engaging** in or continuing in anti-competitive practices of the following type: **[Indian text omits (a) of general text]** (a) using information obtained from competitors with anti-competitive results; and	1. Competitive safeguards Prevention of anti-competitive practices in telecommunications Each Party shall, through the relevant authority, maintain appropriate measures for the purpose of preventing suppliers of public telecommunications transport networks or services from engaging in or continuing anti-competitive practices. Safeguards 4.2 For the purposes of Article 4.1, anti-competitive practices shall

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(a) **engaging in anti-competitive cross-subsidization**; (b) using information obtained from competitors with anti-competitive results; and (c) not making available to other services suppliers on a timely basis technical information about essential facilities and commercially relevant information which are necessary for them to provide services.	c) not making available to other services suppliers on a timely basis technical information about essential facilities and commercially relevant information which are necessary for them to provide services.	(b) not making available to other services suppliers on a timely basis technical information about essential facilities and commercially relevant information which are necessary for them to provide services.	include: (a) using information obtained from competitors for anti-competitive results; and (b) not making available to suppliers of public telecommunications transport networks or services, on a timely basis, technical information about essential facilities and commercially relevant information which are necessary for them to provide public telecommunications transport networks or services.
2. Interconnection 2.1. This section applies to linking with suppliers providing public telecommunications transport networks or services in order to allow the users of one supplier to communicate with users of another supplier and to access services provided by another supplier, where specific commitments are undertaken.	2. Interconnection 2.1. This section applies to linking with suppliers providing public telecommunications transport networks or services in order to allow the users of one supplier to communicate with users of another supplier and to access services provided by another supplier.	2. Interconnection Same as general text	2. Interconnection Each Party shall ensure that suppliers of public telecommunications transport networks or services in its territory provide interconnection with the facilities and equipment of suppliers of public telecommunications transport networks or services of the other Party, subject to terms and conditions specified by each Party's telecommunications regulatory/ licensing body from time to time.
2.2. Interconnection to be ensured Interconnection with a major supplier will be ensured at **any technically feasible point in the**	2.2. Interconnection to be ensured: Within the limits of permitted market access, interconnection with a major supplier will be ensured at any technically	2.2. Interconnection to be ensured Interconnection with a major supplier will be ensured at **any specified feasible point in the network as indicated in the**	Each Party shall ensure that a major supplier in its territory provides interconnection for suppliers of public telecommunications transport networks

Text of the Reference Paper	Text of Reference Paper in Eu's Revised Offer	Text of Reference Paper in India's Revised Offer	Indo-Singapore FTA
network. Such interconnection is provided: (a) **under non-discriminatory terms, conditions (including technical standards and specifications) and rates** and of a quality no less favourable than that provided for its own like services or for like services of non-affiliated service suppliers for its subsidiaries or other affiliates; (b) in a timely fashion, on terms, conditions (including technical standards and specifications) and cost-oriented rates that are transparent, reasonable, having regard to economic feasibility, and sufficiently unbundled so that the supplier need not pay for network components or facilities that it does not require for the service to be provided; and (c) upon request, at points in addition to the network termination points offered to the majority **of users, subject to charges that**	feasible point in the network. Such interconnection is provided[82]: a) under non-discriminatory terms, conditions (including technical standards and specifications) and rates and of a quality no less favourable than that provided for its own like services or for like services of non-affiliated service suppliers or for its subsidiaries or other affiliates[83]; b) in a timely fashion, on terms, conditions (including technical standards and specifications) and cost-oriented rates that are transparent, reasonable, having regard to economic feasibility, and sufficiently unbundled so that the supplier need not pay for network components or facilities that it does not require for the service to be provided; and c) upon request, at points in addition to the network termination points offered to the majority of users, subject to charges that reflect the cost of construction of necessary additional facilities.	**license.** Such interconnection is provided: (a) of a quality no less favourable than that provided for its own like services or for like services of non-affiliated service suppliers or for its subsidiaries or other affiliates; **Indian text omits (b) of the general text]** (b) upon request, at points in addition to the network termination points offered to the majority **of users as per license conditions, subject to mutually agreed charges**.	or services of the other Party at any specified technical and commercially feasible point, specified by the telecommunications regulatory/ licensing body, in the major supplier's network, or in the case of points not specified by the telecommunications regulatory/ licensing body, as per mutual agreement. Such interconnection is provided: (a) under non-discriminatory terms, conditions (including technical standards and specifications) and rates and of a quality no less favourable than that provided for its own like services or for like services of non-affiliated suppliers of public telecommunications transport networks or services or for its subsidiaries or other affiliates; (b) in a timely manner; and (c) upon request, at points in addition to the network termination points offered to the majority of suppliers of public telecommunications transport networks or services, subject to technical and commercial feasibility and mutually agreed terms and conditions.

