Telecommunications Reform and the Emerging 'New-Economy': The Case of India

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Abstract

Telecommunications reform in recent years in almost all developed and developing nations created an opportunity to attract foreign direct investment. The investments have been taking place mainly in the emerging 'new' economy sector. The main drivers of this sector are the information technology (knowledge-based) and the liberalisation and reform in telecommunications. Among the developing nations, the Indian economy faired better in attracting foreign direct investment in this sector due to the economic reform measures continued since 1991. In this paper, first, the economic and the regulatory reforms brought into the telecommunications sector of India have been addressed. Second, the emergence of the 'new-economy' and its contribution to growth has been investigated. Finally, the challenges for the Indian economy in managing the newly emerged economic opportunities have been discussed.

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1. INTRODUCTION

The dynamism of global telecommunications markets is widely attributed to rapid technological development and an increasingly liberal policy environment. Over the past decade, a large number of Asian economies, including India, have also embarked on reform paths, and witnessed significant expansion of their telecommunication networks and tremendous improvements in quality. Furthermore, it is not always apparent where the improved performance is because of specific policy choices rather than in spite of them, and where more could have been achieved had policy been different. Choices have to be made regarding the privatisation of state-owned telecommunications operators, the introduction of competition, the opening of markets to foreign investment and the establishment of pro-competitive regulations. While there is growing consensus that each of these elements is desirable, there are few countries that have immediately gone all the way on all fronts.

The Indian authorities have realised that development of an effective and efficient telecommunications sector is a key to the growing international competitiveness of the country. The government launched several reform measures in telecommunications in the last decade. Since 1991, the telecommunications sector has expanded exponentially as a result of these measures. In 1972, the country had only a million telephone lines, by 1996 it had more than 14 million, by 2000 more than 25 million and by June 2002 more than 41 million (Nasscom, 2002; Kathuria, 2000; World Bank, 1995). In this paper an attempt has been made to examine the telecommunications reforms in India since 1991 and to investigate the emergence of the 'new-economy' out of the expanded and modern telecommunications network over the last twelve years. Finally, the challenges ahead have been identified in order to remain competitive.

The paper is organised in the following manner: section two presents a systematic analysis of the economic reform measures in telecommunications industry. Section three provides an account on the industry structure during the pre- and post-reform era, section four covers the regulatory reform introduced since 1991, section five

addresses the emerging 'new economy' sector and its challenges. Finally, a conclusion has been drawn.

2. ECONOMIC REFORM

The economic reform agenda in telecommunications has been addressed in two policy documents produced in 1994 and 1999 popularly known as: National Telecom Policy 1994 (NTP, 1994) and New Telecom Policy 1999 (NTP, 1999). These policies are briefly presented below:

2.1 National Telecom Policy 1994

A major programme has been undertaken to expand and upgrade India's telecom network since 1991. The programme includes: complete freedom of telecom equipment manufacturing, privatisation of services, liberal foreign investment and new regulation in technology imports. Simultaneously, the government-managed Department of Telecommunications (DoT) has been restructured to remove its monopoly status as the service provider. Most value-added services, including cellular phones and radio pagers, which were virtually non-existent in the pre-reform era, have grown at an unprecedented rate (Hossain, 1998). The government programme was formalised on a telecom policy statement called "National Telecom Policy 1994" on 12 May 1994 (full record of this policy can be found in www.trai.gov.in/ntp1994.htm).

The major provisions the NTP94 have incorporated are:

- to allow new entrants to provide basic telephone services to supplement DoT's service;
- to maintain DoT's status as sole provider of long distance services and confirms that DoT will remain a government Department;
- to set targets for providing all villages with access to a telephone by the end of 1997;

- to endorse the existing policy whereby the private sector will be the main provider of value-added services;
- to encourage pilot projects which envisage inflow of new technology and management techniques generally involves foreign investment; and
- to indicate that the mechanism will be set up to protect consumer interests and ensure fair competition (Hossain, 1998: 218).

What was the outcome of NTP94? Compared to its commitments and provisions endorsed by 1994 statement, the outcome was less satisfactory. Only a handful of the targets set by this policy agenda was achieved. –

> "For example, as against providing one Public Call Office (PCO) per 500 urban Indian population and the telephone coverage of 576,490 villages in India, the DoT has achieved an urban penetration of one PCO per 522 and has been able to provide telephone services to only 310,000 villages. However, the DoT also has provided 8.73 million telephone lines against the eight-five year plan target of 7.5 million telephone lines." (Selvarajah, 2000: 68)

Overall, the NTP94 was not sufficient to make the India's telecommunications sector fully open and liberalised. The incumbent monopoly (DoT) was indifferent in implementing the national telecom policy effectively due to its lack of commitment and also due to the instability at the Centre (frequent changes of governments) over 1994 and 1998. This paved the way for designing a new policy framework for telecommunications which was called the New Telecom Policy 1999 (NTP99) and was delivered by the new government led by BJP coalitions.

