Fostering economic growth through next generation reforms in enterprise services and data sector

Inputs for NTP 2011 and National Policy on IT 2011

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Contents

Foreword

The Federation of Indian Chambers of Commerce and Industry (FICCI) and PricewaterhouseCoopers India Private Limited (PwC) are proud to present this report on "Fostering Economic Growth through next generation reforms in Enterprise Services & Data Sector - Inputs for NTP 2011"

Enterprise telecom services form the backbone of India's service based economy. Rapid rise in the IT/ITeS exports coupled with greater participation of India in the world economy makes it important that the needs of the new age enterprise customer be understood. Enterprise telecom services significantly impact foreign direct investment since availability of state-of-the-art world-class telecom infrastructure which meets the needs of the enterprise service users is a key enabler for large scale FDI.

Between NTP 99 and the proposed NTP 2011 the enterprise telecom services and data sector has seen many significant changes in the telecommunications landscape where technological developments, service offerings and customer preference are concerned. NTP 2011 provides a perfect platform to address the needs of the enterprise telecom services users on the one hand and regulatory challenges faced by service providers on the other.

This report highlights the importance and potential of the enterprise services market in India. Our aim has been to highlight the concerns of various stakeholders in the ecosystem and make recommendations that could help enterprise customers and service providers, with the support of a forward looking policy, to propel the operating environment to the next level. The report also outlines the socio-economic benefits that the enterprise stakeholders bring to the nation.

We would like to recognize the leadership provided by Shri R R N Prasad, Chairman of the FICCI Subcommittee on Enterprise Data & Services in leading the Subcommittee to help provide inputs in the finalization of this report. We are extremely grateful to the Department of Telecommunications (DoT) for providing us this opportunity, by inviting inputs on National Telecom Policy 2011.

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Executive summary

The voice business is showing signs of slowdown. Data is promising.

The Indian telecom sector witnessed rapid growth over the last decade mainly due to regulatory liberalisation, structural reforms and competition, making telecom one of the major catalysts in India's growth story.

Sound government policies were one of the most important reasons for the turnaround. The government of India formulated the National Telecom Policy (NTP) 1994 that was primarily about liberalisation and the introduction of competition to break the state-owned monopoly in the telecommunications sector. NTP 1999 was related to second-generation reforms that involved assessing the sector's viability, enhancing competition via increased number of operators, technology neutrality and transforming licence fee structures to a revenue-sharing structure. Both policies were centred on voice and basic services with a focus on individual users as the need of the hour. Even the national long distance (NLD) and international long distance (ILD) licences were framed primarily for switched voice services.

With this background, NTP 2011 should address next-generation reforms and introduce a significant shift in focus from voice telephony to the emergence of data at the enterprise level. Several changes have taken place in the telecom sector since 1999 and it is of utmost importance that a new policy framework be formed to take into account the new realities. This needs to be done keeping following factors in mind- revenue for the exchequer, affordable services to users, resilient connectivity and robust growth of the sector.

Data is promising, as compared to voice, due to several reasons. Data can render itself very well to the different segments created to target specific customer groups. While voice revenues may not grow much, data revenues could still maintain a high growth and help operators maintain stable and healthy revenues.

Enterprise consumer is different from a retail consumer and has different and specific needs. Enterprise segment is fuelling the demand for data and connectivity throughout the country and abroad. This segment is an early adopter of new technologies, and thereby promotes a culture of innovation in the country. To unleash the data revolution in India, the telecom enterprise sector will have to be the flag-bearers of change and come up with a suite of new services that can propel demand for data to the next level. A sound regulatory policy with focus on data services is obviously a prerequisite to start the data revolution and propel the Indian telecom industry's competitiveness on a global scale.

Although the Indian enterprise market has seen a strong growth of 20 to 25% CAGR over the last 3 years, India still lags in % spend on data compared to % spend on data by other nations. This is due to the low penetration of digital connectivity in enterprise segment, a segment who is a heavy user of data. Some of the issues that enterprise segment is facing and their recommendations for the policy framework is as shown in the table.

The purpose of this report is to highlight the needs of the enterprise customer and the importance of enterprise data services sector in India. It will also showcase how enterprise data services can help sunshine industries such as IT, BPOs, KPOs, Financial services, Banking, Consultancy where India has global rankings. These industries urgently need expansion in the enterprise service delivery to ensure lower costs and higher competitiveness.

Issues	Recommendations
Service provider Issues	
Uniform license fees	• Uniform license fee of 6% of the AGR or less should be fixed for all the services included in the unified license.
Infrastructure sharing between operators	• Suitable provisions should be made to allow both active and passive infrastructure sharing between various telecom operators.
Double taxation	• Permit deductions of the cost of any telecom services purchased as inputs from the adjusted gross revenue. • The present methodology of multi-stage and cumulative assessment of license fees that leads to double taxation must be revisited.
Scope of services in NLD/ILD licenses	• Terms and conditions associated with the ILD and NLD licenses should be revised to address technology gaps
Telecom as "Essential" service	• Telecommunication should be declared essential services to avoid RoW obstacles. • Clear policy needs to be written to resolve any cable cuts
Encryption	• Upgrading encryption levels in all telecom licenses to allow the use of encryption up to the AES/256-bit level to protect confidential information in accordance with current commercial standards. • The encryption limits for all the telecom licenses should be harmonized to a common single benchmark and standard process. The telecom service providers as well as the corporate customers should be allowed to use encryption up to 256 bits in line with international best practices provided undertaking is given by customer and the concerned licensed entity to the extent the concerned licensed entity has or has control over the related encryption keys to make available the encryption key used as and when required in the interest of national security. Use of encryption beyond 256 bit can be allowed on a case to case basis after prior evaluation by licensor. • For decryption, a competent authority (Secretary MHA/Secretary Home Department) may authorize an agency of the government.
Security and monitoring for enterprise usage	• Government should clearly specify the security/lawful monitoring and interception requirements as applicable to enterprise data services especially to cater towards MPLS, IP-VPN services. • Security and monitoring conditions should be reviewed suitably for enterprise data and Indian Telegraph Act (1885) should be updated suitably.
Consumer group Issues	
OSP interconnectivity & infrastructure sharing	• Permit inter connectivity between an OSP to any other OSP for Data and Voice (without restriction of same company or Group Company) • Permit agent's connectivity to company's IT Systems to facilitate work from anywhere within India • Permit use of Internet Telephony (VoIP) from OSP Centre (bandwidth from authorized ISP) & use of single PBX for OSP office use with logical portioning • Permit unrestricted access to Customer's IT Systems (CPABX) Servers in India and outside India for agents to log-in and serve the customers • Permit sharing of assets between OSPs (one OSP can share the assets of other OSPs to serve customers at optimal cost), Permit Hosted / Virtual contract centers and cloud computing for OSP while conforming to the existing licensing restrictions • Permit the use of Internet as a connectivity medium between OSP and its customers allowing any public IP address to be used in OSP environment in India • Special enabling dispensation should be provided to ITeS/BPO organisations through service providers to enable better architectures converging VOIP, data, video conferencing and traditional voice.
Driving affordability in the Enterprise services market	• Enterprise service offerings should be made affordable. All avenues and elements that go into making enterprise services affordable should be explored. • Specifically, steps may also be taken to lower the cost of production of bandwidth including considering incentives for bandwidth providers as well as reviewing the current levies and other parameters that impact their cost structure.
Simplification of registration for OSPs	• Permit single registration for an organization (Currently each OSP facility, even belonging to a same company requires separate registration and bank guarantees)

The telecom sector

Overview

India is the third largest* telecommunications network in the world. The subscriber base has grown exponentially and the country has emerged as the fastest growing telecom market in the world. The telecom sector in India can be broadly classified under four sub-heads--network infrastructure companies, telecom service providers, telecom equipment manufacturers and telecom / application solutions providers. According to Frost & Sullivan estimates, by 2012, fixed-line revenues are expected to touch USD 12.2 billion while mobile revenues will reach USD 39.8 billion. The Indian mobile market is witnessing strong subscriber growth with declining average revenue per user (ARPUs) and margins with six major players garnering approximately 90% market share. Due to the explosive growth of mobile services, fixed-line market has been relegated to play a secondary role. As the mobile revenues are attaining saturation, enterprise business segment could provide a new healthy revenue stream and can act as a spring board for the next ICT revolution.
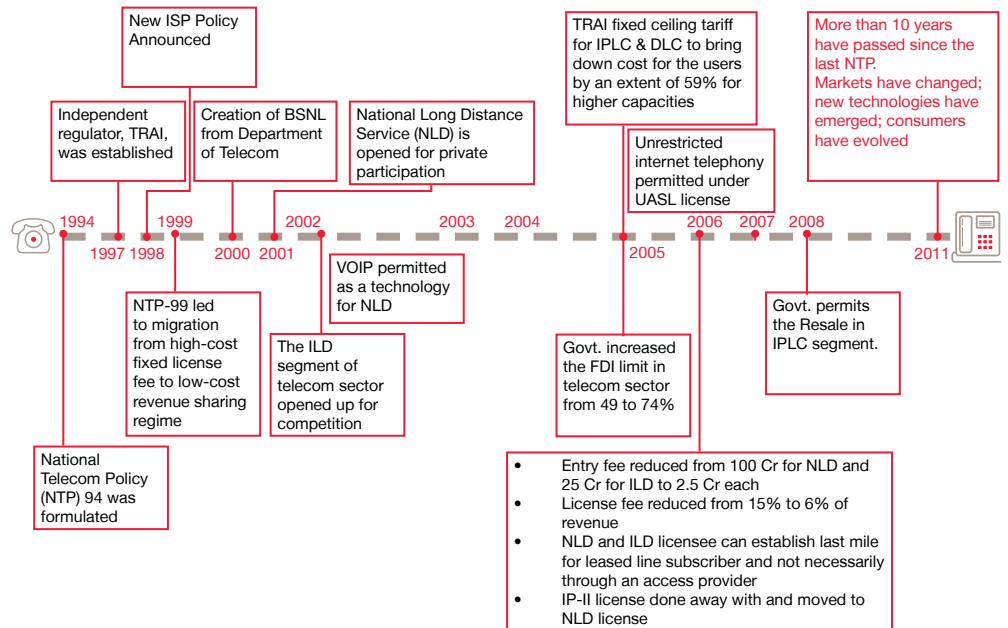
India, like many other countries of the world, has adopted a gradual approach to telecom sector reform through privatisation and effectively managing the competition in different segments of the market. While policy initiatives of NTP 99 have helped the industry grow, the pace needs to be accelerated through 3rd generation reforms by NTP 11. The main objective of NTP '94 was to increase the tele-density with a strong focus on voice. NTP '99 opened up the sector for greater competition and created a healthy environment for growth of competition. It also permitted the opening up of ILD and NLD sector. But as the dependence of other industries increases on enterprise connectivity and data services, it is important to identify the enterprise user separately and focus on the issues and challenges faced by them. With the increased need for connectivity and convergence of voice, video and data, the next generation reforms should address challenges of enterprise data segment to bring about a dramatic increase in productivity in all segments of our economy.

* www.dot.gov.in

Important regulatory milestones

Figure 1: Regulatory milestones in the Indian enterprise data connectivity market

New ISP Policy Announced

Independent regulator, TRAI, was established

Creation of BSNL from Department of Telecom

National Long Distance Service (NLD) is opened for private participation

TRAI fixed ceiling tariff for IPLC & DLC to bring down cost for the users by an extent of 59% for higher capacities

More than 10 years have passed since the last NTP.
Markets have changed; new technologies have emerged; consumers have evolved

Unrestricted internet telephony permitted under UASL license

1994   1997 1998 1999   2000 2001 2002   2003   2004   2005   2006 2007 2008   2011

VOIP permitted as a technology for NLD

NTP-99 led to migration from high-cost fixed license fee to low-cost revenue sharing regime

The ILD segment of telecom sector opened up for competition

Govt. increased the FDI limit in telecom sector from 49 to 74%

Govt. permits the Resale in IPLC segment.

