

“TRADE IN SERVICES: OPPORTUNITIES AND CONSTRAINTS”

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Report on
TRADE IN SOFTWARE SERVICES

Co-ordinator: Mr. Narayan Murthy

Chief Co-ordinator: Mr. B.K. Zutshi

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INTRODUCTION

The software industry is among the fastest growing sectors in the Indian economy. It has been marked as a thrust area for generating high quality employment and export promotion, starting with the computer software policy in 1986. The software sector is deemed to be a highly desirable thrust area as it requires skilled manpower, few raw materials, and is environment friendly. India has many inherent strengths in software services including low cost skilled manpower and a well developed engineering base. However, despite rapid growth and many cost-related and technical advantages in this sector, India accounts for a very small share of the world software exports market.

This paper examines the domestic and external constraints to exporting software services from India. Its objective is to assess the opportunities and constraints to trade in software services in India, to recommend a strategy for the Indian government in its negotiations on this sector at the WTO, and to suggest areas for domestic reform to strengthen the sector.

The paper consists of five sections. The first section provides a background to the software services sector in the domestic economy and its potential for trade and growth. The second section identifies the main barriers constraining exports of software services. Section 3 discusses the implications of commitments made under GATS for India's software services sector. The fourth section discusses the nature of commitments that India should demand of other countries as well as India's own commitments in this sector. The last section discusses the nature of domestic reforms that have to be undertaken if India is to become globally competitive. It also suggests various domestic measures and reforms that would be required to take advantage of the opportunities created by GATS, to support India's own commitments under GATS, and to overcome the constraints to trade in this sector.

1. Overview of Software Services

1.1 Global Scenario

In today's increasingly competitive business environment, companies have become dependent on information technology (IT) for efficiency in day-to-day operations and as a strategic tool to re-engineer business processes, restructure organizations, and to react quickly to competitive, regulatory and technological changes. For these reasons, IT capabilities are particularly critical in certain vertical markets like financial services, utilities, and telecommunications that are undergoing rapid deregulation and globalization.

As corporations have become increasingly reliant on their IT systems, the technological challenge of managing such systems has increased. IT departments

must not only implement new systems based on technologies such as internet and client/server systems, but also update legacy systems for expanded functionality, and for incorporating advances in software and hardware. Maintenance of existing systems is an ongoing activity. There is the added complexity of coping with such transient activities like the Year 2000 remediation and Eurocurrency conversion.

With growing corporate dependence on IT, budgets for IT services have grown dramatically. Dataquest has estimated that the world wide market for IT consulting, development, integration, and outsourcing will increase to \$291 billion by 2001 from \$177 billion in 1998. The outsourcing need is particularly acute for companies whose IT staff lacks the requisite skill set and project management capabilities to implement new technologies. Such companies seek third-party software service providers to implement new technology and support existing legacy systems. In addition, businesses are often being forced to outsource IT projects due to the difficulty and expense of recruiting and training sufficient IT staff in a resource-constrained environment. Outsourcing enables businesses to minimize the risks and reduce the time-to-completion of large IT projects by shifting some or all of their IT responsibilities to capable service organizations. The IT services industry has also benefited recently from a significant demand for the year 2000 conversion services.

While the demand for IT services has increased significantly, the supply of qualified IT professionals has decreased in most developed countries, particularly the United States, Western Europe and Japan. According to the United States Department of Education, the number of bachelor degrees in computer science awarded annually at U.S. universities fell by 41.7% from 41,889 in 1986 to 24,404 in 1995. One result of this downward trend is a growing shortage of IT professionals in the United States. The Information Technology Association of America reports that the number of unfilled positions for IT professionals was 346,000 in January 1998 in U.S. companies with more than 100 employees. Furthermore, the United States Department of Commerce has estimated that between 1994 and 2005, U.S. companies will require more than one million new IT professionals to fill the new positions and to replace workers who are retiring or are otherwise leaving the IT sector.

The shortage of IT professionals, along with recent advances in telecommunications and the growing acceptance of telecommuting, has led to the globalization of the market for IT services. It is now well accepted that remote offshore software development and maintenance is possible if the offshore facilities implement world class physical and technological infrastructure, proven quality processes, project management methodologies, and data communications infrastructure to provide video conferencing, the Internet, e-mail and remote computer access. By outsourcing software development and maintenance projects to offshore IT service providers, establishing overseas facilities or joint venturing with foreign partners, companies have been able to access skilled IT professionals

in lower cost environments with a large population of English-speaking technical talent.

1.2 Indian Scenario

The software industry is among the fastest growing sectors in the Indian economy. It has grown rapidly over the past decade from a total value of no more than Rs. 500 million or US \$ 15 million to Rs. 100.4 billion or US \$ 2.7 billion in 1998. If one adds to the latter, the value of in-house development by many large commercial/corporate end-users, then the total software industry is close to Rs. 150 billion or US \$ 3.8 billion today. The cumulative average growth rate has been a significant 53.8 percent for the entire industry over the past five years, with the domestic segment growing at 48.3 percent and the export segment growing at 57.4 percent over this same period. The industry is also an important source of employment, employing more than 2,00,000 people.

The Indian software industry is concentrated in a few cities. These include the four metros, Hyderabad, Pune, Gurgaon, and Bangalore. Mumbai and Bangalore continue to attract substantial investment in this sector. The geographic distribution of the top 500 software companies is provided below.

CITY	NO. OF COMPANIES
Mumbai	104
Bangalore	97
Delhi, Gurgaon and Noida	41
Hyderabad	50
Chennai	55
Calcutta	28
Pune	23
Others	50

The recent trend in both the export and domestic segments of the Indian software industry has been towards specialization in specific segments of software development. Nearly two thirds of the companies are engaged in developing end-user application products and services ranging from straightforward accounting systems to specialised niche market products or customised services. The rest obtain their revenues from consultancy, systems integration, supply of specialised software systems, such as software tools, communications software and software for dedicated hardware devices. Indian software companies mainly concentrate on developing application software for four main sectors. These include, banking, manufacturing, insurance and other financial services, and retailing and distribution. A segment wise breakdown of the software industry's activities is provided below.