2.2 The New Telecom Policy 1999

The New Telecom Policy 1999 (NTP99) was developed at the backdrop of three major events witnessed by the Indian economy after the reform process began in 1991. First, although NTP94 was a right step to bring reform in the telecommunications industry, it failed to achieve a desired goal until 1997. Second, the coalition government of Atal Behari Bajpai led by the *Bharathiya Janata* Party (BJP) brought a stability to the Central government when it came to office in 1998;

and, third, immediately after assuming power, the BJP-led government was keen on bringing further reform in telecommunications to attain an effective and efficient communications sector. In order to achieve this the BJP-led coalition government immediately formed a high powered committee to develop the Internet Services Development Policy headed by the Chief Minister Chandrababu Naidu. The commitment of this committee and the major interest of the Prime Minister towards transforming the telecommunications sector gave birth the NTP99 for the Indian telecommunications sector (a full record of the NTP99 can be found in www.trai.gov.in/npt1999.htm).

According to Selvarajah (2000):

> "Overall, the NTP99 is a comprehensive and progressive telecom policy framework. It addresses the outstanding issues of telecommunications development and the challenges of modern telecommunications technology. NTP 99 recognises the crucial role of private sector investment in the development process of the sector and to bridge the much-needed financial resources gap." (2000: 69-70)

Among other things the NTP99 has endorsed policies under 5 policy frameworks:

- Framework for Services Deployment
- Framework for Licensing of Telecom Services
- Framework for Restructuring of Telecom Organisations
- Framework for Further Liberalisation of Services
- Framework for Regulation.

Each of these policy frameworks will be discussed further in the subsequent relevant sections of this paper.

3. POST-REFORM INDUSTRY STRUCTURE

Under the Indian constitution, only the central government can legislate on telecommunications. The central government has been the monopoly provider of telecommunications services through the Department of Telecommunications (DoT),

which is under the jurisdiction of the central government's Ministry of Communications.

3.1 Industry structure before reform

Before 1989, a Telecom Board with a director-general at the helm steered the Board on behalf of the central government. The DoT corporatised two of its operational wings in 1986. These are called *Videsh Sanchar Nigam* Limited (VSNL), responsible for international operations and *Mahanagar Telephone Nigam* Limited (MTNL), which has operational responsibility for providing telephone services in metropolitan Delhi and Mumbai, which comprise nearly a quarter of the total telecom network. The rest of the country remained under the jurisdiction of the DoT. In May 1989, the Telecom Board was replaced by a Telecommunications Commission with a much broader mandate than the board. Telecommunications operations were divided into five areas and headed by five full time members of the Commission. These areas are: telecom policy, regulation, technical research and development, design and manufacture of equipment, and provision of telecommunications services. The Secretary of the DoT holds the position of Commission Chairman.

Table 1 presents the industry structure before NTP94 was introduced. Although the Indian economy embraced economic reform agenda in 1991, the reform in telecommunications began with the design of the NTP94 statement. By the end of March 1995, the country had 9.38 million telephone lines with installed capacity of a further 10 million lines. The demand for telephone sources over the last ten years has grown by almost 12.2 per cent with actual growth in installation of 11.8 per cent. The total workforce in the industry stood at 470,000 persons.

3.2 Industry structure after reform

Immediately after the announcement of NTP94, the telecommunications industry in India came to terms with the on-going reform process in the sector. All players in the sector, foreign and local private investors and subscribers anticipated a major shake up of the industry after this policy statement came into being. As shown in the

previous section, NTP94 was a half-hearted step on the part of the central government to bring major reform in telecommunications in India. Eventually, the implementation of this policy was not able to make major breakthrough in the growth of the sector until the NTP99 came out and was regarded as a comprehensive programme of telecommunications policy reform in India. This section presents the industry structure and shape after the introduction of the NTP94.

Table 2 presents the performance for basic services since 1996. Fixed or basic services have been provided by two major public carriers after liberalisation in early 1990s. The DoT (now *Bharat Shanchar Nigam* Limited, BSNL) has been covering all of India except two metros: Delhi and Mumbai. BSNL's share has increased from 79 per cent to 86 per cent between Mar-97 and June-01 while the share for MTNL has dropped from 21 per cent to below 13 per cent of the total connections. This suggests that the basic services have expanded all over India except in Delhi and Mumbai.