National Telecom Policy (NTP) 94 was formulated

- Entry fee reduced from 100 Cr for NLD and 25 Cr for ILD to 2.5 Cr each
- License fee reduced from 15% to 6% of revenue
- NLD and ILD licensee can establish last mile for leased line subscriber and not necessarily through an access provider
- IP-II license done away with and moved to NLD license

Indian macroeconomic parameters

Year	2009	2010	2011f	2012f	2013f	2014f	2015f
Population	1155	1170	1186	1202	1217	1232	1246
Nominal GDP, (USD billion)	1363	1659	1940	2287	2754	3262	3803
Real GDP growth, % change y-o-y	8	8.6	7.8	8.2	8	7.9	7.6
FDI (USD billion)	37.76	27.02	34.8	45.59	53.34	62.94	76.85
FDI in telecom (USD billion)	2.55	1.67	2.37	3.42	4.37	4.78	6.46
Industrial production index	10.8	10.3	6.4	8	8.1	8	7.8
Unemployment, % of labour force	10	9	8.5	8.2	8.1	8.1	8.1
Consumer prices, % y-o-y, average	12.3	12.4	10	10.2	10	9.2	8.8
Budget balance, (USD billion)	-153.62	-139.18	-189.07	-185.86	-186.79	-186.13	-183.54
Foreign reserves ex gold, (USD billion)	254.7	261.1	267.6	281	302	324.7	349

Table 1 shows Indian macroeconomic data and forecasts. Although forecast shows the downward trend in short-term for FY 2011/12 (April-March), India's longer-term macro outlook remains bright, due to the country's strong demographics, economic liberalisation and reliance on domestic demand drivers. As per the latest industrial data, there is sufficient evidence to suggest a softer domestic demand environment in India in the coming financial year. As the table shows, GDP growth has a positive impact on addressing unemployment. Foreign direct investment (FDI) in India has played an important role in the development of the Indian economy. It has enabled India to achieve a certain degree of financial stability, growth and development. The telecom sector is among the leading sectors attracting FDI, accounting for around 8%[4] of the cumulative FDI equity inflows from 2000 to 2011. Inflow of FDI into India's telecom sector during April 2000 to February 2010 was about Rs 405,460 million. A number of reforms in telecom sector have led to an increase in FDI inflow.

# The enterprise data connectivity market

Introduction

The Indian enterprise segment has been growing at a healthy rate driven by two factors. Indian business is increasingly adopting IT and networking technology to improve productivity and create competitive advantage. Secondly, since Indian business is growing globally and international and Indian companies are expanding their foot prints beyond their existing presence, there is an associated need for greater connectivity to and within the country. Banking and financial services, information technology and business process outsourcing/call centres are some examples of high-growth sectors in the country. A majority of these are intended for tapping the growing enterprise market for both voice and data connectivity. The enterprise market is primarily being led by the demand for connectivity from the IT, ITeS, government and financial service segments. Telecom is being used as a strategic tool in Indian industry.

Today, a secure, reliable and efficient telecommunications network is a must-have for any company. With cost containment and overall network management being the keywords in the BPO and ITeS businesses today, a robust telecom infrastructure forms the backbone of seamless operations. Future growth is expected from the retail segment where a boom is expected in the coming years on account of large national and international players poised to enter organised retailing. Bandwidth, both domestic and international, is a key input to knowledge-based industries. Of particular importance is the crucial role of bandwidth in IT and ITeS industries like BPO, call centres, software exports, etc.

Globally, 35 to 50% revenues are obtained from non-voice services, while India derives only 18% revenues from non-voice/data services. This underscores the huge revenue potential of data services waiting to be tapped. We believe that in the current decade, data will transform the Indian telecom industry the way voice did in the previous decade. Data has huge potential to double the current market size to USD 14 billion[5] and can add 500 bp CAGR to a slowing voice industry within a short span of three years. Our analysis indicates that we are in the cusp of a similar 'data revolution' in India as has happened in other developed countries.

Figure 2: Contribution of voice and data in the total revenues[6] (Rs. Billion)
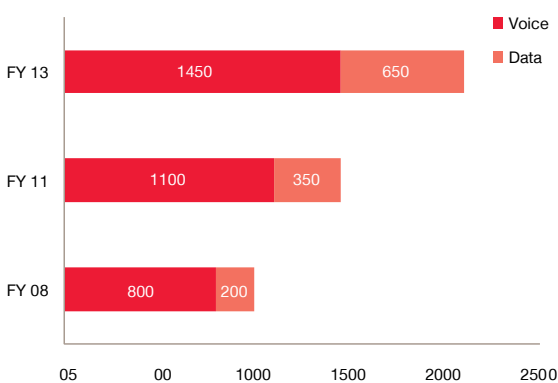
The contribution of data in the total revenues is gradually increasing and is expected to reach 30% of the revenue by the end of FY 2013

[5] Source: Company data, Credit Suisse estimates
[6] Source: Company data, PwC research

Characteristics of the enterprise consumer

An enterprise customer is a predominantly heavy data user operating from multiple locations within and outside India. Such a consumer would prefer unified contracting and billing solutions. For an enterprise consumer, seamless services, resilient networking and robust security & privacy and round the clock availability are essential pre-requisites for doing business. All large corporate houses operating from India, MNCs (Indian and foreign), IT & BPO companies are primary enterprise consumers. Enterprise costumers generally have first access to any technological advancement.

As presently written regulations were drafted to cover policy objectives solely appropriate for mass market consumer voice telephony and have not been modified to reflect the advent of data and IP services or the considerations of business enterprise customers including Indian corporate and MNCs, BPOs, outsourcing and the ITeS sector in general. The enterprise customers get served by the service providers. Though the present licensing regime is technology neutral, but the legacy of a license regime focused on voice presents certain difficulties for enterprise customers. Hence, it becomes very necessary to innovate the present licensing framework and allow the more efficient provision of the telecom services that multi- national business in India require to succeed in global markets today. This

is well known fact that under the present licensing framework, facilities offered by the enterprise service providers are not being utilized efficiently.

This is also important because of the following inherent characteristics of the service providers:

- Predominantly large data user
- Have multiple locations within and outside India
- Needs seamless Services
- Prefers unified contracting and billing solutions
- Security and Privacy are central to the enterprise business
- Difficulty in expanding business due to licensing restrictions
- Telecom core to their business functioning
- Have the first access to any technological advancement.

Figure 3: Enterprise data services by horizontals[7]
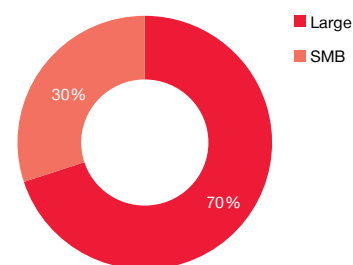
Enterprise segment size

The Indian enterprise market has seen a strong growth at 20 to 25% CAGR over the last three years. The total revenue generated from enterprise segment (NLD, ILD and ISP) in 2010-11 is USD 8.6 billion[9]. Yet the penetration of enterprise digital connectivity in corporates is low.

Figure 4 below, compares India's overall enterprise data spend as a percentage of non-agricultural GDP with other countries. India spends only 0.20% of its non-agriculture GDP on enterprise data while for Malaysia this figure is 0.39%.

Figure 4: Enterprise data spend as % of non-agricultural GDP[10]
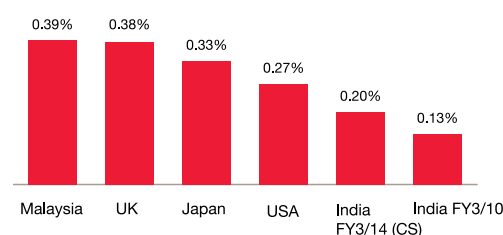
[7] Source: Frost & Sullivan

Figure 5: Non-voice as % of telecom industry revenues
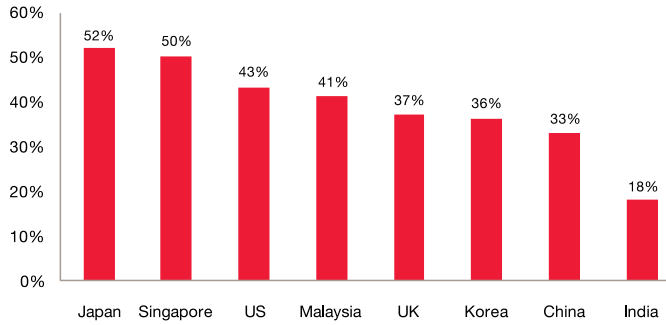
India's international connectivity is poor as compared to other countries.

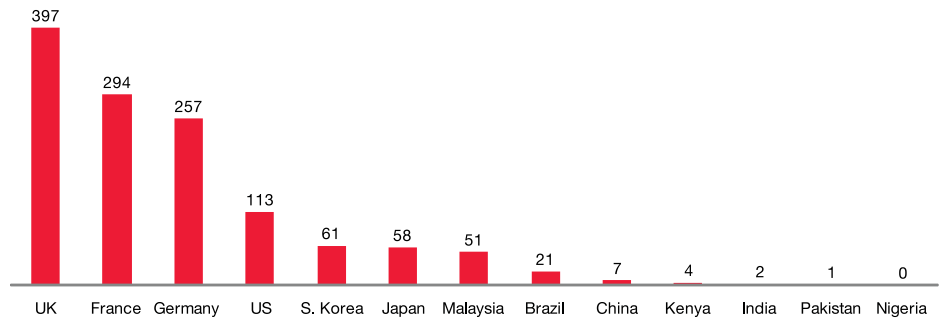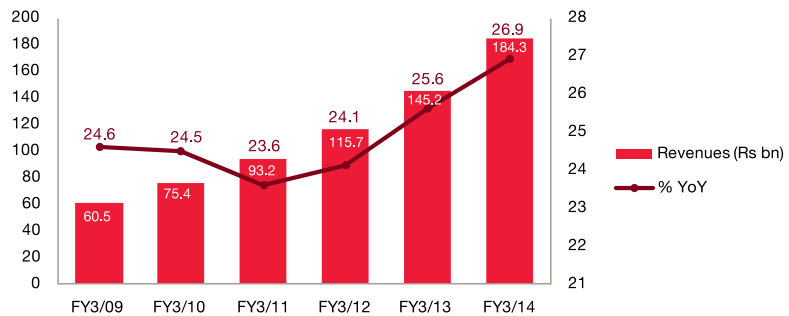Figure 6: International bandwidth Mbps/10,000 POPs

Figure 7: Enterprise segment growth to sustain[11]

Although Indian enterprise data market share is low as per global standards, for the last several years, it has been on a strong growth trajectory, led by increased need for enterprise connectivity globally. Enterprises need organisation-wide connectivity to fully monetise their investments in solutions such as Enterprise Resource Planning (ERP), Supply Chain Management (SCM), Customer Relationship Management (CRM) and other applications.