SECTORS	PERCENTAGE OF COMPANIES
Banking	82
Communications	78
Government	70
Hotels	56
Insurance	55
Manufacturing	70
Retail and Distribution	73

The following sections discuss the main features of the domestic and the export segments of this industry, respectively.

(a) *Domestic Software Industry*

It is difficult to reliably estimate the value of the domestic software industry due to the high share in in-housed software development. However, estimates by NASSCOM indicate that excluding in-house software development, the domestic software industry was worth Rs. 35.1 billion in 1997-98 with a growth rate of 45.6 percent for that year. The industry is expected to gross Rs. 52 billion in 1998-99 and to grow at more than 50 percent per year in the coming years.¹

The domestic software industry has matured significantly in recent years. According to a NASSCOM study, during 1997-98, over 113 new software products were launched by domestic software companies and over 140 new software products were launched by overseas companies in the Indian domestic market. The breakdown of activities within the domestic software market also indicates the level of maturity that has been realized. For instance, there was a 45 percent increase in the CAD/CAM software market; an 81 percent increase in the ERP solution market; a 28 percent increase in the sale of RDBMS Packages; a 37 percent increase in the sale of financial accounting packages, and a 65 percent increase in the sale of networking products. Strict implementation of the copyright act and more stringent control of piracy are likely to further strengthen these segments of the domestic software market.

The composition of activity in the domestic software industry is provided in the table below.

¹ Such rapid growth is expected as a result of amendments to the Copyright Act and its rigorous enforcement, increased spending on IT following the IT task force recommendations, and due to zero duty on software imports.

SOFTWARE ACTIVITY	DOMESTIC SOFTWARE	
	Rs. Million	Percentage of total
Projects	10,039	28.36%
Professional Services	1,440	4.1%
Products & Packages	18,552	52.0%
Training	2,140	6.1%
Support & Maintenance	1,123	3.2%
IT Enabled	2,106	6.0%
Total	35,100	100%

Although products and packages dominate, the trend in recent years has been increasingly towards project related activities.

Projections for the domestic software market in terms of turnover and segment wise breakdown of activity are provided below:-

DOMESTIC SOFTWARE MARKET (PROJECTIONS)				
Year	1998-99	1999-2000	2000-01	2000-02
Domestic Software Market in India	5,200	8,200	13,500	20,000

DOMESTIC SOFTWARE PROJECTIONS: Segment wise Projections				
YEAR	1998-99	1999-2000	2000-01	2001-02
Projects	1610	2700	4860	7200
Products & Packages	2700	3940	5450	7600
IT Enabled	415	660	1630	2800
Support & Maintenance	210	410	810	1250
Training	265	490	750	1150

(b) *Software Export Industry*

The Indian software export industry has likewise witnessed impressive growth rates. Its exports have incased several folds from a mere Rs. 0.30 billion in 1985 to Rs. 65.3 billion (or \$1.8 billion) in 1997-98. There was a 55 percent increase in export earnings in dollar terms between 1996-97 and 1997-98 alone. Exports are expected to be worth \$2.1 billion in 1998-99 and to reach US\$ 4.0

billion by 2000 and US\$ 9.5 billion by 2001-02. Most of the marketing by Indian software vendors operating in the export market depends upon direct marketing to end-users, although increasingly, many software companies are setting up their own offices in various countries to expand their marketing networks.

In terms of the composition of software export activity, the bulk is accounted for by professional services, though projects are becoming increasingly important as is also the case with the domestic segment of this industry. The table below provides the breakdown of activity in the software export sector.

SOFTWARE ACTIVITY	SOFTWARE EXPORT	
	Rs. Million	Percentage of Total
Projects	20,570	31.5%
Professional Services	31,605	48.4%
Products & Packages	5,745	8.8%
Training	980	1.5%
Support & Maintenance	1,960	3.0%
IT Enabled	4,440	6.8%
Total	65,300	100%

There has been a significant expansion in the number of companies engaged in software exports. In 1997-98, there were 626 software exporting companies in India and is expected to exceed 750 in 1998-99. In 1997-98, more than 257 companies exported software worth more than Rs. 1 crore, 73 companies exported more than Rs. 10 crores, 41 companies exported more than Rs. 50 crores, and 13 software companies exported more than Rs. 100 crores of software. Such numbers stand in contrast to the fact that only 5 companies exported software of over Rs. 100 million in 1991-92. However, despite the growth in the size of the software export segment of the industry, the top twenty exporters (in order of revenue) still account for over half of total software exports.

The following table lists the top 20 software exporters by revenue.

RANK	COMPANY	EXPORTS 1997-98
		Rs Million
1	Tata Consultancy Services	9550.70
2	Wipro Ltd.	3889.40
3	NIIT Limited	3455.00
4	Pentafour Software & Exports	1594.26

	Limited	
5	Infosys Technologies Limited	1267.10
6	Tata Infotech Limited	1060.00
7	Satyam Computer Services Limited	891.80
8	International Computers (India) Limited	850.20
9	Patni Computer Systems Pvt. Limited	848.90
10	DSQ Software Limited	803.99
11	Mahindra British Telecom Limited	799.62
12	Silverline Industries Limited	720.22
13	Tata IBM Limited	648.80
14	CMC Limited	620.94
15	Mastek Limited	578.80
16	Siemens Information Systems Limited	554.10
17	L&T Information Technology Limited	499.30
18	Information Management Resources (I) Limited	497.74
19	Hexaware Infosystems Limited	483.50
20	Citicorp Information Technology Industries Limited	470.00

The twenty companies listed above accounted for over 60 percent of total software exports in 1997-98.

Further expansion in software exports is expected in the future. The National IT Task Force has set an annual export target of US\$ 50 billion by 2008. In order to realize these targets, both the software industry and the Indian government are taking steps to further liberalize the Indian economy, simplify procedures, deploy additional resources for technical manpower development, develop new marketing channels, and provide state-of-the-art infrastructure for software development.