In the early years after liberalization, India restricted the number of licenses awarded in basic services. The market was divided into separate circles and the policy admitted one private operator in each to compete with the incumbent BSNL. New entrants were allowed to offer intra-circle long distance services, but the BSNL maintained its monopoly on inter-circle long distance telephony. Recently, in the year 2001, the policy was changed to allow unlimited entry into each circle for basic services and subsequent to the bidding process 22 license agreements have been signed. As opposed to the fixed license fee regime based on which licenses were awarded earlier, fresh licenses have been issued on the basis of a one time entry fee and a percentage of revenue share that is linked to the area of operation[1]. Table 3 presents the details of the new licenses issued.

In total, before liberalisation India's basic service comprised only 9.5 million, it has increased by almost 4.5 times to 42 million in 2003. By all means, the growth of basic telecommunications services in India has been phenomenal over the last five years. The prospect in the future is brighter with the policies in place under NTP99. This policy's framework for service deployment suggests the following initiatives:

[1] License fees is fixed as 12, 10 and 8 per cent of gross revenues for Circles A, B and C respectively.

- Availability of basic telephone services on demand by year 2002
- Target of teledensity of 7 per cent by year 2005 and 15 per cent by year 2010
- Completion of full rural telephone coverage by year 2002
- Target of rural teledensity of 4 per cent by year 2010
- Provision of Internet access in all Indian districts by year 2000
- Encouragement of sharing infrastructure facilities by all service providers
- Expeditious clearances for right-of-way to all service providers
- Direct interconnectivity of telecom networks as far as possible
- Identification of some areas as special thrust areas for service deployment
- Permission to use Ku-band satellite communications for long distance data communications
- Acceptance of all recommendations of the national Informatics Task Force in relation to ISPs (NTP99, see www.trai.gov.in/ntp1999.htm).

The other growth area of the Indian telecommunications industry is the cellular mobile market. Table 4 presents a brief profile of this market. The number of cellular subscribers in the country exceeded 10 million at the end of 2002 compared to mere 0.2 million in 1996. In the year 2001, the compound annual growth rate of subscribers was in excess of 90 per cent. Private participation in the cellular market was introduced in 1994. Initially fourteen licences were awarded, two in each of the four metros: Delhi, Mumbai, Chennai and Kolkata (Hossain, 1998). Non-metro areas (Circles A, B and C) are serviced by other private service providers.

Introduction of private service providers in the mobile market has revolutionised the industry over the last five years. The NTP-99 attempts to create an environment to expand the subscriber base further in coming years. It provides for public sector entities BSNL and MTNL to be the third operator in each service area, while recently bidding for the fourth license resulted in licenses being awarded to 17 more operators. Table 5 provides details of the existing players circle wise.

The overall growth of basic services and mobile phone services are presented in Table 6. In Delhi and Mumbai the growth in fixed line services was 21 per cent during this

period while in the case of mobile services in four metros the growth has been 71 per cent between 2000 and 2001. However, the all India figures have been staggering for both the markets. The fixed line service has been nearly doubled and the mobile services grew by almost 10 times. This suggests that the telecom industry in India has been responding very positively to the reform measures introduced in early 1990s and to the policies incorporated in NTP 94 and NTP 99.

4. REGULATORY REFORM

India's economic reform in telecommunications goes hand in hand with regulatory reform from the early 1990s. Telecommunications regulatory reform in India can be divided into two categories: reform introduced under the NTP94 and reform introduced under the NTP99. This section presents an illustration on reform measures taking these two documents into consideration.

4.1 Regulatory reform under NTP94

The regulatory reform began with introduction of an independent regulatory agency called the "Telecom Regulatory Authority of India (TRAI)" in March 1997. NTP-94 had a provision to introduce such an independent entity to regulate telecommunications in India. The need for such an authority was felt due to on-going liberalisation and economic reform introduced to the industry following the government's publication of NTP94. Among other things, NTP94 has brought the following changes in the industry:

- New entry for basic telephone services will be permitted as duopolies (that is, DoT and one other operator) in the twenty one 'Circles' into which the country has been divided;
- DoT will retain the long distance monopoly for five years after which the decision would be reviewed; and
- Foreign ownership of telecom operators will be welcome up to 49 per cent of equity (from World Bank, 1995: 104-5).