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[9] Source: TRAI reports; www.trai.gov.in ;Financial data pertaining to gross revenue, adjusted gross revenue, license fee & spectrum charges in respect of the telecom service providers for the financial year 2010-11 published quarterly; PwC research; Based on GR (Gross revenue); 1 USD = 45 INR
[10] Source: Company data, US FCC, Ofcom, Tulip Telecom, CIA World Factbook, and Credit Suisse estimates.
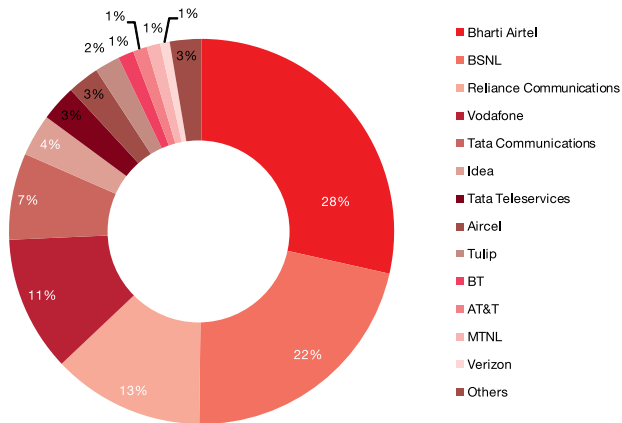[11] Source: Company data, Tulip Telecom, Credit Suisse estimates

Key players

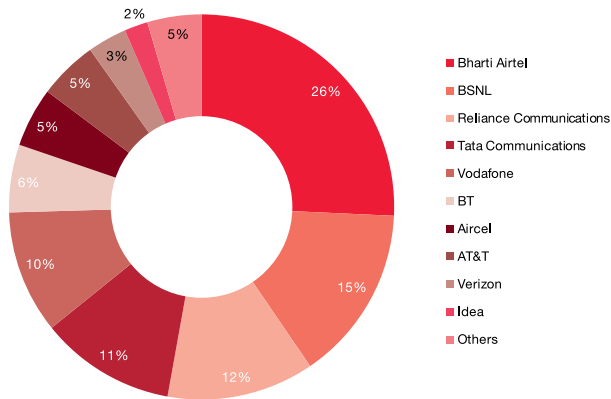Table 2: Key players in the Indian enterprise data market

Operator	Strengths
AT&T	AT&T Global Network Services India offers advanced Network, Network Integration and Application solutions. It offers fully managed services including data, voice, unified communications, security, hosting, network integration and application services to multinational businesses based in India.
Bharti Airtel	Bharti Airtel Limited is a leading global telecommunications company with operations in 19 countries across Asia and Africa. The company offers mobile voice & data services, fixed line, high speed broadband, IPTV, DTH, turnkey telecom solutions for enterprises and national & international long distance services to carriers. Bharti Airtel has been ranked among the six best performing technology companies in the world by Business Week. Bharti Airtel had over 230 million customers across its operations by June 2011
BSNL	Bharat Sanchar Nigam Ltd. formed in October, 2000, is World's 7th largest Telecommunications Company providing comprehensive range of telecom services in India: Wireline, CDMA mobile, GSM Mobile, Internet, Broadband, Carrier service, MPLS-VPN, VSAT, VoIP services, IN Services etc. It is one of the largest & leading public sector units in India. It has about 46 million line basic telephone capacity, 8 million WLL capacity, 52 Million GSM capacity, 614755 km of fibre , 50430 km of microwave network connecting 602 districts, 7330 cities/towns and 5.6 lakh villages.
BT	BT Global Communications, India Pvt. Ltd. is a leading ILD, NLD, ISP operator in the enterprise data segment. It has established 13 nodes in India based on the state of art MPLS technology. In addition, it has got 3 international gateways with the security monitoring and interception capabilities. BTGC is focusing on delivering VPN services based on IP MPLS and networked IT solutions to global and India MNCs. Core portfolio services and solutions includes IP networks, converged services, CRM, Conferencing, outsourcing, security and IT transformation.
Cable & Wireless	Cable&Wireless Worldwide is a global telecoms company providing a wide range of high-quality managed voice, data, hosting and IP-based services and applications.
Equant Network Services India Pvt. Ltd. (Previously Orange Business Services)	Orange Business Services is the business communications arm of France Telecom; the leading provider of integrated communications services across the globe. Their solution offerings include converged voice, data and mobile services as well as IT expertise and managed services. With strength of 29,000 employees globally, they support two-thirds of the top global 100 companies and half of the Fortune 100 Companies. They provide end-to-end communication solutions including a range of Networking, Integration and Professional services to some of the largest financial houses as well as IT companies in India, serving millions of customers globally.
Reliance Communication	Reliance Communications Ltd is India's integrated and fully converged telecommunications service provider and operates across the full spectrum of wireless, wireline, voice, data, video and internet communication services. It has established a pan-India, next generation, integrated, convergent digital network that is capable of supporting best-of-class services spanning the entire communications value chain. RCOM owns and operates the world's largest next generation IP enabled connectivity infrastructure, comprising over 277,000 route kms of fibre optic cable systems in India, USA, Europe, Middle East and the Asia Pacific region. Globally, the company provides carrier's carrier voice, carrier's carrier bandwidth, enterprise data and consumer voice services. RCOM offers the most comprehensive portfolio of enterprise voice, data, video, internet and IT infrastructure services catering to large, medium and small enterprises for their communications, networking and IT infrastructure needs which includes national and international private leased circuits, internet access, Voice solutions including PBX, Centrex, toll free services, voice VPN, audio and video conferencing, MPLS-VPN, remote access VPN, Global MPLS VPN, managed internet data centre ("IDC") services to name a few. RCOM has the biggest Metro Ethernet network which is now available in 180 cities with about 37,000 Metro Devices in ring architecture.
Tata Communication	Tata Communications is a leading service provider for enterprise connectivity. It leverages its advanced solution capabilities and domain expertise across its global and pan-India network to deliver managed solutions to multi-national enterprises, service providers and Indian consumers. The Tata Global Network includes one of the most advanced and largest submarine cable networks, a Tier-1 IP network, with connectivity to more than 200 countries across 400 PoPs, and nearly 1 million square feet of data center and collocation space worldwide.
Tulip Telecom	Tulip Telecom provides network integration (NI), corporate data connectivity (MPLS VPNs and Internet) within and outside India, infrastructure management services and IT consulting services to enterprises, besides specializing in providing e-Governance infrastructure for India's NEGP. It is the largest MPLS VPN service provider in India covering over 2000 cities through a mix of both fiber & wireless last mile with unique combination of services.
Verizon	Verizon Business is the global IT solutions provider catering to large and medium business and government agencies. As part of Verizon Communications—Verizon Business serves 98 percent of the Fortune 500 companies. In India it acquired NLD/ILD and ISP licenses and has offices/ IP nodes in key business centers. The services offered include private IP services, private line services, Internet dedicated services, IT solutions, enterprise (on-demand) cloud computing solutions, next-generation managed services, managed security, professional consulting services, network security, compliance, and forensics.

Legend:
- Bharti Airtel
- BSNL
- Reliance Communications
- Vodafone
- Tata Communications
- Idea
- Tata Teleservices
- Aircel
- Tulip
- BT
- AT&T
- MTNL
- Verizon
- Others

Total market size in 2010-11 = USD 8.7 billion

Figure 9: Key players in ILD (both voice and data) segment[13]

Legend:
- Bharti Airtel
- BSNL
- Reliance Communications
- Tata Communications
- Vodafone
- BT
- Aircel
- AT&T
- Verizon
- Idea
- Others

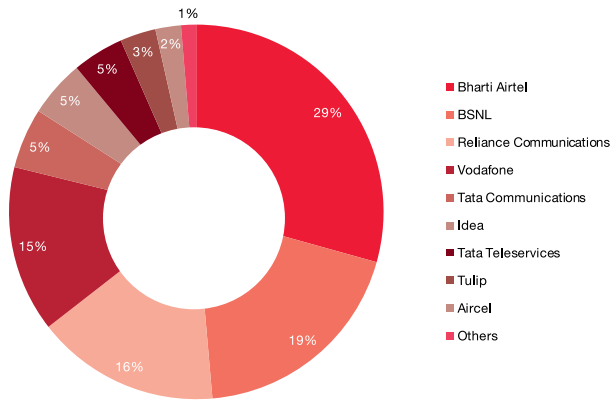Total ILD market in 2010-11 = USD 1.98 billion

The total Indian ILD market in 2010-11, as reported by TRAI, is USD 1.9 billion with Bharti Airtel being the leader with 26% market share in ILD segment. ILD segment saw the participation of the global majors like AT&T, BT, Verizon and C&W after it was thrown open for private participation in 2002. Key Indian players include Bharti Airtel, Reliance communications and Tata communications.

Figure 10: Key players in NLD (both voice and data) segment[14]

- Bharti Airtel
- BSNL
- Reliance Communications
- Vodafone
- Tata Communications
- Idea
- Tata Teleservices
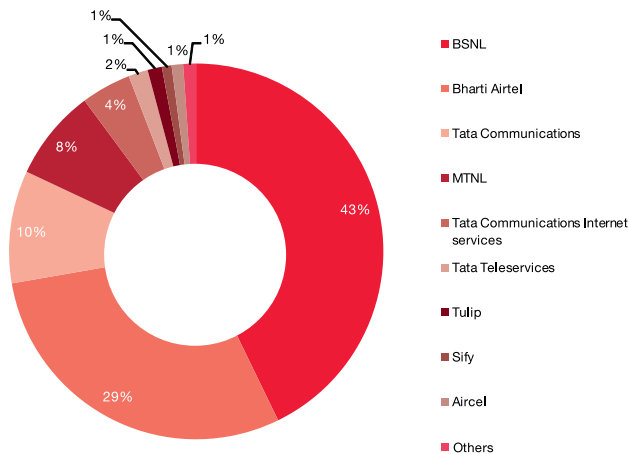- Tulip
- Aircel
- Others

Total NLD market in 2010-11 = USD 5.4 billion

NLD segment is more than 60% of the entire enterprise market in India generating revenues of USD 5.4 billion in 2010-11. Bharti Airtel is the segment leader with 29% share flowed by BSNL with 19% share. Other major players include Reliance, Tata, Vodafone and Idea.

As on 14/07/2009, 24 ILD licences[15] and 29 NLD licenses[16] have been distributed. Appendix – A lists the ILD/NLD licensees in India. According to the PwC research, the total long distance voice market in

India during 2010-11 was over USD 5.1 billion and is expected to be around USD 5.7 billion by 2015. The ever-increasing mobile subscribers' base, reduction in NLD licence entry fees, and significant increase in minutes of usage were major drivers for this growth. This growth was attributed to the increase in competition among operators and reduced ISD tariff. Voice traffic to and from India has grown from about 8.4 billion minutes in 2007-08 to about 9.8 billion minutes in 2010-11.

Figure 11: Key players in ISP segment[17]

- BSNL
- Bharti Airtel
- Tata Communications
- MTNL
- Tata Communications Internet services
- Tata Teleservices
- Tulip
- Sify
- Aircel
- Others

Total ISP market in 2010-11 = USD 1.25 billion

** Reliance communication is also a major player in ISP segment. However their data is not available for depiction.

[14]TRAI reports: www.trai.gov.in; Financial data pertaining to gross revenue, adjusted gross revenue, license fee & spectrum charges in respect of the telecom service providers for the financial year 2010-11 published quarterly; PwC research; Based on GR (Gross revenue); 1 USD = 45 INR
[15] http://www.dot.gov.in/ild/ildindex.htm
[16] http://www.dot.gov.in/nld/nldindex.htm

Key drivers for growth of enterprise data services

The enterprise data segment of the telecom sector in India has been growing at a healthy rate. Key drivers for strong future growth are as follows:

- *Economic growth:* India's GDP is expected to grow at 8.5% in 2011 and 9% in 2012. Indian business are increasingly adopting IT and networking technology to improve productivity and create competitive advantage.