There is also a growing trend towards foreign collaboration in the Indian software industry. India is increasingly emerging as a software development centre, with more and more overseas companies setting up operations in India. As there is no restriction on the extent of foreign investment in the software sector, many companies are operating in the Indian market through 100 percent equity holding, joint ventures with Indian companies, and via marketing and technical collaborations.

According to a survey conducted by the World Bank, India is the leading offshore destination for companies seeking to outsource software development or IT projects. As a result, the composition of Indian software exports has shown a clear shift from on-site exports to offshore project development, including offshore

package development in recent years. For instance, in 1988, on-site development accounted for over 90 percent of export activity in this sector. This included professional services with the majority of software exports being classified as “projects” or “professional services”. However, by 1997-98, the on-site component had declined to 59 percent with off-shore development accounting for 41 percent of export activity. VSNL and Software Technology Parks have played a very important role in offshore software development. For instance, the number of dedicated high speed (64 kbps and above) datacom links currently being used by software exporting companies are more than 590 circuits as opposed to only 10b such links in 1992. The share of off-shore services in total software exports is expected to increase further in the future given the proliferation of Software Technology Parks, liberalised economic policies in this sector, the presence of various kinds of visa restrictions by the US and many Western European countries, and improved data-communications links.

The table below provides the breakdown of software service exports in terms of value and shares for 1997-98.

TYPE OF SERVICES	RS MILLION	PERCENTAGE
On-site services	38527.00	59.0%
Offshore services	21027.00	32.2%
Offshore Packages	5746.00	8.8%
Total	65300.00	100%

Notwithstanding the shift towards offshore services in recent years, India’s expertise in ‘Professional Services’ and ‘Customised Software’ will continue to play an important role in software exports.

The main markets for India’s software exports are the industrialized countries. Six OECD countries including the US, Japan, UK, Germany, France, and Italy accounted for 73 percent of India’s software exports in 1997-98, with the US and Europe alone accounting for 58 percent and 21 percent of India’s market, respectively. More market opportunities have emerged in recent years in South Africa, Latin America, and West Asia. Exports to South East Asia, Australia and New Zealand have grown in terms of volume. The recent Asian currency crisis had a marginal adverse effect on Indian software exports to South East Asia, particularly for exports to Indonesia. However, on the whole, the crisis has not had a major impact on the total volume of exports, though it has reduced the profit margins for Indian software exporters.

The following table gives the export destinations of Indian software exports;

Country -Wise Destination of Software Exports from India (1997-98)

COUNTRY	PERCENTAGE OF TOTAL	EXPORT REVENUE (IN RS. MILLION)
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Australia & New Zealand	1.68	1,10
Australia	0.41	26
New Zealand		
Total of ANZ	2.09	1,30
JAPAN	3.56	2,30
South East Asia		
Bhutan	0.02	12
China	0.05	34
Hong Kong	0.42	27
Indonesia	0.22	14
Nepal	0.06	41
Philippines	0.31	20
South Korea	0.71	46
Singapore	2.53	1,60
Sri Lanka	0.07	23
Malaysia	0.65	42
Taiwan	0.10	68
Others in South East Asia	0.27	17
Total of South East Asia	5.77	3,70
Europe		
Greece	0.07	47
Ireland	0.71	46
Russia	0.20	13
Luxembourg	0.31	20
Portugal	0.07	46
Austria	0.21	14
Belgium	0.61	40
Cyprus	0.13	82
Denmark	0.39	25
Finland	0.38	24
France	0.78	51
Germany	4.00	2,60
Italy	0.50	32
Netherlands	0.94	61
Sweden	0.39	25
Switzerland	1.99	1,20
UK	7.74	5,00
Others in Europe	1.50	97
Total of Europe	20.92	13,60
West Asia		
Bahrain	0.13	85
Israel	0.19	12

Kuwait	0.08	50
Muscat	0.08	55
Oman	0.11	70
Qatar	0.15	10
Saudi Arabia	0.46	30
UAE	0.77	50
Others in West Asia	0.13	82
Total of West Asia	2.10	1,3
North America		
Canada	2.30	1,50
U.S.A	58.30	38,0
Total of North America	60.60	39,5
Rest of the World		
Argentina	0.12	80
Barbados	0.11	70
Brazil	0.23	131
Chile	0.10	68
Ethiopia	0.10	68
Jamaica	0.58	381
Kenya	0.40	262
Malawi	0.09	62
Mauritius	0.52	340
Mexico	0.38	250
Mongolia	0.05	32
Nigeria	0.05	31
Peru	0.10	64
South Africa	0.89	580
Tanzania	0.15	100
Uganda	0.17	109
Venezuela	0.21	140
West Indies	0.19	126
Zambia	0.10	65
Zimbabwe	0.08	51
Others in Rest of the World	0.35	220
Total of the Rest of the World	4.96	3,2
TOTAL WORLDWIDE	-	65,3

In the near future, it is expected that India will strike many joint ventures and strategic alliances with software companies in Europe, which will further promote software exports to European countries. NASSCOM, under the aegis of

Ministry of Commerce, Government of India had initiated a project titled NASSCOM's India-Europe Software Alliance (NIESA), which is partly funded under the ECIP Facility 1 Scheme of the Commission of the European Communities. Phase I has been successfully completed and phase II has been launched. Over the next two years, software exports to many Asian countries and Australia is also expected to increase. New markets are being actively sought, including the markets of Korea, South Africa, Latin America and some countries in the Asia-Pacific region. However, the US is likely to remain India's largest software export market, though exports to this market may be adversely affected by the limited quantity of visas issued per year relative to demand.²

The projections for the earnings from software exports and segment wise breakdown in software export activity are provided below:-

SOFTWARE EXPORT INDUSTRY (PROJECTIONS)				
Year	1998-99	1999-2000	2000-01	2000-02
Domestic Software Market in India	11,000	17,500	26,500	40,000

SOFTWARE EXPORTS: Segment wise Projections				
YEAR	1998=99	1999-2000	2000-01	2001-02
On-site Services	6,380	9,975	14,575	20,000
Offshore Services	3,740	5,950	9,275	14,000
Products & Packages	880	1,575	2,650	6,000