With all these changes in place an independent regulator for the industry was overdue. The Telecom Regulatory Authority of India Act 1997 established the Telecom Regulatory Authority of India (TRAI) in January 1997, with a view to provide an effective regulatory framework and adequate safeguards to ensure fair competition and protection of consumer interests. To achieve the objectives of the TRAI Act, TRAI was given power to give directions to service providers, make regulations, notify tariffs by Order, and adjudicate disputes arising between government (in its role as service provider) and any other service provider. Among all the powers and duties, its authority and jurisdiction to settle disputes among the service providers has been important. However, there was a ruling by Delhi High Court against the TRAI about its power and jurisdiction in July 1998. The High Court ruled, "it was not mandatory for the Indian government to seek recommendations of the TRAI prior to issuing licences for telecommunications services in the country" (quoted in Selvarajah 2000: 71). The judgement affirmed the powers of the DoT, i.e. the government, to issue licenses without recommendations from TRAI. It also clarified that TRAI did not have the power to over-ride the license conditions. The High Court concluded that "the powers of the TRAI cannot be construed as a precondition precedent to the exercise of any other powers by the DoT on behalf of the government under the Indian Telegraph Act No.13 of 1885" (quoted in Selvarajah, 2000: 71). With this ruling in place the new and the independent telecom regulator in India had a controversial and bumpy start.

In addition, another High Court judgement in January 2000 observed that the TRAI Act 1997 did not empower the regulator to *fix* interconnection terms and conditions between service providers and that TRAI had merely a policing function in this regard. This meant that the Calling Party Pays (CPP) regime for cellular mobile that TRAI sought to introduce in November 1999 that inter-alia specified explicit revenue shares for calls from Basic to the cellular network could not be implemented. Soon after this judgement the TRAI Act was amended and a new Act, the TRAI (Amendment) Act 2000 was introduced. These episodes of conflict between the incumbent and the regulator undermined the credibility of the regulator during the initial years of telecom liberalisation in India. Prior to this, DoT was responsible for the industry regulation as a part of government operation. According to Selvarajah,

"overall, the TRAI has the powers and functions of a typical telecom regulator" (2000: 71). It appears that in practice the TRAI faced major hurdles to function appropriately in the initial period due to some High Court rulings sought by the DoT about the jurisdiction and obligations of the TRAI. This has made TRAI less effective and has forced a process of continuous transformation in the early years. The next section provides a brief overview of the players in regulation as it stands in India at present.

4.1.1 Players in Regulation

India's telecommunications sector is regulated by the Ministry of Communications through three government bodies — the Telecom Commission, the Department of Telecommunications, and the Telecom Regulatory Authority of India. The Telecom Commission performs the executive and policy-making function, the DoT is the policy-implementing body while the TRAI performs the function of an independent regulator.

a) Department of Telecommunications, Ministry of Communications

The Department of Telecommunications, Ministry of Communications, is the Authority in India that looks after the licensing and overall policy making in India. Until recently, DoT was also the main service provider. The service provider role has been separated from DoT, and is now functioning as a corporate body*, Bharat Sanchar Nigam Limited* (BSNL). Two other government corporations are also important service providers. *Mahanagar Telephone Nigam* Limited (MTNL) operates in Mumbai and Delhi as a service provider with license for, *inter alia,* basic service, cellular mobile and Internet access. *Videsh Sanchar Nigam* Limited (VSNL) has a monopoly in the international call segment and has a license for providing some other services including the Internet. The government is a major shareholder in both MTNL and VSNL, and has substantive control over the decisions of these service providers. In fact, they may also end up competing with each other for the same market. This has already started happening in certain cases, for instance, with MTNL and VSNL for the Internet market. A competitive situation would require greater autonomy for MTNL and VSNL.

(b) Telecom Regulatory Authority of India

On 24 January 2000, an Ordinance amended the TRAI Act 1997 and altered a number of aspects. For example, the adjudicatory role of the TRAI has been separated and has been provided to a Telecom Dispute Settlement and Appellate Tribunal (TDSAT)[2]. This Tribunal has been provided the powers to adjudicate any dispute

(i) between a licensor and a licensee;

(ii) between two or more service providers;

(iii) between a service provider and a group of consumers.

TDSAT has been given additional powers those it inherited from TRAI; for example, it can settle disputes between licensor and licensee. Further, the decisions of the Tribunal may be challenged only in the Supreme Court.