- *Corporate expansion:* Indian business is growing globally and international companies are increasing their presence in the country. There is therefore a need for greater connectivity to, within and from outside the country. As India gradually becomes an economic superpower rivalling China, the need for international connectivity increases dramatically.

- *Rural market:* With the urban segment already saturated, the next big wave of demand for data services can come from rural India only. The government of India has launched several ambitious projects to connect rural India with the rest of the country through broadband and internet. These projects will boost the demand for data services to still higher levels.

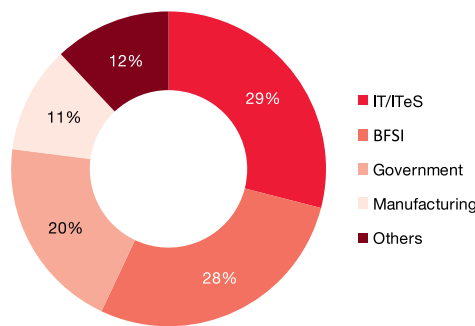Table 3: Industry drivers for enterprise services

Industry	Industry drivers for EDC market
BFSI	• Computerisation of Regional Rural Banks • Inter-bank connectivity • New initiatives like financial inclusion • Interlinking branches and ATM networks
Retail and FMCG	• Real-time connectivity for the usage of enterprise applications • Connectivity to warehouses • Bandwidth required per store • Supply chain management solutions
Government	• Improving connectivity in rural India • E-governance initiatives like UID, NREGA, financial inclusion
IT/ITeS	• High-speed connectivity to remain connected to clients • Voice channels • Rising BPO/Back-office likely to lead to demand for IP and international private leased circuit
Manufacturing	• Driven by enterprise applications like ERP, SCM, CRM • Investments in IP-VPN and voice over IP • E-business to drive cost efficiencies and economies of scale
Telecom	• Usage of domestic leased circuits as backhaul and NLD traffic carriage • ILD expected to increase with increase in traffic • Ever-increasing customer base

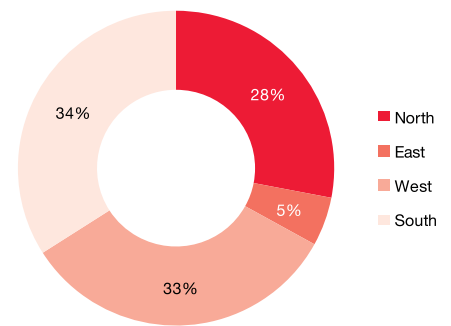# *Split of total Indian EDC market by industry*

The total Indian enterprise data connectivity market of USD 1.6 billion[17] (in 2010) can be divided as follows in the industry verticals.

Figure 12: Split by industry verticals[18]

29%
28%
20%
11%
12%

- IT/ITeS
- BFSI
- Government
- Manufacturing
- Others

Figure 13: Split by geography[19]

28%
5%
33%
34%

- North
- East
- West
- South

As depicted in Figure 12, IT/ITeS industry is the prime consumer of enterprise services. BFSI and the government's national e-governance plan (NEGP) are also major consumers of enterprise services. One such initiative of NEGP is the plan to interlink all villages to provide internet access that will create a tremendous market for enterprise data connectivity segment. *Cyber dhabas or sanchar haats* will further add to the high demand in bandwidth. Since PSU's are expanding their operations nationwide, there will be an increased need for higher bandwidth to satisfy connectivity requirements.

Although government had announced its broadband policy in 2004, the progress of broadband connectivity at both retail and enterprise level, has been rather slow. Whereas 20 million broadband connections were targeted, not even half of this target has been achieved by 2010. Number of Broadband subscribers at the end of March 2005 was 0.18 million and it increased to 12.5 million at the end of July 2011 All advanced countries like UK, Italy, and Australia have drawn their 'digital' national plans with objective of taking advanced broadband to the remotest corners of the country. India should draw a similar plan to bring broadband connectivity to enterprises and individuals.

[17] Source: Frost and Sullivan; 1INR = 45 USD
[18] Source: Frost and Sullivan
[19] Source: Frost and Sullivan

# *Demand projection and future outlook of enterprise data services*

Total Indian enterprise market in 2010 is USD 8.7 billion (as per the Gross Revenue reported by different companies to TRAI). Data constitutes around 18% of this segment which is currently pegged at USD 1.6 billion. According to Frost & Sullivan, India's enterprise data services market is expected to grow with a CAGR of 22% to USD 3.58 billion by 2014. Enterprise data services include key services, such as IPLC, DLC, MPLS, IP-VPN, ATM, FR, VSAT and Internet services. Table 4 below shows the list of key enterprise services and their forecasts in India. VPN/MPLS will grow at a CAGR of over 34% for the next three years to touch USD 2.08 billion by 2014 respectively.

Table 4: Enterprise data services forecast[20] (in USD million)

Services	2009	2010	2011	2012	2013	2014
VPN	477	689	947	1261	1640	2080
Internet	314	374	441	514	590	670
VSAT	89	100	110	121	132	143
IPLC	154	160	166	171	177	182
DLC	240	260	278	296	315	333
Others	18	27	48	78	122	176
Total	1274	1583	1942	2363	2854	3408

Figure 14: Enterprise data services forecast[21] (in USD million)
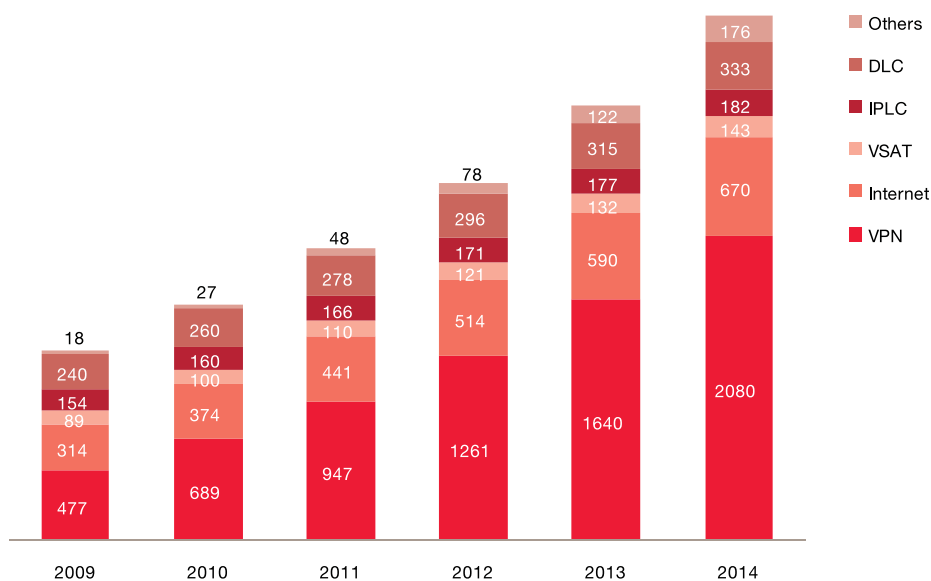
Emerging technologies and business models

Cloud computing

As per Forrester, cloud computing is "A pool of abstracted, highly scalable, and managed compute infrastructure capable of hosting end customer applications and billed by consumption." The whole concept of cloud computing is based on outsourcing of services/platforms/applications/infrastructure to enable the conversion of capex into opex costs. SaaS, broadband, Service-oriented architectures (SOA) are some of the technologies that are enabling cloud computing.

Cloud computing can be broadly divided into three areas:

- *SaaS (software-as-a-service):* In this model, an application is provided as a service to the end customer. Customers don't need to own the software/application; instead they have to pay the rentals for service usage. E.g., Google Apps, Salesforce.com, WebEx, Microsoft Office 365.

- *PaaS (platform-as-a-service):* In PaaS, the whole platform is hosted for the customer and the customer is free to build his own applications on the platform., Google Application Engine, Force.com, Microsoft Azure are few examples

- *IaaS (infrastructure-as-a-service):* In IaaS, storage and computation is provided as a service. Customers use these facilities along with their own platform and or application. Few examples are Amazon, GoGrid, and Microsoft Hyper-V etc.

Cloud computing brings forth some of the issues such as data privacy, compliance regulations that needs careful examination. Yet, cloud and managed storage service can prove to be a 'silver bullet' for corporations to increase efficiency while keeping their costs low. Increasing number of enterprises are adopting cloud and are gaining great benefits from the cost reduction, flexibility, speed and agility. Frost & Sullivan have estimated this portion of the cloud market to be in the $400 million range annually. However, these services have tremendous dependence on bandwidth and enterprise data services. Undoubtedly, cloud represents a huge potential worldwide and India, being a global IT services leader, cannot afford to miss the opportunity.

Data centre services

The data centre services sector is expected to continue to see promising demand over the next couple of years. The Indian data centre market is expected to touch USD 2.1 billion by 2011 from USD 1.4 billion in 2009. Current penetration of data centres in India is approximately 54.5% and the third-party data centre space is expected to reach 8.8 million sq ft by 2014 around two million sq ft. Increased entrepreneurial activity in every vertical is driving the demand for managed data centres. It is estimated that six to seven mm sq ft of new data centre space will be needed in India over the next four years (2014), of which over 90% will be used by hosted/outsourced data centres.

Like other manifestations of Information & Communication Technologies (ICTs), cloud computing too both engenders globalization but is also driven by globalization in as much that it is in the global scenario that the cloud computing providers can deliver the value to their customers by consolidating the data centres in certain locations and providing resilient services from such places. Indian companies – both in telecom and IT sector have aggressive plans in investing in cloud computing and become globally competitive even as many global companies' cloud computing offerings are also available in India.

By adopting liberal approach that provides for conducive environment for cross-border data flow the government would not only enable Indian users avail the best cloud computing option(s) that suit them but would also create an enabling environment for the Indian companies to become global leaders in this emerging paradigm repeating the successful streak in the domain of IT & IT enabled services as well as in the domain of mobile telephony.

Some of the key drivers for data centre market growth are as follows:

- Internet traffic growth
- Increased need for data technology infrastructure
- Bandwidth hungry devices
- Online storage need
- Controlled supply and surging demand
- Demand for increased productivity and reduction in costs
- Dropping international bandwidth cost
- Better technology
- Compliance to clauses of the Indian IT Act or ISO certification
- SMEs now embracing these technologies faster than ever before

The Indian data centre market is expected to touch USD 2.1 billion by 2011 from USD 1.4 billion in 2009.

Current penetration of data centres in India is ~54.5%.

Third-party data centre space in 2009 was ~2 million sq ft, which is expected to grow at a CAGR of 32.8% to reach ~8.8 million sq ft by 2014.

Data centres around the world, will create enterprise-class clouds. That's when the adoption of enterprise-class cloud will pick up. Even now, the companies operating in this space are growing more than 30% year over year, and a significant amount of the Global 2000 are deploying in the cloud space.