1.3 Strengths, Opportunities, and Challenges

The rapid growth in India's software services sector discussed above is due to a variety of reasons. The most important factor is India's large pool of skilled and low cost labor. With over four million engineers, India ranks second only to the United States in its population of English-speaking technical personnel. According to NASSCOM, the number of software professionals employed by the Indian software industry has grown from approximately 56,000 in fiscal 1990 to approximately 200,000 in fiscal 1998. In addition, India has more than 1,800 engineering colleges and technical institutes to produce approximately 68,000 graduates annually in IT. This sizable pool of IT talent in India is available to companies worldwide. Moreover, according to Software Productivity Research, the average annual wage for software professionals in India is approximately 15 percent of the average U.S. wage rate. This differential remains significant at 1/3rd of comparable US compensation even if one compares costs fully loaded

² Software professionals enter the US on an H-1B visa. Although the world-wide cap on this visa has been increased by 14,200 for the 1997-2000 period in view of the Y2K problem, demand for visas is far greater. For instance, in 1997, the world-wide limit of H-1B visa was exhausted in August and no fresh H-1B visas were issued in September 1997. More discussion on visa restrictions is provided later in the paper.

(including setup and travel costs). Despite rising wages for software professionals in India, the cost differential is likely to remain in the near future giving India a continued competitive advantage in this sector. Moreover, Indian software professionals are reputed for their flexibility with regard to the use of new technologies.

A second key factor driving the Indian software market is the capability of Indian IT firms to produce high quality software deliverables. A NASSCOM analysis of international quality standards of the top 300 Indian software companies showed that 109 companies had already acquired ISO 9000 or SEI certification, with an additional 76 anticipated to acquire ISO 9000 or SEI certification by December 1999. In addition, the majority of companies use state of the art technologies. These capabilities have led to the recognition of India's IT talent by companies worldwide. To take advantage of India's high quality IT services and attractive prices, companies worldwide have outsourced their software services needs to India unrestrained by distances or transportation limitations that often handicap Indian manufacturing firms. In fact, the 10 to 12 hour time difference between India and its largest market, the United States, allows work to be carried on by Indian teams on a 24-hours basis, shortening cycle times and improving productivity and service quality.

The final factor driving the Indian software market is the recognition by successive Indian governments of the importance of the IT sector in the Indian economy. In 1991, the Government of India introduced a number of measures to liberalize the economy. These measures included policies to stimulate investment in the Indian software industry. The Government of India established the National Task Force on Information Technology in April 1998 to recommend a policy regime to increase India's IT exports. In addition, software firms benefit from a variety of non-fiscal and fiscal incentives, such as relief from import duties on hardware, 100 percent tax exemption on earnings from software exports or data transmission exports, a high depreciation rate of 60 percent on IT products, infrastructure support for companies operating in Software Technology Parks, and offshore development via datacom links which save time and money. Other important government initiatives include establishment of venture funds to ease access to capital, permission for dual listings of Indian IT software companies on both Indian and overseas exchanges, and permission to Indian software companies to link employee stock options with existing ADRs/GDRs.

India has immense opportunities to expand its presence in the global software services market. These stem from both external and internal factors. For instance, India has tremendous scope to expand its exports of products and move away from its present dependence on professional services which is subject to more entry barriers. This scope is indicated by the fact that its present share in the global software products markets is less than 1 percent while its share in the global professional services market is 18.5 percent. Therefore, the potential in the product market is yet to be tapped. Similarly, there is tremendous scope for India

in exploiting outsourcing opportunities in the global market. Global outsourcing in 1997 totaled US\$ 77 billion. A recent survey indicates that more than 55 percent of the Fortune 500 companies are likely to outsource some part of their application of development and maintenance activities by the year 2000. India stands to gain from the latter phenomenon. There are also export opportunities arising from the growth of IT enabled services. NASSCOM estimates that IT enabled services like medical transcription, data entry, web-designing, etc. will amount to US \$10 billion providing employment to more than 1 million people in next 5 years. The growth of domestic demand in the PC and internet markets will further stimulate growth in the Indian software industry.³

2. External and Domestic Constraints to Software Services Exports

There are a variety of barriers in India's main software export markets which adversely affect its exports of software services. The most binding of these constraints relate to labour market and immigration rules and conditions that affect the movement and presence of natural persons in the software sector. Such constraints are important given that India relies heavily on the mobility of its software professionals and on-site delivery of such services. These external constraints can be classified into four categories. These include:

1. Restrictions on the movement of natural persons especially as concerns the granting of visas and work permits. These include:
 - Compulsive mandate in utilising local service persons
 - Extensive advertisement of the position in the region before allowing application for a work permit/visa by a foreign national
 - Quantitative limits on the number of visas issues
 - Stringent preconditions for issuance of work permits/visas
 - Limits on the duration and conditions of stay and transfer of employment
 - Procedural problems in the issuance of work permits an visas
2. Wage parity requirements
3. Requirement to pay social security taxes or charges
4. Problems with recognition of qualifications and work experience

It is to be noted that all of the aforementioned constraints relate to the physical movement and stay of software service providers. For instance, the wage parity requirement and eligibility criteria concerning qualifications and work experience affect the issuance of visas and work permits and thus translate into barriers to the movement of natural persons. The following discussion highlights the nature of the above constraints in the case of the US and some EC countries. Although all these barriers fall under the larger umbrella of "movement of natural

³ The PC market in India is estimated to be growing at about 40 to 50 percent per year.

persons", they are discussed separately as they constitute effective independent barriers and are important issues for negotiation in the upcoming round.

2.1 Restrictions on the Entry and Stay of Natural Persons

(i) *Restrictive eligibility conditions for applications of work permits/visas*

All the industrialized markets to which India exports software services require work permits/visas for foreign nationals. The main problem that arises in this regard are the preconditions that must be met before applications for work permits can be submitted and such permits issued. In general, the entry norms prescribed for the service personnel are very prohibitive and hinder the employer from choosing his desired kind of service provider. Also the individual service provider cannot file the application on his own. The application must be filed on his behalf by the prospective employer.