[82] Suppliers of services or networks not generally available to the public, such as closed user groups, have guaranteed rights to connect with the public telecommunications transport network or services on terms, conditions and rates which are non-discriminatory, transparent and cost-oriented. Such terms, conditions and rates may, however, vary from the terms, conditions and rates applicable to interconnection between public telecommunications networks or services.

[83] Different terms, conditions and rates may be set in the Community for operators in different market segments, on the basis of non-discriminatory and transparent national licensing provisions, where such differences can be objectively justified because these services are not considered "like services".

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reflect the cost of construction of necessary additional facilities.			**Options for interconnecting with major suppliers** Each Party shall endeavour that suppliers of public telecommunications transport networks or services of the other Party may interconnect their facilities and equipment with those of major suppliers in its territory on the basis of: (a) a reference interconnection offer containing the rates, terms, and conditions that the major supplier offers generally to suppliers of public telecommunications transport networks or services, as amended from time to time; The Parties understand that interconnection rates are commercially negotiated between suppliers of public telecommunications networks or services. The Parties understand that timeliness may vary from case to case, depending upon the complexity of each interconnection negotiation, which may be affected by a range of factors. (b) the terms and conditions of an existing interconnection agreement; or (c) through negotiation of a new

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			interconnection agreement.
2.3. Public availability of the procedures for interconnection negotiations. The procedures applicable to a major supplier will be made publicly available.	2.3. Public availability of the procedures for interconnection negotiations The procedures applicable for interconnection to a major supplier will be made publicly available.	2.3. Public availability of the procedures for interconnection negotiations. The procedures applicable to a major supplier will be made publicly available.	Public availability of the procedures for interconnection negotiations. Each Party shall make publicly available the applicable procedures for interconnection with major suppliers in its territory.
2.4. Transparency of interconnection arrangements. It is ensured that a major supplier will make publicly available either its interconnection agreements or a reference interconnection offer.	2.4. Transparency of interconnection arrangements: It is ensured that a major supplier will make publicly available either its interconnection agreements or a reference interconnection offer.	2.4. Transparency of interconnection arrangements. It will be ensured that a major supplier will make publicly available either its interconnection agreements or a reference interconnection offer.	Public availability of interconnection arrangements. Each Party shall ensure that a major supplier will make publicly available either its interconnection agreements or a reference interconnection offer. Each Party shall require major suppliers in its territory to file all interconnection agreements to which they are a party with its telecommunications regulatory body. Each Party shall endeavour to make available for inspection to suppliers of public telecommunications transport networks or services which are seeking interconnection, interconnection agreements in force between a major supplier in its territory and any other supplier of public telecommunications transport networks or services in such territory, including interconnection