Data centre operators however struggle with the high cost of operations that have increased exponentially in recent times. The connectivity cost contributes a major chunk to their operational costs. It is important to keep enterprise connectivity costs low with the international competition in mind. This is so as to nurture the data centre industry in India, which holds huge promise.
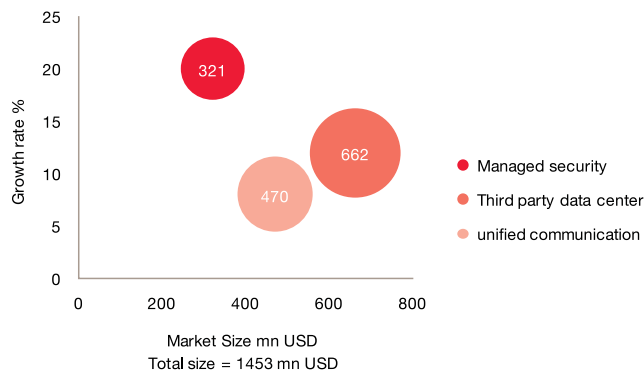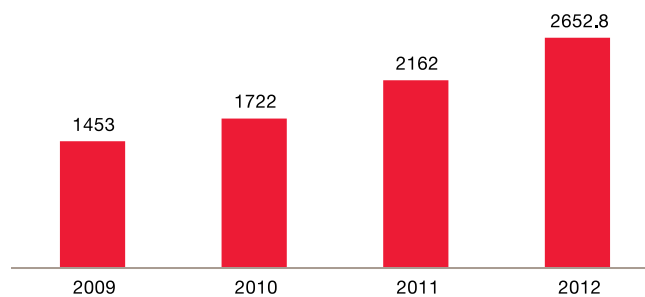
Figure 15: Market size and growth rate in FY10 - 11[22]

Market Size mn USD
Total size = 1453 mn USD

- Managed security
- Third party data center
- unified communication

Figure 16: India data centre revenue market forecast[23] (in USD mn)

Economic benefits to the nation

Impact of enterprise services on GDP

The enterprise data services are a key enabler for the strong performance of the services sector in the country. The contribution of the services sector cannot be overlooked in a knowledge economy like India. Enterprise data services are the backbone of IT/ITeS sector and a strong driving force for other industries such as manufacturing, retail and the government.

Contribution of the internet

Enterprise data services are also a strong enabler for internet services. A recent study by a consulting firm analyses the Net's sweeping impact on jobs and prosperity and says that there was an average 10% increase in productivity over 4800 small and mid-sized companies surveyed which could be attributed to internet. In India, the internet has contributed around 3.4% to the GDP growth making its contribution bigger than energy, agriculture or several other critical industries. Over the past five years, its contribution to GDP growth in mature countries grew to 21%. It is also a powerful catalyst for job creation, creating about 2.6 jobs for every job lost. Most importantly, however, the internet's real impact is through the modernization of traditional industries activities.

Table 7: Quantification of the contribution of Internet

Area	Benefits of broadband	Quantification
Growth in national output (PV of estimated additional growth in 2010 – 2020) due to ubiquitous broadband deployment in India	Overall	Approx USD 90 billion
	Labour productivity improvement of existing workforce	Approx USD 49 billion
	Output growth due to e-literacy programmes in secondary schools	Approx USD 14 billion
	Output growth due to e-education in vocational/ higher secondary schools	Approx USD 27 billion
National employment opportunity creation by 2020	Through increase in employment of rural youth and improvement in labour participation of urban women through teleworking and distributed computing	59 million full-time equivalents (Approx 68 million people incl. Part-time tele-workers)

Broadband as a new industry by 2020	Revenues of the entire industry value chain	USD 25 billion
	Industry value chain – total employment potential	1.9 million
Education	Improved accessibility, flexibility and quality for all	100% connected villages with a virtual primary, secondary, adult literacy and distance education through the village kiosks
Health	Real-time professional medical attention/ care available for all	Every village broadband kiosk to act as a telemedicine centre
Governance and citizen empowerment	Real-time interface between every citizen and the relevant government agency, virtual single-window service	Every enterprise, home connection and urban/rural kiosk to act as a single-window government interface

Enterprise services are the key enabler for IT/ BPO sector.

Contribution of Indian IT/ITeS sector

The Indian IT and BPO industries are said to be the biggest consumers of the enterprise data services, as they need huge bandwidths to remain connected 24x7x365 with their clients. They are the bulk buyers of bandwidth and contribute majorly to the international connectivity pie. The contribution of the IT-ITeS industry to the Indian economy has been multidimensional. The sector has also contributed in women's empowerment, employment generation for the disabled, promotion of equality, etc. Some of the sector's direct contributions are mentioned below:

- *Revenue contribution:* The Indian IT-BPO industry grew by 19.2% and reached US $ 88.1 billion in 2010-11 as compared to US $ 73.9 billion in 2009-10. Even the Indian domestic IT market continued its growth in 2011-12. The revenue from the domestic market (IT Services, software products and BPO) grew from US $ 14.2 billion in 2009-10 to US $ 17.1 billion in the year 20010-11, a growth of about 20.4%. IT services is one of the fastest growing segment in the Indian domestic & global IT market. It is driven by localized strategies designed by service providers.

- *GDP contribution:* The spectacular growth performance in the IT-BPO industry in the last decade has helped the industry contribute substantially to India's GDP. In 2011-12, the IT-BPO industry's contribution to GDP is estimated to be 6.2% as compared to

6.1% in 2010-11. The IT-BPO Industry has enormous potential to grow in the years to come. By the fiscal year 2015, the industry's aggregate revenue is expected to reach US $ 130 billion, a CAGR of about 14% from the year 2010-11 and contribute about 7% to India's GDP. As a proportion of national GDP, the sector revenues have grown from 1.2% in FY1998 to 6.1% in FY2011.

- *FDI inflow:* The industry has attracted more than 10% of total FDI flowing into India. The industry also led in the development of the Indian organizations as global multinationals, with over 400 delivery centres (outside India).

- *Employment generation:* IT/ITES is the most significant contributor to the Indian economy and employment generation, both direct and indirect. Direct employment within the IT-BPO sector grew by 10.4% to reach 2.5 million in 2010-11 with over 2,40,000 jobs added in a year. The indirect employment attributed to the sector was about 9.0 million in 2010-11 as compared to 8.2 million in 2009-10. The sector also contributes to the social development by providing jobs to disabled men and women. It is estimated that more than 5 million will be employed in this sector by 2020.

Figure 17: Revenue from Indian IT-BPO Industry[18]
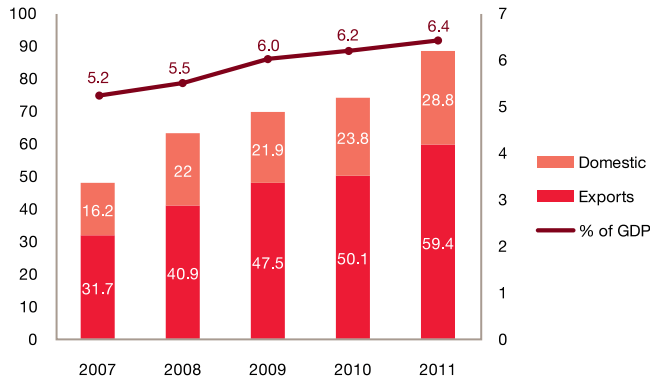
Figure 18: Employment generation
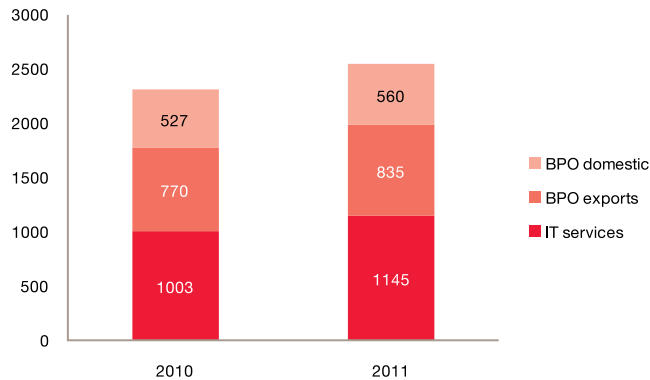
- *Contribution to India's exports:*
  In addition to a high contribution to the country's GDP and share of exports, the industry and employees contribute about USD 4.2 billion to the exchequer. Its share of total Indian exports (merchandise plus services) increased from less than 4% in FY1998 to almost 26% in FY2011. The Indian software and services exports including ITES-BPO exports reached US $ 59 billion in 2010-11, as compared to US $ 50 billion in 2009-10, an increase of 18.0%. Exports generated by IT services in 2010 – 2011 were US $ 33.5 billion as compared to US $ 27.3 billion in previous financial year. Similarly BPO exports also grew to over US $ 15 billion in 2010-11 producing a healthy growth of over 22% from the last financial year. As a sector, IT services contributed 57% in the total IT-BPO

exports in 2010-11; BPO contributed 24% with Software products / engineering services contributing 19%.

- *Regional development:* The sector played a key role in regional development with IT-BPO intensive states accounting for over 14% of respective state GDPs. IT-BPO intensive states have 100% higher broadband penetration and 50% higher tele-density than the India average, and also account for 75% of SEZs.

- *Enabling innovation:* The industry has been at the forefront of creating an enabling environment for innovation, with a 29 fold increase in patents over FY2005-FY2010, and average R&D spend of ~1% of revenues.

- *Enhancing the 'India' Brand:* The Indian IT/ITES industry has played a key role in enhancing the brand image of India, by contributing for over 10% of total FDI in the last decade, over 200 cross border acquisitions between FY2005-FY2010, and establishment of over 900 MNC captives in the last decade.

- *Social development:* The industry has imbided a strong sense of social responsibility with over USD 50 million spent in FY2010 towards CSR activities mainly focused on education, health awareness and ecological development. The sector also contributes to the social development by providing jobs to disabled men and women and promoting equality. Other initiatives include conservation of resources (such as energy, water, paper), adoption of environmentally friendly practices throughout the supply chain, tree plantation and conducting awareness programmes. The sector has also taken a lead in ensuring that the IT Parks/ buildings conform to the certified energy conservation measures and have the potential to earn carbon credits in the future.

Most of the direct contributions by the IT-ITES industry have a ripple effect on other sectors as well. Some of the indirect contributions by the IT-ITES industry are as follows:

- *Additional job creation:* It is estimated that for every direct job created by the IT-ITES sector, 4 additional indirect jobs are created in the economy. This is all the more relevant as the 60% of these additional jobs employs less educated population.

- *Providing push to other sectors in the economy:* IT-ITES has a multiplier effect on other sectors of the economy like consumer goods, automobiles. Increased disposable income, a resultant of booming IT/ITES industry, with the working class has swelled the domestic consumption.

- *Product and QoS improvement:* Since by nature, IT/ITES industry is a global industry where the competition is at a global level. It becomes necessary for Indian companies to adopt international best practices for product and quality improvement. 30% of companies worldwide who have reached Level 5 of Capability Maturity Model Integration (CMMI) are Indian IT/ITES firms. Nearly 75% of Fortune 500 and 50% of Global 2000 corporations source their technology related services from India with an increasing number of MNCs outlining their investment plans for setting up R&D operations in India.

Need for a state-of-art digital communication infrastructure

A strong telecom infrastructure can act as an enabler for growth in the economy by bringing the operating costs down, employment generation, increasing consumption with a more balanced allocation of economic activity within the country. A study done by World Bank on the growth in 120 countries between 1980 and 2006 shows that for every 10% increase in penetrations of telecom services such as fixed, mobile, broadband etc, there is an increase in growth by 0.73 percent to 1.38 percent of country's GDP. As

Figure 19 shows that the effect is more significant in developing countries than in developed ones. Since India is a developing country, it is expected to gain more from building a robust telecom infrastructure. Therefore, development of an adequate telecommunication infrastructure has become one of the major goals of policy makers in India considering the contribution of services sector in the economy and its heavy reliance on telecom infrastructure
.