The preconditions for submitting work permit applications clearly favour hiring local persons over foreign nationals. Employers are required to demonstrate an extensive search for a local person before hiring a foreign national and to justify recruitment of a foreign service provider. For instance, all the EC members have entered into a labour integration agreement whereby they are obliged to first seek a person from the European Economic Area (EEA) countries before filling up the position with a service provider who is not an EEA national.⁴ EC employers are subject to stringent advertising requirements to solicit service persons from the EEA countries before they can apply for a work permit for a non-EEA national. In this regard, they must report the vacancy to the local employment service requesting a search within the EU countries. Employment acts in some countries further specify the various means by which such search should be conducted in the resident labour force, including use of advertising, use of the employment service, and internal or external training.⁵ The employment service conducts searches using the European Employment Services (EURES) placement network. Only if these methods fail, a work permit application may be submitted for a foreign national after four-five weeks of initiating the search.⁶ The employer is required to show at the time of submitting the application that no suitable candidate is available from the EEA resident labour force and that training is not a realistic option.⁷

Such preference for hiring local residents over foreign service providers is also present in the US legislation. For instance, the new H-1B legislation in the US requires certain employers, called 'H-1B dependent employers' to advertise

⁴ The EEA comprises: Austria, Belgium, Denmark, Eire, Finland, France, Germany, Greece, Holland, Iceland, Italy, Liechtenstein, Luxembourg, Norway, Portugal, Spain, Sweden, UK.

⁵ The Netherlands Aliens Employment Act for example requires employers to use all these means to employ from the resident labour force.

⁶ Moreover, the advertisements cannot be too old as they are then considered to be 'Out of date' and unacceptable.

⁷ There are penalties for hiring foreign nationals without a work permit. For instance, in the Netherlands, violations are subject to a fine of up to NLG25000 per employee detected. The employer can also be required to pay the illegal employee six months wages at the approved rate and the employee faces deportation.

positions in the USA before petitioning to employ H-1B workers for those positions.⁸ Also, for those filing under H-2B visas (non-specialty occupations) there is a time consuming labour certification and search requirement to demonstrate that qualified candidates are not available for the position within the country.

The advertising and search requirements tend to discriminate more heavily against middle and lower level software professionals such as programmers or 'keyworkers'. For instance, in the UK, applications for keyworkers are only approved when the jobs of other people depend upon their employment and the advertising norms are more stringent.⁹ Even once the candidate is hired, he is expected to train an EEA national to replace himself/herself and can stay in the UK for a limited period of three years only. Thus not only are there search related barrier to entry, but additional requirements favouring EEA nationals and residents over foreign service providers.

In addition to these preconditions, there are various other eligibility restrictions. For instance, a non-EEA national generally has to apply for a Temporary Residence Permit (MVV) before the employer can apply for a work permit at the local employment office. The matter is then referred to the Regional Employment Board who make a recommendation to the Employment Service Facilities Company (AFB). If the contract is for less than three months, employers must ensure that the candidate has applied for a visa before submitting the work permit application. There are also restrictions on the eligibility to receive work permits. For instance, some EC countries issue work permits only to persons aged between 18 and 45 (65 for short-term contracts) years of age.

The eligibility conditions are also biased towards certain classes of software service providers. For instance, they are more stringent for IT professionals such as systems analysts and programmers where India has a comparative advantage as opposed to managers and senior executives where India's main export prospects do not lie. To demonstrate the point, one can consider the tiered system of work permit application in the UK. Tier 1 applications are filed for higher level persons such as directors, senior executives, and intra company transfers. Since it is recognized that absence of such managerial level staff can adversely affect the competitiveness of local employers, permits for such foreign service providers can often be obtained in under a month subject to the position and person meeting certain conditions on salary, the importance of the position, and investment.¹⁰ In effect, these conditions amount to a discrimination in the work permit issuance

⁸ H-1B dependent employers are defined as those having more than 15% of their employees in H-1B status (for firms with over 50 employees-small firms are allowed a higher percentage of H-1B employees before becoming 'dependent').

⁹ The advertisement must be placed both in the relevant trade press ('Computing' or 'Computer weekly') and the 'EEA circulated' national press. As with other work permit applications, the employer is then given four weeks to gauge the response of the domestic labour market.

¹⁰ It is required that the position attract a salary in excess of 50,000 p.a. and be at board level 'or equivalent' with daily input into the direction of the company at a strategic level or that the position be that of a high-level executive linked to inward investment of over 250,000 in the UK, or that the position be a senior one that is filled by a high-level employee of a foreign branch of the company (or of a related company).

process such as systems analysts who are very important in the industry but who do not meet these conditions.¹¹

(ii) *Restrictive procedures in issuance of work permits*

Further to the aforementioned eligibility issues, procedures for the issuance of work permits further impede entry of foreign software service providers to the developed countries. Most important of these procedural issues is the cumbersome nature of the work permit application itself. In some EU countries for instance, the application must contain:

- Exhaustive details regarding the employer, the number of staff currently employed and a certified copy of the employer's entry at the Chamber of Commerce;
- A declaration from the employer that describes the vacancy, a detailed description of the job and conditions of service, the skills/qualifications required and why, any investment that is planned when the position is filled, details of the any EEA residents' jobs that will result or be safeguarded by filling the position, efforts that have been made to fill the position, efforts that have been made to fill the position from the resident labour market including copies of any advertisements that have been placed in this regard and any responses to the above advertisements (or other recruitment methods).
- The candidate's personal details, information on his experience, skills, and training that make him suitable for the job, copies of the candidate's passport, proof of application for temporary residence permit or visa, details of any previous work in the host country, and accommodation proposals (often employers are responsible for arranging for suitable accommodation for the candidate).

Some of the procedural elements listed above are very time consuming and burdensome. A brief discussion of the US filing requirements demonstrates this point. For instance, US employers filing for H-1B visas must first obtain information on the "prevailing wage". This is done by applying to the "Prevailing Wage Unit" of the local State Employment Services Agency, which has specialised knowledge of the local labour markets, or by referring to other authoritative sources such as industry reports. The process of filing for such information and receipt can take upto two weeks.¹² Following this procedure, the employers must file a Labour Condition Application (with all required details of the job) with the

¹¹ Systems analysts generally do not command salaries in excess of 10,000 and hence stand barred from this category of work permit applicants.