The remaining functions of TRAI have been better defined and increased; for instance, with respect to powers relating specifically to interconnection conditions. TRAI now has the power to 'fix the terms and conditions of inter-connectivity between the service providers' (TRAI (Amendment) Act 2000), instead of 'regulating arrangements between service providers of sharing revenue from interconnection' (TRAI ACT 1997). The new legalisation signalled an attempt to re-establish a credible regulator. The government would be required to seek a recommendation from TRAI when issuing new licenses. The adjudication of licensor-licensee disputes would be undertaken by an independent tribunal specialised in telecom. In terms of interconnection arrangements, TRAI was given the powers to override the provisions of license agreements signed with DoT. However, while there has been an increase in the powers of the Authority (other than dispute settlement), the Ordinance has led to a weakening of the guarantee that was provided in the Act with respect to the five year working period for the TRAI Chairman and Members. This statutory guarantee was done away with by the Ordinance, which provides for less stringent conditions for removal of any Authority Member or Chairman. To that extent, the independence of the Authority has been whittled down. More on TRAI is provided in the next section.

[2] In its present form, the CCI Bill also envisages the dispute settlement function to be performed by the Communications Dispute Settlement Appellate Tribunal (CAT)

4.2. Regulatory reform under NTP 99

Since the regulatory outcome of the NTP94 has been disappointing, the government proposed new regulatory policies in its NTP99 policy statement.

The regulatory reform introduced by the NTP99 can be summarised as follows:

- Reaffirm the commitment for strong and independent telecom regulator
- Arbitration powers to the regulator in settling disputes between the government and other service providers
- Jurisdiction of licensing and policy making will, however, continue to fall under the government
- Prohibition of the provision of voice services over the Internet Protocol
- Recognition of the need for changes in the existing telecom legislations. (Selvarajah, 2000: 70).

The opening up of the Internet sector set the background to NTP-99, is a major attempt to plug the loopholes in the 1994 policy. Its enunciation of policy objectives is itself a marked improvement. Provision of 'universal service' (including unconnected rural areas, re-targeted for year 2002) is sought to be balanced by the provision of sophisticated telecom services capable of meeting needs of the country's economy. The latter objective is further amplified to include 'Internet' access to all district head quarters (DHQs) by 2000 and providing high speed data and multimedia capabilities to all towns with a population of 200,000 and above by 2002. Apart from a target average penetration of 7 per cent by year 2005 (and 15 per cent by 2010), targets for rural 'tele-density' have been set to increase from the current level of 0.4 per cent to 4 per cent during the same period.

To meet these teledensity targets, an estimated capital expenditure of Rs. 4,000 billion for installing about 130 million lines will be required. Recognizing the role of private investment, NTP-99 envisages multiple operators in the market for various services.

The most important change has been a shift from the existing license fee system to one based on a one-time entry fee combined with revenue share payments.

NTP-99 allows DoT/MTNL to enter as third cellular mobile operators in any service area if they wish to provide these services. To ensure a level playing field, DoT and MTNL will have to pay license fee, but DoT's license fee will be refunded because it has to meet the Universal Service Obligations. It is worth noting that to the extent that the fee will be specifically refunded to bear the cost of Universal Service Obligation (USO), this aspect should be accounted for when calculating the USO levy and apportioning the revenues from that levy.

5. EMERGENCE OF THE 'NEW-ECONOMY'

"Our aim is to make India an IT superpower house. Our objective is to create entrepreneurs and employment and ultimately make a sustainable contribution to the growth of the Indian economy" (Nasscom 2002). These are the words by Mr Kiran Karwik, President of the New Delhi based National Association of Software and Service Companies (NASSCOM). It appears there is some truth on this claim. It is well established that the Indian economy has been experiencing current account deficit since the last three decades. However, the economy has turned the corner and now there is a sign of having a sustainable current account (CA) surplus in the future including an impressive growth rate in GDP (6 per cent and over per annum). These are mainly driven by the establishment of a business-service sector which helped the economy to enter into more and more service exports. Telecommunications infrastructure building and providing IT services to the outside world contributed overwhelmingly for establishing the business-service ('new' economy) sector in India.

In particular, the 'new' economy has emerged out of two major forces: one, growth in technology and innovation of knowledge-based goods and services and two, globalisation of economic activity. The main drivers of these forces are: information and communications technology (ICT), and foreign direct investment (FDI) in

IT/Software services and new IT enabled services (ITE). In other words, the 'new' economy mainly comprises two elements of the information technology sector: IT/software services and IT enabled services. Between 2001 and 2002, these two elements contributed to the exports of about US$7.68 billion with a rapid growth in IT/software (18 per cent) and in ITE services (68 per cent). These two elements so far created more than 400,000 jobs for the Indian economy with accumulating a wealth worth US$20 billion. It is now widely accepted that the 'new' economy is mainly driven by the domestically grown enterprises. In IT services, the Indian companies hold 78 per cent of the share and the MNCs hold the rest. Among the ITE service companies, 55 per cent share held by the domestic firms and the rest by the MNCs. In terms of total market share in values, the Indian companies hold three-fourths, as against one-fourths held by the MNCs. The major destinations of export of the 'new' economy sector are to Americas (63 per cent) and Europe (26 per cent.