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			agreements concluded between a major supplier and its affiliates and subsidiaries, subject to any requirement which the telecommunications regulatory body may impose to protect the commercial confidentiality of information contained in these interconnection agreements.
2.5. Interconnection : dispute settlement. A service supplier requesting interconnection with a major supplier will have recourse, either: (a) at any time or (b) after a reasonable period of time which has been made publicly known **to an independent domestic body, which may be a regulatory body as referred to in paragraph 5 below**, to resolve disputes regarding appropriate terms, conditions and rates for interconnection within a reasonable period of time, to the extent that these have not been established previously.	2.5. Interconnection : dispute settlement: A service supplier requesting interconnection with a major supplier will have recourse, either: a) at any time or b) after a reasonable period of time which has been made publicly known to an independent domestic body, which may be a regulatory body as referred to in paragraph 5 below, to resolve disputes regarding appropriate terms, conditions and rates for interconnection within a reasonable period of time, to the extent that these have not been established previously.	2.5. Interconnection: dispute settlement A service supplier requesting interconnection with a major supplier will have recourse, either: (a) at any time or (b) after a reasonable period of time which has been made publicly known **to a domestic authority** to resolve disputes regarding appropriate terms, conditions and rates for interconnection within reasonable period of time, to the extent that these have not been established previously.	Resolution of interconnection disputes. A supplier of public telecommunications transport networks or services of the other Party requesting interconnection with a major supplier in the Party's territory will have recourse, either: (a) at any time, or (b) after a reasonable period of time which has been made publicly known. to an independent domestic body, which may be a telecommunications regulatory / dispute resolution body, as referred to in Article 8 below, to resolve disputes regarding appropriate terms, conditions and rates for interconnection within a reasonable period of time, to the extent that these have not been established previously.
3. Universal service Any Member has the right to define the kind of universe service obligation it wishes to maintain.	3. Universal service Any Member has the right to define the kind of universal service obligation it wishes to maintain. Such obligations will	3. Universal service India retains the right to define the kind of universal service obligation it wishes to maintain. **Such obligations are not**	Universal service 6. Each Party retains the right to define the kind of universal service obligation it wishes to maintain. Such obligations

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Such obligations will not be regarded as anti-competitive per se, provided they are administered in a transparent, non-discriminatory and competitively neutral manner and are not more burdensome than necessary for the kind of universal service defined by the Member.	not be regarded as anti-competitive *per se*, provided they are administered in a transparent, non-discriminatory and competitively neutral manner and are not more burdensome than necessary for the kind of universal service defined by the Member.	**regarded as anti-competitive *per se*, since they would be administered in a transparent and non-discriminatory manner.**	are not regarded as anti-competitive per se, since they would be administered in a transparent and non-discriminatory manner.
4. Public availability of licensing criteria Where a license is required, the following will be made publicly available: (a) all the licensing criteria and **the period of time normally required to reach a decision concerning an application for a license** and (b) the terms and conditions of individual licenses. **The reasons for the denial of a license will be made known to the applicant upon request.**	4. Public availability of licensing criteria Where a licence is required, the following will be made publicly available: a) all the licensing criteria and the period of time normally required to reach a decision concerning an application for a licence and b) the terms and conditions of individual licences. The reasons for the denial of a licence will be made known to the applicant upon request.	4. Public availability of licensing criteria. Where a license is required, the following will be made publicly available: (a) all the licensing criteria and **[omitted]** (b) the terms and conditions of individual licences **[omitted]**	LICENSING CONDITIONS 7.1 Where a licence is required, the following will be made publicly available: (a) all the licensing criteria and the period of time normally required to reach a decision concerning an application for a licence and (b) the terms and conditions of individual licences. 7.2 In case of denial of licence, the reasons for denial, on applicants' request, shall normally be given by each Party within a reasonable period of time.
5. **Independent regulators** **The regulatory body is separate from, and not accountable to, any supplier of basic telecommunications services**.	5. **Independent regulators** The regulatory body is separate from, and not accountable to, any supplier of basic telecommunications services. The decisions of and the procedures used by	5. **Regulatory Authority** The regulatory body is separate from, and not accountable to, any supplier of basic telecommunications services. The	5. **Independent regulators** AND DISPUTE RESOLUTION BODIES The telecommunications regulatory / dispute resolution body is separate