¹² Once the prevailing wage is determined, the employer must pay at least 95% of this rate. This matter is further discussed in the section on wage parity requirements.

regional office of the US Department of Labor.¹³ This process is very bureaucratic. In the final stage, the employer must file the I-129 Petition for a Non-Immigrant Worker with the appropriate regional INS Office. Depending on the region, the kind of onerous procedures involved in hiring foreign service providers and the disincentives that arise due to costs and delays incurred in the process.

Only once all these procedural requirements are satisfied, are work permits/visas issued which range in their duration.¹⁴ The overall process is lengthy and cumbersome, taking about ten weeks to fill a position in the case of EC countries and about two to three months in the case of the US. Since the computer services industry is required to ship people onsite at short notices, such long and tedious work permit/visa issuance processes are a major problem for the industry and can lead to the loss of opportunities and business. This is a major impediment to the smooth flow of exports of software services to the developed countries.

It is to be noted that there are certain visa categories for which the procedures are less cumbersome, such as in the case of L-1 application.¹⁵ However, this facility is only relevant to large companies, which have at least a minimum of thirty employees from the resident labour force. Hence, its utility is limited to the big Indian software service companies which have a branch or a subsidiary in the USA but not to the bulk of the Indian software companies that are too small and capital strapped to have a branch or office in the US. Such companies have to apply under the H-1B quota system which is uncertain, time consuming, and difficult.

There also quantitative limits on visas in important markets such as the US which further add to the procedural difficulties. For instance, the US puts a cap on the number of H-1B visas (the most important visa for persons who wish to expend services to clients onsite in the US). The normal limit on such visas is 65,000 that has been raised to 1,15,000 temporarily in view of the Y2K problem.

(iii) Restrictions on stay of natural persons

The restrictive measures applying to natural persons also extend beyond the point of entry into the developed country. Many of these restrictions affect their actual presence and conditions of stay in the host country.

One such problem concerns the transferability of work permits and mobility of the provider after he enters the host country. For instance, even when a work permit application is approved and a permit issued, it pertains only to the specific job detailed in the application. It does not allow the individual to take up any work

¹³ The Labor Condition Application process is very bureaucratic. Copies of the application must be posted in at least two places in the employer's place of business.

¹⁴ In the Netherlands for example, work permits range from long-term (of upto three years), short-term permits (of upto 24 weeks-not extendable), and conditional permits (of upto one year extendable only if conditions are satisfied)

¹⁵ Where an employer has successfully filed for blanket L-1 petitions, it need present to the local US consulate only details and documents relating to the candidate. General corporate requirements are treated as being satisfied when the INS considered the initial filing for blanket L-1 petitions.

in the host country restricting mobility of the service provider. In the UK, if a software house wants to move a candidate to a new project based at a different site not originally mentioned at the time of the work permit application, it must first obtain permission from the OLS. Such applications have to be accompanied by details of the new project/client and, where appropriate, any relevant contract documents. Where there is a likelihood of a candidate needing to move between different clients, or between client and proprietary projects, it is important to draft the initial work permit application in a way that explains all the projects envisaged so as to remove the need for future applications to the OLS when the candidate switches projects. While such provisions are intended as safeguards, they limit the flexibility of moving service personnel to various client sites to render the service and act as a disincentive to hiring foreign nationals.

There are also limits placed on the duration of stay for software service providers. Work permits or visas are valid only for the specified duration which in turn depends on the nature of the position, the candidate's skill level, and other criteria. For instance, permits for keyworkers in the UK are not normally issued or extended beyond 3 years. The latter restriction ensures that a keyworker will not remain indefinitely in the country and thus helps promote a scheme whereby the keyworker is required to train an EEA national. Likewise, start-up companies in the UK are generally not granted work permits of more than 18 months duration. Although these permits are extendable, extensions are subject to stringent conditions.¹⁶ This in effect acts as a disincentive to start up companies to hire foreign nationals and forces them to use local persons who may be in short supply and costlier. Likewise, in the US, there are limits on the duration of stay of Foreign Service providers. Initial H-1B visas can be granted for a period of upto three years and are extendable upto a maximum of six years.¹⁷

Moreover, there are also renewal and extension fees that are used as disincentives to employing Foreign Service providers. For example, in the US, all new H-1B petitions and first extensions of H-1B's require a fee (in addition to the usual filing fees) of US\$500. What is even more visibly protectionist about such renewal schemes is that the fees collected are used to fund a training program for resident US workers.

2.2 Wage Parity Requirements

The conditions for filing work permit/visa applications also stipulate a wages paid to foreign software service providers must be the same as wages that would have been paid for a local person in the same position and with similar qualifications. The principle underlying the wage parity requirement is that overseas nationals are to be hired to address the shortage of suitably qualified software service providers in the host country and not to save money by hiring cheap labour from abroad. However, the wage parity requirement is a major

¹⁶ For instance, copies of the first year's audited accounts need to accompany the application for extension.

¹⁷ Those wishing to remain in the US for more than six years may, while still in the US on an H-1B visa, apply for permanent residence (the "green card").

barrier for Indian software service professionals as it negates the cost advantage they have over their counterparts in the developed countries.