5.1 The 'new- economy': export opportunities:

The export opportunities have been getting larger and larger with the 'new-economy' products over time. Table 7 presents the export growth rate over 1996 and 2001 in IT/Software services. It appears that the total growth of exports with the IT services increased by six folds and the domestic market expanded by four folds. The ratio of IT/Software exports to total exports has been increasing continuously. This has increased from almost 14 per cent of the total exports in 2001 to 16.5 per cent in 2002 (Table 8). It will soon become a contributor to the total exports by one-fifths. Export opportunities within the 'new' economy sector have also been changing over time. ITE services share of exports to total IT services exports have been increasing constantly since 1999. Table 9 suggests that the ITE services share of export was 14 per cent in 1999 and this has reached to 19 per cent in 2002. It has been projected that the ITE's contribution will become one-fourths of the total exports of the IT services in 2003. By all means, these demonstrate a strong achievement by the sector within a short period of time.

How was this possible? Table 10, demonstrates that the Indian IT industry has been occupying a major share of the global ITE and Business Process Outsourcing (BPO)

segments of the industry. Currently, India occupies an increasing global share of all the key segments of the industry. For example, the shares in 2002 for Contact/Call Centres was 4.5 per cent, for Back Office Operations 30 per cent, Transcription and Translation services 7.5 per cent, Content Development services 20 per cent and Other Services by 17 per cent and the share has been increasing sustainably.

There are many factors behind the success of the Indian IT enterprises. Most importantly, English language skills give India a major competitive and technological edge over other nations (Einhorn, 2003). Secondly, more and more multinational companies are shifting their services to countries such as India which can offer professional workers at low cost (Hussain 2003), and thirdly, India gains from job shift from more developed nations (Raghunatahn 2003). For example, US banks and financial service companies are leading the way in outsourcing to India. It has been widely believed that the US companies have saved more than $6 billion in the past four years by outsourcing procedures.

A list of major innovative activities by several MNCs currently conducting in India is provided below:

- "GE Medical in Bangalore has developed a high-resolution imaging machine for use in cardiac surgery and a portable ultrasound scanner as part of the company's global supply chain.
- Whirlpools's laboratory in Pune in the western state of Maharashtra is developing air conditioners and refrigerators.
- Intel's Bangalor facility has produced more than 50 new designs for semiconductors, telecommunications switching equipment and routers, and has also set up a new laboratory to help develop its next generation of microprocessors.
- Oracle's Bangalore facility develops customised software solutions and programmes for American companies.
- Hewlett Packard has developed prototypes of a small scanner that can scrutinise handwritten documents and letters and a simple computer for unskilled people.
- Aston Martin has contracted the design and development of the prototype of a new sports car to an Indian firm.

- Daimler Chrystler has a research centre that is working on applications in avionics and simulation and software development" (Raghunathan 2003, p. 24).

The major reason for job shift move taken by the above MNCs was due to the cost factor. It has been widely believed that the Indian engineers and PhD holders can be available with ten times cheaper wages for the service provided by the similar skilled persons based in more developed nations such as in the US. The low wages/slaries has made the Indian services more attractive to the MNCs.

5.2 The Challenges Ahead

The emergence of 'new' economy as a separate identity in the Indian economy is no doubt a huge boost for generating additional export revenues to achieve a healthy current account balance. The sector, however, is not immune from facing challenges in the future. In the present globalisation era, there is always a threat of competition from other developing countries such as China and South East Asian nations. In this section, an investigation on the challenges has been attempted. Before identifying the challenges and the weaknesses of the Indian economy against its competitors, let us first summarise the strength gained by India so far.

- Telecommunications technology and expanding teledensity found to be the major driver of the emerging 'new' economy sector. Indian union and state capital cities where the IT and ITE services industry is based have teledensity of 14 per 100 against the all India density of only 3 per 100. The subscribers for fixed line network increased by 8 folds since 1991, while the cellular phones increased by 30 folds since 1997.
- The IT and ITE service industry has contributed over $25 billion to the country's foreign exchange reserve of $70 billion. The industry is poised to achieve $50 billion exports in 2008.
- All these have created a healthy current account balance for India in recent times. After almost a quarter of a century of current account deficit, the nation achieved a surplus in 2001. Presently, the economy has foreign currency reserve worth a year's of import as against a reserve of one month's import in 1991.