Figure 19: Percentage increase in growth for every 10% increase in telecom services[26]

[26] World Bank Report

International best practices

The following section lists some of the best telecom regulatory practices adopted in countries across the world that could serve as a benchmark for Indian telecom regulatory authorities.

The USA

The Telecommunications Act of 1996 is the first landmark reform of the United States telecommunication law. The goal of the act is to open competition between telecom players such as long distance providers, telephone companies and cable companies.

IP Telephony: The law does not specify any framework for the implementation of IP Telephony. However as per the current US regulatory practice, a call that originates from a computer to an ISP (or terminates to a computer) is not charged an "access charge" by the local exchange carrier.

Unbundling: Incumbent LECs are required to provide requesting telecommunications carriers access to network elements such as loops, switches and lines at rates determined by regulatory authorities. The FCC recommends that prices should be based on Total Element Long-Run Incremental Cost (TELRIC) along with a reasonable amount of forecasted joint and common costs.

Resale: Incumbent LECs are required to offer for resale, any telecommunications service that the carrier provides to subscribers. However, FCC mandates that the price of resale services should be discounted on the basis of costs that can be avoided by an incumbent LEC by selling at wholesale.

Singapore

Licensing: The telecom regulatory authority distinguishes between licensees that are subject to competitive market forces and those whose conduct are not governed by competitive market forces. IDA will impose the minimum regulatory rules coupled with general prohibitions on anti-competitive conduct, on licensees subject to competitive market forces. For licensees whose conduct is not constrained by competitive market forces, IDA will require it to comply with more stringent regulatory requirements.

Technological neutrality: IDA will promote the convergence of platforms and regulatory requirements based on sound economic principles and technology neutrality. In the early stages of convergence, different platforms are subject to differing degrees of competition. In such a scenario, regulatory principles may result initially in the imposition of different regulatory obligations on service providers who use different platforms.

Resale: The licence regime was set up using a dual licensing approach consisting of facilities-based operator (FBO) licences and Service-Based Operator (SBO). FBO licence has all the rights of a SBO licence along with few additional rights. There is no limitation on the number of FBO or SBO licences. Resellers need to obtain the FBO licence to resell or lease services.

Japan

Promotion of Competition: Japan defines operators as Type I or Type II. Type I operators are subject to price ceiling, and tariff changes require approval of the regulator. All regulations pertaining to Domestic Private Leased Circuits (DPLC) were abolished in April 2004.

Overview of interception and encryption laws

	Interception Authority	Interception Capability Requirement	Use of Strong Encryption	Removal of Encryption
United States	Title III of the Omnibus Crime Control and Safe Streets Act of 1986 ("Title III") (as amended), authorizes law enforcement to obtain a court order for the interception of wire, oral or electronic communications. The Foreign Intelligence Surveillance Act ("FISA") authorizes the government to intercept communications for national security purposes.	The Communications Assistance for Law Enforcement Act of 1994 ("CALEA") requires telecommunications common carriers, mobile carriers, broadband Internet access providers, and interconnected Voice over Internet Protocol providers to provide certain interception capability requirements. Compliance with industry intercept standards is a "safe harbour" under CALEA.	There are no restrictions on the use of strong encryption, whether on mobile devices or otherwise.	Both Title III and FISA authorize directions to be issued to other persons to furnish information, facilities or technical assistance in accomplishing the authorized interception. However, under CALEA § 103(b)(3), telecommunications carriers are not responsible for decrypting, or ensuring the government's ability to decrypt, any communication encrypted by a subscriber or customer, unless the encryption was provided by the carrier and the carrier possesses the information necessary to decrypt the communication.
Canada	The Criminal Code authorizes law enforcement agencies to obtain judicial authorization to intercept private communications. The Canadian Security Intelligence Service Act ("CSIS Act") authorizes the Canadian Security Intelligence Service to obtain judicial warrants to intercept communications for national security purposes.	There is no general requirement to provide lawful interception capabilities. However, certain wireless licensees are required to implement certain lawful interception capabilities for voice services as a condition of their licenses. In addition, wireless licensees in the 2300 MHz and 3500 MHz bands seeking to provide non-circuit-switched services or technologies must also implement any lawful intercept solution available to them for such services and technologies.	There are no restrictions on the use of strong encryption, whether on mobile devices or otherwise.	Under § 487.02 of the Criminal Code, the judge issuing a law enforcement interception authorization may also order any person to provide assistance, where the person's assistance may reasonably be considered to be required to give effect to the order. Under § 24 of the CSIS Act, a CSIS warrant authorizes the persons or class of persons specified therein to execute the warrant, and also authorizes (but does not require) any other person to provide assistance.
Australia	The Telecommunications (Interception and Access) Act 1979 ("TIAA") (as amended) authorizes law enforcement and intelligence agencies to obtain warrants for interception of communications passing over telecommunications systems.	Part 5-3 of the TIAA requires carriers and carriage service providers to ensure that communications can be intercepted and delivered to the government. In addition, the Minister for Communications may make determinations with respect to the interception capability requirements (based on international standards) for specified telecommunications services.	There are no restrictions on the use of strong encryption, whether on mobile devices or otherwise.	Under § 313(7) of the Telecommunications Act 1997, carriers and carriage service providers are required to provide government officials and authorities with such help as is reasonably necessary to effect an interception warrant, including providing "relevant information" about any lawfully intercepted communication.

United Kingdom	The Regulation of Investigatory Powers Act 2000 ("RIPA") (as amended) authorizes law enforcement and intelligence agencies to obtain a warrant for the interception of communications from the Secretary of State.	Under § 12 of RIPA, and the RIPA (Maintenance of Interception Capability) Order 2002 ("Capability Order"), the Secretary of State may impose certain interception capability requirements on public telecommunications service providers by notice to such provider. Such capabilities may include compliance with industry standards for lawful intercept handover interfaces.	There are no restrictions on the use of strong encryption, whether on mobile devices or otherwise.	The Secretary of State may issue a notice to a service provider under the Capability Order to ensure that the person authorized to intercept communications is able to remove any electronic protection applied by the service provider. In addition, Part III of RIPA authorizes certain government and law enforcement officials who have obtained encrypted information to require any person who has a decryption key for that information to either decrypt that information or disclose the key.
France	The Code of Criminal Procedure (as amended) authorizes an investigating judge to order the interception of telecommunications. In addition, Loi No. 91-646 du 10 juillet 1991 relative au secret des correspondances émises par la voie des communications électroniques (as amended) authorizes certain government ministers and their delegates ("authorized agents") to order the interception of electronic communications for national security, economic security, crime prevention and related purposes.	Art. 21 of Loi No. 91-646 authorizes the Minister responsible for electronic communications to require public operators of electronic communications networks and authorized providers of electronic communications services to take the necessary measures to ensure the application of the provisions of that law.	There are no restrictions on mere use of strong encryption means in France. However, the supply of encryption means and services may require a declaration to the Direction Centrale de la Sécurité des Systèmes d'Information, regardless of the strength of the encryption.	Art. 11-1 of Loi No. 91-646, permits "authorized agents" of the government to require providers of encryption services to provide the means for decrypting data they process or to perform decryption of such data. The procedures for implementing this provision are set by State Council decree.

Issues and recommendations for NTP'11

Issues & recommendations for service providers

Uniform license fee

Infrastructure sharing

Double taxation

Expanding the scope in NLD/ILD Licenses

'Right of way' for telecom

Data encryption

Security & monitoring of enterprise usage

Single-window clearance for cable landing stations

License fee for a service license is fixed based on the revenue earning potential for that service. TRAI had earlier recommended universal license fees of 6% of AGR based on the rationale of removing any unjust arbitrage opportunity that may arise due to identification of services under different heads.

Recommendations:

- It may be noted that in case of ISPs, there is no license fee payable on the Internet access services being provided by them. This provision has been kept by the Government to promote the proliferation of Internet and Broadband in the country. As on date, while the tele-density or the voice services have surpassed the targets set in the NTP 99, in respect of Broadband or Internet access penetration India is still lagging way behind the global benchmarks as obtaining the comparable economies. Thus it is the need of the hour that the provision of no license fee on Internet access services should be continued for the ISPs in order to catalyze the growth of broadband services in India. In respect of ISPs, the uniform license fee percentage AGR as determined by the government should be imposed only on the internet telephony services as currently also the ISPs are paying license fee on internet telephony services only.

- Uniform license fee of 6% of the AGR or less should be fixed for all the services included in the unified license. As on date, for UASL services the license fee is

payable @10% for metro and Category A service areas, @8% for Category B service areas and @6% for Category C services areas. For NLD and ILD services, which are offered on a pan India basis, license fee is payable @6% of AGR. In respect of ISPs, license fee is payable @6% of AGR but excluding the revenues of Internet access services. The most important consideration while adopting and fixing the uniform license fee regime would be that no service provider should be worse-off under the new regime.

Infrastructure sharing between various telecom operators

Presently there are restrictions on sharing both active and passive infrastructure between various telecom operators and service providers. These results in duplication of infrastructure and involves a lot of cost and effort on the part of the service providers without any justification.

Recommendations:

- Suitable provisions should be made to allow both active and passive infrastructure sharing between various telecom license holders

Double taxation

Telecom licensees are subject to the double-assessment of license fees because input costs, such as charges for interconnection or local loops and bandwidth cost which themselves already reflect the license fee, are not deductible from the adjusted gross revenue on which the license fee is

calculated. While facilities-based operators using their own networks need only pay the license fee once, wholesale services that ILDOs, NLDOs, and ISPs buy from other operators as part of their own service offerings are subject to the license fee twice – once when they are sold from the first network owner to the second operator, and then again when the second operator sells them to the end user. As a consequence of levying a license fee at every point in the supply chain, a telecom operator that buys wholesale inputs from other licensed operators is placed at a significant competitive disadvantage against operators that do not need to obtain these inputs.

Recommendations:

- To avoid this anti-competitive double assessment of licensing fees on various telecom licensees, specifically, there is a need to amend the terms and conditions of telecom licenses so as to permit deduction of the cost of any telecom services purchased as inputs from the adjusted gross revenue.

- The methodology used to calculate license fees for operators should be reviewed to ensure that India's license fee regime allows all providers to compete on an equal basis, as the present methodology does not adequately promote competition because it operates as a multi-stage and cumulative assessment and therefore imposes greater burdens on operators that purchase critical inputs from other operators.

Expanding the scope in NLD/ILD Licenses

Since the year 2001 when long distance licenses were originally written, the technology for carrying telecom traffic, especially supporting IT and corporate users' needs has changed substantially. Both technology and the consumer have evolved over the period. Several new technologies that were not even invented at the time of drafting the ILD / NLD license have since come into commercial operation – reducing costs and enhancing capacity. While a regime shift relating to scope of service under the various licenses has undergone a substantial change in the last couple of years. However no corresponding change has been made in the NLD/ILD license which needs an immediate review. This will allow more efficient provision of telecommunications services that multinational businesses in India require to succeed in global markets today. The main objective of NTP 2011 should be to achieve consistency and technology-neutral regulations to keep pace with technology advancement.

Recommendations:

- Terms and conditions associated with the ILD and NLD licenses should be revised to address technology gaps.

- Service providers should be permitted to provide customised services to registered IT/ITES industries.