As noted earlier, in the US, the employer is required to obtain prevailing wage information from authorities or other sources and pay at least 95 percent of this wage rate to foreign candidates. In the EEA countries, wage rates paid to foreign candidates must be in line with the rates that have been set by collective labour agreements. Work permit applications are normally refused if the candidate is shown to be earning less than the minimum agreed wage for the type of work specified.¹⁸ In the UK, the employer is required to state the minimum salary that is guaranteed to be paid to the candidate. This is done to ensure that the domestic employer pays at least the going rate. Even in the case of training permits such as the TWES Permits in the UK, recent legislation requires such candidates to pay in line with pay scales of resident workers doing the same work. In most countries, failure of employers to comply with the wage legislation can create problems in receiving future work permits. For instance, in the Netherlands, police and inspectors of the Ministry of Social Affairs and Employment can and do visit employers unannounced to monitor compliance with wage regulations. Violations can lead to rejection of work permit applications by an employer for a period of five years and can be subject to fines. Moreover, there are also stipulations on how the salary must be paid such as under specified schemes in order to prevent misuse of the provisions.¹⁹

2.3 Social Security and other Contributions

Another factor which hurts Indian software services exports is that Indian service providers on work permits or temporary employment visas are required to make social security payments like insurance, Mediclaim and FICA taxes to the host country government. This is notwithstanding the fact that they continue to make such contributions back home in effect meaning double taxation, and the fact that they do not recover their contributions upon their return to India.

Indian companies execute many software consultancy and development activities in important markets such as the US. These services are rendered through their employees who are employed in India on a permanent basis but deputed abroad temporarily. Upon termination of the deputation, these employees return to their parent company in India. While they are on deputation to work at the client's site, their wages are paid in Indian Rupees in India. The problem is that according to legal opinion in the US, even Indian companies who are engaged in "on-site" services for software projects are liable to pay social security taxes. These are taxes payable on the gross wages paid to the employee and are essentially taxes on employment similar to the Indian laws of Provident Fund/Public Provident Fund

¹⁸ Applications are also rejected if the accommodation arrangements are unsatisfactory.

¹⁹ For example, in the UK, the sum must be paid as salary under the PAYE scheme. It cannot be paid to a candidate's own limited company which then pays a dividend rather than a salary.

and ESI.²⁰ The objective is to provide for the employee's old age, sickness, and disability. There are no exemptions available under social security regardless of citizenship or visa status of the employee or employer. It does not matter if the person is a consultant or contractor or agent as he is deemed to be an employee under US laws. These taxes are payable even if the employee does not qualify for any of the benefits available under the laws.²¹

The requirement to pay social security and other contributions to the host country in addition to meeting their provident fund and super-annuation fund deductions in their home countries is unfair on software professionals given that their services overseas are temporary and do not constitute employment for the purposes of US social Security taxes, FICA, and the like. It is also discriminatory as software services professionals from most of the developed countries do not face such double taxation due to the existence of double taxation avoidance treaties between their governments.²²

2.4 Recognition of qualifications and experience

There are also barriers in the form of discretion, non-transparency, and differential treatment in the requirements and recognition of professional qualifications and experience of software professionals. This discretion results in denials and delays in the granting of work permits and visas.

In some of EC countries for instance, work permits are normally only issued for jobs requiring high level skills. In general, the job requires a minimum of five years experience, or a degree-level qualification, followed by at least two years work experience (relevant experience gained during studies for a post-graduate qualification such as an MBA or Ph.D. may be admissible in lieu of work experience). 'Keyworkers' without such qualifications but with high-level technical skills may be employed on a temporary basis while an EEA resident is trained for the purpose. Likewise, in the US, if a person is found to be lacking in the qualifications for a specialty occupation would not be able to file for an H-1B visa. He would be considered only under an H-2B visa which would involve labor certification (an expensive and time consuming process with extensive advertising requirements).

In addition to the stipulated requirements on qualifications, another problem is that often, these requirements far exceed those actually needed for the service to be rendered. Thus in effect, the candidate's professional and educational qualifications are not appropriately recognized. For instance, programmers and systems analysts applying to enter the UK are required to have five years or more of experience in a high-level (managerial, analytical, or executive) position or a

²⁰ There are three types of social security taxes. These include FICA at 12.4 percent of the employee's wages, Medicare at 2.9 percent of the employer's wages, and FUTA at the rate of 6.2 percent of employee's wages). The cumulative impact of all these deductions as a percent of total wages works out to be 21.5 percent.

²¹ A person needs to cross the age limit of 62 in order to claim benefits.

²² In the UK for instance, the candidate must be paid as an employee on PAYE making class 1 National Insurance contributions. If the subcontracted company fails to pay all due tax and NI, the sponsor can be pursued for unpaid tax/NI.

graduate degree plus two or more years of senior post-graduation work experience.²³ Similarly, in the US, where the majority of software service providers enter under H-1B visas (designed for “specialty occupations requiring a high degree of specialized knowledge), candidates are generally required to have at least three years post-graduation experience in the occupation and a degree directly related to it.²⁴ The inherent problem with such qualification requirements is that Indian software personnel are skilled enough to render the service without supervision following 1 to 2 years of experience as opposed to two-five years required given their strong engineering base and capability to adapt to new technologies. Hence, their previous experience and qualifications are not duly recognized and discretion in according them recognition is a barrier to their entry into the developed countries.

Thus, there are significant barriers to the entry and stay of software professionals in the developed countries. These range from strict conditions for applying and receiving work permits and visas, burdensome procedures, difficult requirements on educational and work related qualifications, wage parity requirements, and social security and other charges. The objective of these restrictions is to reduce the competitiveness of Foreign Service suppliers relative to domestic service providers.

In addition to the market access regulations discussed above, there are also problems with national treatment due to regional agreements that have been entered into by many of the important software importing countries such as the US, the EU countries, and the EEA countries. Preferential treatment is accorded to regional suppliers of software services under regional agreements such as NAFTA and as noted earlier, foreign clients are therefore forced to engage or advertise for local labour before securing work permits for foreign personnel.

2.5 Domestic Constraints

The software services sector is one of the few sectors in the country that is free from various licensing and regulatory restrictions. In many states, no industrial and pollution clearance licenses are required for this industry again indicating the kind of thrust that has been given at the state and central levels to this sector. The import regime relating to this sector is highly liberal, as is the foreign investment regime whereby 100 per cent foreign investment is allowed in this industry. Nevertheless, there are some domestic factors that constrain India's exports of software services.

The most serious domestic constraint is the lack of packaging orientation. Only a few companies are engaged in shrink-wrapped software packages. Also, there is too much concentration on exports via professional services. Today, Y2K

²³ In some cases, time spent on postgraduate studies relevant to the candidate's job may be counted towards the required 2 years of work experience.