The major challenges for the industry have been debated by two world experts on outsourcing and BPO issues, Corbett (2003) and Roxenburgh (2003). According to these authors, the following are the most important challenges that need to be addressed to keep the Indian IT and ITE services industry remain competitive:

- Political spectre of EU/US job-losses. In the West, the loss of jobs due to outsourcing has been the major issue the trade union movement and ordinary workers disappointed about.
- India's image problem worldwide in terms of social, religious and economic inequality and intolerance. The age-old system of caste and the constant rivalry between the Hindus and the Muslims have created an environment which cannot be considered as business friendly.
- India's constant arms conflict including prospects of a nuclear conflict with Pakistan is not conducive to procuring healthy political environment.
- Indian government has been withdrawing the tax incentives in phases currently in place.
- WTO imposing a 'level playing field' strategy for member nations. In other words, its policy of having a completely open business and trade arrangement.
- Competitors from Ireland, China, and South East Asia (the Philippines, Vietnam and Cambodia) are probable threats to India in the future (NASCOM, 2002).

6. CONCLUSIONS

Telecommunications service in India is an example of a paradox of the 1990s. Despite the telecom policy and telecom regulation being controversial, communication has been the fastest growing sector of the Indian economy. There is still an opportunity to reform and simplify the regulatory framework further and maintain the growth rates during the next decade as seen in the past. What are the lessons from the Indian experience?

First, the analysis of the India telecom sector presents a picture of "managed competition". While the traditional public monopoly is coming to an end, effective

competition has been hard to achieve for a number of reasons. The incumbent with an extensive network has retained market power. The number of networks that have come up or are about to come up are limited because of the costs of building the network. The availability of spectrum is a constraint in the market especially for cellular mobile services. Given these circumstances, however, the expansion of telecommunications services has been phenomenal over the last decade.

Second, new market-based approaches to the supply of telecommunications services have been introduced in India and technological changes have led to cost reduction and expanded scope of product choice. The number of initiatives on the drawing board makes impressive reading and present immense opportunity for the sector and thus for the economy. TRAI has already issued consultation papers on Internet Telephony and Interconnection and opening of international long distance (ILD) services to private competition. These initiatives suggest a greater reliance on market forces than before. As market-based approach to the provision of telecom services has been adopted, the question to be addressed is whether there should be more or less regulatory intervention.

Third, following the widespread adoption of market-based approaches to the supply of telecommunications services, there is also a growing consensus that regulators should not be involved in detailed "management" of the sector. Instead, the regulators' role is seen to involve maintenance of a regulatory environment conducive to the efficient supply of telecommunications services to the public. Also, while there is likely be an increase in regulatory activity around the time of introduction of competition, the level of regulatory intervention can be expected to reduce once competitive markets are established. Regulation where none is justified can distort or undermine competition.

Finally, under the given market-based approach and the current regulatory framework in place, the telecommunications industry has contributed to establish a 'new' sector in the economy driven by the IT/Software and IT enabled services. Within a short period of time, the 'new' economy sector has substantially contributed to reversing the age old current account problem and has created hundreds and thousands of jobs in newly established domestic companies and in India based major MNCs. These

achievements, however, are not immune from any threat in the future. The major challenges can be identified in terms of India's image problem to outside world, gradual withdrawal of tax incentives in place, WTO intervention on behalf of the other member nations and direct competition faced from East and South East Asian nations.

Table 1: Basic telecom information for pre-reform period

Number of telephone lines as at 31 March 1995	9.38 million
Installed capacity of telephone lines	10.00 million
Demand for telephones (FY 1995)	12.50 million
Growth in telephone lines (FY 1985 to FY 1994)	11.8 per cent
Growth in telephone demand (FY 1985 to FY 1994)	12.2 per cent
Total workforce (telecom services)	470,000

Source: Hossain (1998) cited from Hossain and Chatterjee (1996)

Table 2: Phone connections and share of main operators between 1996-97 & 1998-99

Operator	Connections ('000)		Share (%)	
	Mar-97	Jun-01	Mar-97	Jun-01
BSNL (all India)	11,530	28,484	79.29	86.01
MTNL (Mumbai, Delhi)	3,012	4,322	20.71	13.05
Bharti, (M.P.)	-	122	-	0.37
Hughes, (Maharashtra).	-	84	-	0.25
Tata, (A.P.)	-	69	-	0.21
Reliance, (Gujarat)	-	0.14	-	0.00
STL, (Rajasthan)	-	13	-	0.04
HFCL (Punjab)	-	24	-	0.07
All India	14,542	33,118	100.00	100.00