- These issues can also be addressed in the transition to Unified License

Telecom as essential service

India is experiencing a sharp increase in telecommunications service disruptions owing to damaged high-capacity fiber-optic cable facilities. This is caused by frequent cable cuts by agencies/organizations that lay underground infrastructure or are constructing roads and other types of infrastructure. These disruptions have begun to impact the business of global carriers operating in India both from a quality and economics perspective. In order to provide end-to-end, always-on connectivity, global carriers rely on leased circuits procured from access providers in India. This service provisioning is backed by strict Service Level Agreement (SLA) norms due to the need for high quality and resilient connectivity. However, frequent stoppages due to cable cuts experienced in the access providers' networks cause serious losses to both customers and global carriers – who pay significant penalties on account of non-conformity to SLA norms. As the Indian economy continues to expand, six key initiatives of the government (Electrification, Roads, Irrigation, Telephone connectivity, Water and Housing) will all increase the potential for more damage to communications cables and other infrastructure. Cut cables cause breaches in national security, lost productivity and inconvenience to business and individuals.

Recommendations:

- Telecommunication should be declared "essential" services to avoid RoW obstacles. This would help laying and maintain of fibre through public and private infrastructure without getting delayed in difficult and cumbersome approval processes.

- It is also strongly recommended to update the archaic Indian Telegraph Act of 1885.

- It is proposed that government of India coordinate the work of relevant agencies at the national, state and local level to improve protection of telecommunications infrastructure from inadvertent damage caused by construction related cable cuts. With a rapidly expanding economy leading to both more construction activity, and the proliferation of high capacity fiber optic facilities, improved governmental and industry coordination is needed. All industry sectors would benefit from establishing such cooperation based on global best practices

Data encryption

Encryption of data has become the key to any e-commerce, IT/ITeS and other IT infrastructure in the country. Encryption limits for all telecom licenses should be harmonised to a common single benchmark and standard process. The current encryption limit of 40 – bit (asymmetric) should be revised in line with policies framed by other government institutions such as RBI, SEBI, DIT, etc and international standards. As per key management guidelines by NIST, USA, encryption strength depends on the key type–symmetric, asymmetric, and elliptic, etc. For the purpose of encryption, it is recommended that the asymmetric key length of up to 2048 bits and symmetric key length of up to 256 bits be allowed.

The Information Technology Act, 2000 provides under section 69 that both the Central and State governments have the power to issue directions for decryption of any information through any computer resource. However, the rules framed under this section have created a system of checks-and-balances, wherein a competent authority (Secretary MHA/Secretary Home Department) may authorize an agency of the government to decrypt information. The competent authority is empowered to give any direction to the decryption key holder to disclose the decryption key or provide the decryption assistance.

In the long term, the government should create infrastructure for interception, monitoring and decryption of encrypted communications. An appropriate mechanism may be set up in the Centralised Monitoring System (CMS) to facilitate for decryption of the encrypted communication. Such a mechanism may be worked out with DoT and MHA.

Recommendations:

- Upgrading encryption levels in all telecom licenses to allow the use of encryption up to the AES/256-bit level to protect confidential information in accordance with current commercial standards.

- The encryption limits for all the telecom licenses should be harmonized to a common single benchmark and standard process. The telecom service providers as well as the corporate customers should be allowed to use encryption up to 256 bits in line with international best practices provided undertaking is given by customer and the concerned licensed entity to the extent the concerned licensed entity has or has control over the related encryption keys to make available the encryption key used as and when required in the interest of national security. Use of encryption beyond 256 bit can be allowed on a case to case basis after prior evaluation by licensor.

- For decryption, a competent authority (Secretary MHA/Secretary Home Department) may authorize an agency of the government.

Security & monitoring of enterprise usage

The applicable security monitoring conditions mainly caters to the requirement of PSTN voice offering and not for enterprise data services. Privacy issues regarding enterprise data should be specifically addressed. Security agencies want to access data of customers / companies which may not be acceptable to international companies due to privacy issues. In absence of clear specifications, there is a great uncertainty regarding type of equipment and other facilities to be deployed by the data service providers to meet the requirement of security monitoring agencies.

Recommendations:

- Government should clearly specify the security/lawful monitoring and interception requirements as applicable to enterprise data services especially to cater towards MPLS, IP-VPN services.

- Security and monitoring conditions should be reviewed suitably for enterprise data and Indian Telegraph Act (1885) should be updated suitably.

Single-window clearance for cable landing stations

A cable landing station is the location where a submarine or other underwater cable hits the shore. At present, multi-department regulatory clearances, from the Ministry of Home Affairs (MHA), Defence and Environment are required to set up cable landing stations. These can take as long as two years.

Recommendations:

- It is suggested to simplify the procedure of setting up cable landing stations through single-window clearance instead of the highly complex clearance procedure used presently.

Interconnectivity and infrastructure-sharing between other service providers (OSPs)

Presently, only same group companies are allowed interconnection. OSPs are corporate entities and they should benefit for running their own closed user groups to maximise efficiency. This can increase the sub-contracting work to rural/semi-urban contact centres and BPOs to increase employment. With the competition growing from countries like Philippines, Mexico and Vietnam, it is important for Indian companies to keep their costs low while at the same time increase their quality & efficiency.

Recommendations:

- Permit interconnectivity between an OSP to any other OSP for Data and Voice (without restriction of same company or Group Company)

- Permit agent's connectivity to company's IT Systems to facilitate work from anywhere within India

- Permit use of Internet Telephony (VoIP) from OSP Centre (bandwidth from authorized ISP) & use of single PBX for OSP office use with logical portioning

- Permit unrestricted access to Customer's IT Systems (CPABX) Servers in India and outside India for agents to log-in and serve the customers

- Permit sharing of assets between OSPs (one OSP can share the assets of other OSPs to serve customers at optimal cost), Permit Hosted / Virtual contract centres and cloud computing for OSP while conforming to the existing licensing restrictions

- Permit the use of Internet as a connectivity medium between OSP and its customers allowing any public IP address to be used in OSP environment in India

- Special enabling dispensation should be provided to ITeS/BPO organisations through service providers to enable better architectures converging VOIP, data, video conferencing and traditional voice.

Driving affordability in Enterprise services market

Recommendations:

- Enterprise service offerings should be made affordable. All avenues and elements that go into making enterprise services affordable should be explored.

- Specific steps may also be taken to lower the cost of production of bandwidth including considering incentives for bandwidth providers as well as reviewing the current levies and other parameters that impact their cost structure.

Simplification of registration process for OSPs

Procedures for the registration of branches and companies should be simplified. Permission of a single OSP registration should be granted for the entire organisation. This simplifies the process and improves the viability of OSP business in the face of competition with MNCs. Standalone OSP registration should be removed along with additional restrictions on those provisions permitted to ISPs

Recommendations:

- Permit single registration for an organization (currently each OSP facility, even belonging to a same company requires separate registration and bank guarantees)

Conclusion

One of the most important drivers of telecom story in India is a liberalised and transparent regulatory approach. Opening up the telecom sector has led to the phenomenal growth through voice and basic telephony over the last decade. The same approach should be adopted for a similar explosion of data services. Unlike the 2nd generation reforms, the next generation reforms would be fuelled by enterprise telecom sector who are waiting to launch exciting data services that would boost the demand for data to next level. Enterprise user, by nature, needs to be differentiated from the mass retail consumer. These enterprise consumers are driving the growth story in India in terms of FDI, exports, GDP contribution. The enterprise data connectivity services are in turn the lifeline for these enterprise consumers. Hopes, therefore, are pinned high on the upcoming NTP 2011, which is expected to provide an environment necessary for the paradigm shift in reforms for the enterprise sector.

Some of the key recommendations that would lead to an open, transparent and conducive environment for NTP 2011 are:

- A single uniform license fee of 6% AGR or less should be adopted for all services under unified license across the country to provide telecom services. Internet services at the same time should be kept out of the universal licensing regime, while taxing only the VOIP services provided by the ISPs.

- Suitable provisions should be made to allow both active and passive infrastructure sharing between various telecom operators and ISPs

- Efforts should be made to avoid taxing domestic and international operators twice by allowing them pass-through on the inputs.

- Telecommunications should be given the status of essential services. The archaic Indian Telegraph Act of 1885 should be updated.

- Encryption levels should be enhanced to globally acceptable levels. Asymmetric key length of up to 2048 bits and symmetric key length of up to 256 bits should be allowed.

- Security and monitoring conditions should be reviewed suitably for enterprise data and Indian Telegraph Act (1885) should be updated suitably.

- Single-window clearance should be mandated for cable landing stations instead of current highly complex clearance procedures.

- Enterprise users should be allowed to interconnect for captive requirements and within the same group company.

- OSP regulations should be minimised. Interconnectivity and infrastructure-sharing, both active and passive, should be allowed among different OSPs. Single-OSP registration should be permitted for the entire organisation while allowing agent's connectivity to company's IT Systems to facilitate work from anywhere within India. This can help in increasing the productivity of the ITeS/BPO sector

Maintaining the affordability of enterprise services is essential to keep the Indian sunshine industries of IT, BPO and manufacturing competitive. All avenues and elements that go into making enterprise services affordable should be explored. Specifically, steps may also be taken to lower the cost of production of bandwidth including considering incentives for bandwidth providers as well as reviewing the current levies and other parameters that impact their cost structure.

Glossary

AGR	Adjusted Gross Revenue
ATM	Asynchronous Transfer mode
BFSI	Banking, Financial services and Insurance
BPO	Business Process Outsourcing
CAGR	Compound Annual growth Rate
CMMI	Capability Maturity Model Integration
CRM	Customer Relationship Management
DLC	Domestic Leased Circuits
DoT	Department of Telecom
ERG	European Regulatory Group
ERP	Enterprise Resource Planning
FBO	Facility based operator
FDI	Foreign Direct Investment
FR	Frame Relay
GDP	Gross Domestic Product
GR	Gross Revenue

IAAS	Infrastructure as a service	OSP	Other Service Provider	SBO	Service based Operator
IDA	Infocomm Development Authority of Singapore	OSPAI	Other Service Provider Association of India	SCM	Supply Chain Management
ILD	International long distance	PAAS	Platform as a service	SLA	Service Level Agreements
IPLC	International Private Leased Circuit	PSTN	Public switched telephone network	TDSAT	Telecom Dispute Settlement and Appellate Tribunal
ISP	Internet Service Provider	RRB	Regional Rural Banks	TRAI	Telecom Regulatory Authority of India
IT	Information Technology	RoW	Right of way	VAS	Value Added Services
ITeS	IT enabled services	SAAS	Software as a service	VOIP	Voice over Internet Protocol
KPO	Knowledge Process Outsourcing	SBO	Service based Operator	VPN	Virtual Private Network
L2TP	Level 2 tunnelling protocol	SCM	Supply Chain Management	VSAT	Very Small Aperture Terminal is a satellite communications system that serves home and business users.
LAN	Local area network	SLA	Service Level Agreements	
LDO	Long Distance Operator	SOA	Service Oriented Architecture	WAN	Wide Area Network
LEC	Local exchange carriers	TDSAT	Telecom Dispute Settlement and Appellate Tribunal	
MCIT	Ministry of communication and Information Technology	TRAI	Telecom Regulatory Authority of India	
MHA	Ministry of Home affairs	VAS	Value Added Services	
MPLS	Multi protocol label switching	VOIP	Voice over Internet Protocol	
NEGP	National E-governance plan	VPN	Virtual Private Network	
NGN	Next Generation Networks	VSAT	Very Small Aperture Terminal	
NLD	National Long Distance	WAN	Wide Area Network	
NRA	National Regulatory Authority		
NTP	National Telecom Policy		

Industry associations

Association of Competitive Telecom Operators (ACTO)

ACTO is an industry association body formed by several leading non-integrated long-distance carriers that predominately provide service to the enterprise market segment. Its members provide enterprise services to multi-sited corporations, Indian BPO outsourcing and ITeS sector operating global networks.