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The decisions of and the procedures used by **regulators** shall be impartial with respect to all market participants.	regulators shall be impartial with respect to all market participants.	decisions of, and the procedures used by, regulators shall be impartial with respect to all market participants.*	from, and not accountable to, any supplier of public telecommunications transport networks or services. The decisions of, and the procedures used by its telecommunications regulatory / dispute resolution body, are impartial with respect to all suppliers of public telecommunications transport networks or services.
6. Allocation and use of scarce resources Any procedures for the allocation and use of scarce resources, including frequencies, numbers and rights of way, will be carried out in an objective, timely, **transparent and non-discriminatory manner.** The current state of allocated frequency bands will be made publicly available, but detailed identification of frequencies allocated for specific government uses is not required.	6. Allocation and use of scarce resources Any procedures for the allocation and use of scarce resources, including frequencies, numbers and rights of way, will be carried out in an objective, timely, transparent and non-discriminatory manner. The current state of allocated frequency bands will be made publicly available, but detailed identification of frequencies allocated for specific government uses is not required.	6. Allocation and use of scarce resources Any procedures for the allocation and use of scarce resources, including frequencies, numbers and rights of way, will be carried out in an objective and timely manner. The current state of allocated frequency bands will be made publicly available, but detailed identification of frequencies allocated for specific government uses is not required*.	6. Allocation and use of scarce resources 9.1 Any procedures for the allocation and use of scarce resources, including frequencies, numbers and rights of way, will be carried out in an objective, timely, transparent and non-discriminatory manner. The current state of allocated frequency bands will be made publicly available, but detailed identification of frequencies allocated for specific government uses is not required.

Source: Compiled by the author
Note: The differences between the 'Reference Paper on Basic Telecommunications' and India's commitments to the Reference Paper in the Uruguay Round and in the Doha Round (revised offer August 2005) are given in bold print.

Annex 7: Comparison Between India and EU Most Recent Offers in Telecommunications Services

COUNTRY	Modes	Limitations on Market Access	Limitations on National Treatment	Additional Commitments to Reference Paper
INDIA	**Mode 1**	Unbound; except Data and Messaging Services for which None	Unbound	**Partially compliant**
	Mode 2	None	None	
	Mode 3	▪ License required from designated authority. ▪ FIPB approval for foreign investors required ▪ No. of licenses may be limited due to scarce resources subject to minimum of two licenses. ▪ Max 49% of equity ceiling; with International gateway ISPs can invest up to 74% ▪ Resale of voice telephone services is not permitted.	Unbound	
	Mode 4	Unbound except as given in horizontal commitments.	Unbound except as given in horizontal commitments.	
EU	**Mode 1**	None Except CY, MT: Unbound	None Except CY, MT : Unbound	**Fully compliant**
	Mode 2	None	None	
	Mode 3	None Except FI, FR, PL, SI FI: Permanent residence requirement for half of the founders, half of the members of the board of directors and the managing director. If the founder is a juridical person, residence	None	

COUNTRY	Modes	Limitations on Market Access	Limitations on National Treatment	Additional Commitments to Reference Paper
		requirement for that juridical person. FR: Non-EC natural or juridical persons may not hold directly more than 20% of the shares or voting rights of companies authorised to establish and operate radio-based infrastructure for the provision of telecommunications services to the general public. For the application of this provision, companies or firms legally established according to the laws of a Member State of the EC are considered EC juridical persons. PL: For domestic and international telecom services provided using cable television and radio networks and for public cellular mobile telephone services and networks: The limitation of foreign capital and voting rights is 49% SI: Foreign participation may not exceed 99 per cent of the equity.		
	Mode 4	Unbound except as given in horizontal section. Except CY: Unbound	Unbound except as given in horizontal section Except CY, MT: Unbound	