Source: Kathuria (2000) and Tele.net Volume 2 Issue No. 8 August 2001

Table 3: List of new Basic service Licenses issued

Operator	Service Area for which the license have been issued
Reliance	A.P., Delhi, Karnataka, Maharashtra, Tamil Nadu, Haryana, Kerala, M.P., Punjab, Rajasthan, U.P.(West), U.P.(East), West Bengal, A&N, Bihar, H.P., Orissa
Tata	Delhi, Gujarat, Karnataka, Tamil Nadu
Bharti	Haryana

Source: Tele.net Volume 2 Issue No. 8 August 2001

Table 4: Mobile market share (%)

Region	**Mar-97**	**Mar-98**	**Mar-99**	**Mar-00**	**Mar-01**	**Aug-01**
All Metros (Delhi, Mumbai, Chennai and Kolkata)	325,967	551,757 (69)	519,543 (-6)	795,931 (53)	1,362,592 (71)	1,750,789 (28)
Rest of India	13,064	330,559 (2430)	675,903 (104)	1,088,380 (61)	2,214,503 (103)	3,071,398 (39
All India	**339,031**	**882,316 (160)**	**1,195,446 (35)**	**1,884,311 (58)**	**3,577,095 (90)**	**4,822,187 (35)**

Note: Figures in parentheses show percentage of growth

Source: Kathuria (2000) and Tele.net Volume 3 Issue No. 1 January 2002

Table 5: List of Cellular Service Providers and their Area of Operation

Category	City/Circle	Operator1	Operator2	Operator3	Operator4
Metros	Delhi	Bharti	Essar	MTNL	Batata
	Mumbai	BPL	MNTL	MTNL	Bharti
	Chennai	RPG	Skycell	-	HMTL
	Calcutta	Spice	UMTL	-	Reliance
A' Circle	Maharashtra	BPL	Birla AT&T	-	Bharti
	Gujarat	Fascel	Birla AT&T	-	Bharti
	A.P.	Tata	Bharti	-	HMTL
	Karnatka	Bharti	Modicom	-	HMTL
	T.N.	BPL	Aircel	-	Bharti
B' Circle	Kerala	Escotel	BPL	-	Bharti
	Punjab	Modicom	-	-	Escotel
	Haryana	Escotel	ADL	-	Bharti
	U.P.(W)	Escotel	-	-	Bharti
	U.P.(E)	ADL	Koshika	-	Escotel
	Rajasthan	ADL	Hexacom	-	Escotel
	M.P.	RPG	Reliance	-	Bharti
	W.B.	Reliance	-	-	
C' Circle	H.P.	Bharti	Reliance	-	Escotel
	Bihar	Reliance	-	BSNL	
	Orissa	Reliance	-	-	
	Assam	Reliance	-	-	
	N.E.	Reliance	-	-	

Source: Tele.net Volume 3 Issue No. 1 January 2002

Table 6: Growth in Telecom markets in India (1997-2001)

Region	1997	1998	1999	2000	2001
All Metros					
Fixed Line	3,955,462	4,581,634	5,131,756	5,828,608	
Growth Rate		16	12	14	
Mobile	325,967	551,757	519,543	795,931	1,362,592
Growth Rate		69	-6	53	71
All India					
Fixed Lines	14,542,651	17,801,696	21,601,489	26,652,135	32,702,229
Growth Rate		22	21	23	23
Mobile	339,031	882,316	1,195,446	1,884,311	3,577,095
Growth Rate		160	35	58	90

Source: Present study estimate.

Table 7: 'New Economy': Export Opportunities (US$ million)

Year	Software/IT Exports	Domestic Software Market
1996-97	1,100	730
1998-99	2,600	1,560
2000-01	6,217	2,160
2002-03*	9,500	2,700

* Projections
Source: Nasscom (2002)

Table 8: Software Exports to Total Exports (%)

Items	2001	2002	2003*
Software Exports	13.80	16.50	18.60
Other Exports	86.20	83.50	81.40

* Projections

Source: Nasscom (2002)

Table 9: ITES Exports to IT Exports (%)

Year	ITE Services	IT Services
1999-00	14.0	86.0
2000-01	14.5	85.5
2001-02	19.0	81.0
2002-03*	24.0	76.0

* Projected

Source: Nasscom (2002)

Table 10: Key Segments of Global ITES/BPO

Item	Contact/ Call Centre (1)	Back Office Operations (2)	Transcription & Translation (3)	Content Development (4)	Other Services (5)
Global Market Market Size ($ million, 2002)	8,600	2,000	425	2,200	250
Indian Market Size ($ml, 2002)	380 (4.5)	600 (30)	32 (7.5)	440 (20)	43 (17)
Minimum Invest.	$3,000 to	$1-2.5ml	$0.5ml	$10ml	$10-15ml

Source: Nasscom's Handbook (2002)

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