ACTO is committed to further India's pro-competitive policies and to partner closely with DoT and regulators to enhance the stakeholder's engagement with specific needs of the enterprise segment.

ACTO is a registered entity under the Societies Registration Act. The ACTO membership constitutes dedicated enterprise service providers who have been recently licensed after liberalisation of the long-distance segment. The members include the following:

AT&T Global Network Services India Private Limited

BT Global Services India Private Limited

Cable & Wireless Network India Private Limited

Orange Business Services (Equant Network Services India Private Limited)

Verizon Communication India Private Limited

Pacific Internet India Private Limited

Citycom Networks India Private Limited

Power Grid Corporation of India Limited

Railtel Corporation of India Limited

NTT Communication India Networks Private Limited

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Cellular Operators Association of India (COAI)

The COAI was constituted in 1995 as a registered, non-governmental society. The association is dedicated to the advancement of modern communication through the establishment of a world-class cellular infrastructure and to delivering the benefits of affordable mobile communication services. COAI core membership includes private cellular operators

Aircel Ltd

Bharti Airtel Ltd

Etisalat Db Telecom India Pvt Ltd

Idea Cellular

Loop Mobile (India) Ltd

S-Tel Ltd

Unitech Wireless Pvt Ltd & Associated Companies

Videocon Telecommunications Ltd

Vodafone Essar

Also participating in COAI's activities to help realise the common goals of the Indian cellular industry, are the associate members such as Ascend Telecom Infrastructure Pvt Ltd, ATC Tower Company of India Pvt Ltd, Ericsson Communications Ltd, Essar Telecom Infrastructure Pvt Ltd, GTL Infrastructure Ltd, India Telecom Infra Ltd, Indus Tower Ltd, Nokia Siemens Networks, Quippo Telecom Infrastructure Ltd, Tower Vision India Pvt Ltd and Xcel Telecom.

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Web: www.coai.com

Internet Service Provider Association of India (ISPAI)

ISPAI was constituted in 1998 with a mission to 'Promote Internet for the benefit of all'. It is a body that represent the entire Internet fraternity in India with the aim to promote and maintain high standards of ethical and professional Practices in the field of Internet Services. Since its inception, it has contributed immensely in breaking down monopolistic structures in telecom and lowering barriers to entry for ISPs to ensure cost effective Internet access in the country. It is one organization that has transformed India from a bandwidth hungry to a bandwidth surplus country.

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Tel: +91-11-26205411 /26255094
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Email: ispai@satyam.net.in
Web: www.ispai.com

Association of Unified Telecom Service Providers of India (AUSPI)

AUSPI is the representative industry body of unified access service licensees providing CDMA and GSM mobile services, fixed line services as well as value-added services throughout the length and breadth of the country. AUSPI is a registered society and works as a non-profit organisation with the aim of delivering the promise of improved access, coverage and tele-density in India. The members of AUSPI include the following:

Quadrant Televentures Limited

Reliance Communications Ltd

Reliance Telecom Ltd

Sistema Shyam Teleservices (SSTL)

Tata Teleservices Ltd

Tata Teleservices (Maharashtra) Ltd

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Other Service Providers Association of India (OSPAI)

OSPAI is the representative industry body that functions as an association of companies operating in areas such as domestic and international call centres, BPOs, KPOs, IT, medical transcription, financial services, tele-medicine, tele-education, tele-trading, billing services and network operating centres among others. OSPAI interfaces with government bodies for the growth of all services covered under the registration of 'other service providers'. The members of OSPAI include the following:

Wells Fargo India Solutions Pvt Ltd

HCL Technologies BPO Services Ltd

AGC Networks Ltd

GE Global Servicing Pvt Ltd

Fidelity Business Services India Pvt Ltd

Tata Consultancy Services

Genpact India

GE Capital Business Process Management Services Pvt Ltd

Exl Services.com (I) Pvt Ltd

American Express Banking Corp

Accenture Services Pvt Ltd

IBM Daksh Business Process Services P Ltd

Quatrro BPO Solutions Pvt Ltd

Spice BPO Solutions Ltd

Citibank, N.A. Mumbai

AT&T Communication Services India Pvt Ltd

SITEL India Ltd

Cisco Systems (India) Pvt Ltd

Fidelity National Information Services (FIS)

Accretive Health Services Private Ltd

Cable & Wireless Networks India Pvt Ltd

Hewlett-Packard India Sales Pvt Ltd

Deutsche Bank GA, Mumbai

Hinduja Global Solutions Ltd

Vodafone Essar South Ltd

MakeMyTrip India Pvt Ltd

Research In Motion India Pvt Ltd

Barclays Shared Services Pvt Ltd

FIL India Business Services Pvt Ltd

IYOGI Technical Services Pvt Ltd

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Appendix A
List of NLD licensees in India

AT&T Global Network Services India Private Limited

Bharat Sanchar Nigam Limited

Bharti Airtel Limited

BT Telecom India Private Limited

Cable & Wireless Networks India Private Limited

Citicom Networks Private Limited

Datacom Solutions Private Limited

Dishnet Wireless Limited

Equant Network Services India Private Limited

HCL Infinet Limited

i2i Enterprises Limited (BT Global Communications India Private Limited)

Idea Cellular Limited

Mahanagar Telephone Nigam Limited

Oil India Limited

Power Grid Corporation of India Limited

RailTel Corporation of India Limited

Reliance Communications Limited

Shippingstop Dot Com (India) Private Limited (Loop Telecom Private Limited)

Sify Communications Limited

SingTel Global (India) Private Limited

Spice Communications Limited

Swan Connect Communications Private Limited

Swan Telecom Private Limited

Tata Teleservices Limited

Tulip IT Services Limited (Tulip Telecom Limited)

Unitech Long Distance Communication Services Limited

Verizon Communications India Private Limited

Videsh Sanchar Nigam Limited (Tata Communications Limited)

Vodafone Essar South Limited

Appendix B
List of ILD licensees in India

AT&T Global Network Services India Pvt. Limited

Bharat Sanchar Nigam Ltd

Bharti Airtel Limited

BT Telecom India Pvt. Limited

Cable & Wireless Networks India Private Limited

Citicom Networks Private Limited

Data Access (India) Limited (Licence under suspension)

Datacom Solutions Private Limited

Dishnet Wireless Limited

Equant Network Services India Private Limited

i2i Enterprises Limited (BT Global Communications India Pvt. Limited)

Mahanagar Telephone Nigam Limited

P3 Technologies Private Limited

Reliance Communications Limited

Sify Communications Limited

SingTel Global (India) Private Limited

Spice Communications Limited

Swan Connect Communications Private Limited

Swan Telecom Private Limited (Etisalat DB Telecom Privated Limited)

Tulip IT Services Limited

Unitech Long Distance Communication Services Limited

Verizon Communications India Private Limited

Videsh Sanchar Nigam Limited (Effective from 01.04.02)

Vodafone Essar South Limited

Appendix C
List of regulatory bodies

The regulatory environment in India has evolved from licence raj to a more liberalised and open environment. The key stakeholders include the Ministry of Communications and Information Technology (MCIT), Department of Telecommunications (DoT), the Telecom Commission, the Telecom Regulatory Authority of India (TRAI) and the Telecom Dispute Settlement and Appellate Tribunal (TDSAT).

Ministry of communication & information technology

The MCIT is part of the government of India. The key departments of the ministry include the Department of Telecommunications, the Department of Information Technology and the Department of Posts. The MCIT formulates policies with respect to telecom, post, telegraph and other means of communication. The laws governing the telecom sector include the Indian Telegraph Act, 1885, the Indian Wireless Telegraphy Act, 1933 and the Telecom Regulatory Authority of India Act, 1997.

Department of telecommunication

The Department of Telecommunications (DoT) under the Ministry of Communications and Information Technology is the concerned authority for all matters relating to telecom. The department is responsible for formulating developmental policies, granting licences to telecom services, promoting standardisation, research and development as well as private investment in the sector.

Department of information technology

DIT is an umbrella organisation constituted to formulate and execute a multi-pronged strategy of e-infrastructure creation. It has the responsibility to facilitate and promote e-governance, electronics and information technology- Information Technology Enabled Services (IT-ITeS) sectors. Some of the DIT organizations are Controller of Certifying Authorities (CCA), Cyber Appellate Tribunal (CAT), Semiconductor Integrated Circuits Layout-Design Registry and Indian Computer Emergency Response Team (ICERT).

TRAI & TDSAT

Telecom Regulatory Authority of India (TRAI) was established in 1997, under the Telecom Regulatory Authority of India Act, 1997. The Telecom Regulatory Authority of India Act, 1997 was amended by the Telecom Regulatory Authority of India (Amendment) Act, 2000. By the Amendment Act, an Appellate Tribunal known as the Telecom Disputes Settlement and Appellate Tribunal (TDSAT) has been set up to protect the interests of service providers and customers of the telecom sector. It adjudicates any dispute between a licensor and licensee, between two or more service providers, and between a service provider and a group of customers. It also hears appeals against any decision or order of TRAI.

The FDI structure allowed in the Indian telecom market under key enterprise services is shown below. Various telecom services permit between 74 and 100% FDI. All foreign investment of more than 49% in all telecom services requires the approval of the Foreign Investment Promotion Board (FIPB).

Internet service provider

- FDI limit of 74%, with 49% allowed under automatic route and anything above that, under the government route
- One-time entry fee for new ISP licence is INR 3 million for Category A and INR 1.5 million for Category B ISPs; no new Category C licences issued
- Annual licence fee of 6% of Adjusted Gross Revenue (AGR)
- The licensee is not permitted to have PSTN/PLMN connectivity. Voice communication to and from a telephone connected to PSTN/PLMN and following E.164 numbering is prohibited in India.

NLD & ILD licenses

- FDI limit of 74%, with 49% allowed under automatic route and anything above that under the government route
- Obtaining NLD licence will require INR 25 million entry fees. However, an ISP with VPN permission obtaining both NLD and ILD licences will be required to pay Rs 5 crore (2.5 + 2.5) entry fee. Annual licence fee of 6% of AGR
- FDI in the licensee company/Indian promoters/investment companies including their holding companies requires approval of the FIPB if it has a bearing on the overall ceiling of 74%

VSAT

- FDI limit of 74%, with 49% allowed under automatic route and anything above that under the government route
- Entry fee for new commercial VSAT licence is INR 3 million non-refundable/non-adjustable
- Annual licence fee of 6% of AGR

About FICCI
Industry's voice for policy change

Industry's Voice for Policy Change

Established in 1927, FICCI is the largest and oldest apex business organization in India. Its history is closely interwoven with India's struggle for independence and its subsequent emergence as one of the most rapidly growing economies globally. FICCI plays a leading role in policy debates that are at the forefront of social, economic and political change. FICCI's stand on policy issues is sought out by think tanks, governments and academia. Its publications are widely read for their in-depth research and policy prescriptions.

A non-government, not-for-profit organisation, FICCI is the voice of India's business and industry. FICCI has direct membership from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 2,50,000 companies from regional chambers of commerce.

FICCI works closely with the government on policy issues, enhancing efficiency, competitiveness and expanding business opportunities for industry through a range of specialised services and global linkages. It also provides a platform for sector specific consensus building and networking. Partnerships with countries across the world carry forward our initiatives in inclusive development, which encompass health, education, livelihood, governance, skill development, etc. FICCI serves as the first port of call for Indian industry and the international business community.

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