²⁴ A bachelor's degree is generally acceptable, although there are some professions where a higher degree is required. Non-graduates may be employed on an H-1B visa where they can claim to be 'graduate equivalent' by virtue of twelve, or more, years experience of the occupation.

projects represent the majority of these professional service offerings and there has been little success in marketing higher margin packaged software or IT/business consulting services which have higher margins or data processing services which carry more sustainable revenue bases.

Another important problem area is the low PC penetration rate. As of end 1998 the total installed base of PCs was about 2.8 million i.e., less than 3 PCs for 1000 people. There are also few sectors with extensive computer penetration. Another domestic constraint is inadequate infrastructure, including power problems, inadequate telecommunications facilities and poor internet connectivity. Low internet penetration is another source of weakness for the industry. As of end 1998, total number of installed Internet connections was 1,72,000, translating to about 4,50,000 users. The Indian software industry is also weak in conceiving original technology. It relies mainly on adapting and reengineering existing technologies. Lack of adequate venture capital also limits the development of the Indian software industry.

Other offshore competition is also emerging as a challenge for the industry. Countries such as Israel and Ireland pose a competitive challenge to India and are cited by many high tech companies investing abroad as good offshore sources for software development because of their highly skilled, English speaking technical labour force. The Indian IT labour market is also plagued by rising wage inflation and attrition so that it cannot continue to rely solely on cheap labour to remain competitive.

3. GATS and Software Services

3.1 Coverage of Software Services

Under the General Agreement on Trade in Services Computer Services is a sub sector of business and professional services. This sub sector includes 5 categories:-

- (a) Consultancy Services related to installation of Computer hardware
- (b) Software implementation services
- (c) Data processing services
- (d) Data base services
- (e) Other services

Notwithstanding the classification of this sector provided above, there is a lot of overlap between computer services and telecommunication services. This makes it difficult at times to distinguish the type of service that is being provided.

Computer and Related Services: UNCPC Descriptions of the GATS Sectoral Classification List Entries

W/ 120	UN CPC	UNCPC description
Ba	841	<u>Consultancy services related to the installation of computer hardware</u> : assistance services to the clients in the installation of computer hardware and computer networks.
Bb	842	<u>Software implementation services</u> : all services involving consultancy on, development and implementation of software, and defines "software" as the sets of instructions required to make computers work and communicate, which may include a number of different programmes developed for specific applications (application software) and situations in which the customer may have a choice of ready-made off-the-shelf programmes (packaged software), specifically developed programmes for its requirements (customized software) or a combination of the two. The sub-categories are:
	8421	<u>Systems and software consulting services</u> : services of a general nature prior to the development of data processing systems and applications. It might be management services, project planning services, etc,
	8422	<u>Systems analysis services</u> : include analysing the clients' needs, defining functional specification, and setting up the team, as well as project management, technical coordination and integration and definition of the systems architecture
	8423	<u>Systems design services</u> : include technical solutions, with respect to methodology, quality-assurance, choice of equipment software packages or new technologies, etc.
	8424	<u>Programming services</u> : the implementation phase, i.e. writing and debugging programmes, conducting tests, and editing documentation
	8425	<u>Systems maintenance services</u> : consulting and technical assistance services of software products in use, rewriting or changing existing programmes or systems, and maintaining up-to-date software documentation and manuals and specialist work, such as conversions
Bc	843/ 8431	<u>Data processing services</u> : or "input preparation services" include data recording services such as key punching, optical scanning or other methods for data entry
	8432	<u>Data-processing and tabulation services</u> consisting of services such as data processing and tabulation services, computer calculating

		services, and rental of computer time
	8433	<u>Time-sharing services</u> : UNCPC states that there is no clear distinction between 8432 and 8433, noting that computer time only is bought; if it is bought from the customer's premises, telecommunications services are also bought. Data processing or tabulation services may also be bought from a service bureau.
	8439	<u>Other data processing services</u> : consisting of services which manage the full operations of a customer's facilities under contract: computer-room environmental quality control services; management services of in-place computer equipment combinations; and management services of computer work flows and distributions
Bd	844	<u>Data base services</u> : all services provided from primarily structured databases through a communication network. The UNCPC specifically excludes "data and message transmission services" which it classifies under telecommunications services (as 7523) and excludes documentation retrieval services classified as library services (as 96311)
Be	849	<u>Other computer services</u> : services for which UNCPC lists two sub-categories
	8491	<u>Data preparation services</u> : services for clients not involving data processing services
	8499	<u>Other computer services n.e.c.</u> : training staff of clients and other professional services

Most of the services that are included under Computer and Related Services are unregulated in nature as a result of which sector specific limitations are extremely rare. Even where sector specific limitations are listed, they relate to commercial presence and mostly concern the type of legal entity required and restriction on foreign equity participation. "Other" market access restrictions are more applicable to Commercial presence than to any other mode of supply.

3.2 Analysis of Commitments

There are 62 countries (including the 12 EU countries as one) which have made some sort of a commitment in this sector. Of these, 52 countries have made commitments on consultancy services related to installation of hardware, 57 countries have made commitments on software implementation services, 55 countries have made commitments on data processing services, 49 countries have made commitments on data base services and 30 countries have made commitments on "other services". The table below summarizes the nature of

commitments made by countries on the various modes of supply for different subsectors within software services.

**Analysis of Market-access commitments on Computer and Related Services
(by mode of supply, as percentages of the number of schedules including
each sub-sector)**

	No. of Schedule	Cross- border			Consumption abroad			Commercial presence			Natural persons		
		F	P	N	F	P	N	F	P	N	F	P	N
A. Consultancy related to the installation of computer hardware	52	63	13	23	73	12	15	77	21	2	6	90	4
B. Software implementation services	57	60	21	19	70	19	11	68	30	2	7	88	5
C. Data processing services	55	60	20	20	71	18	11	69	29	2	5	89	5
D. Data base services	49	63	14	22	76	14	10	71	27	2	4	92	4
E. Other	30	53	40	7	57	37	7	53	47	0	0	97	3

F: Full commitment (indicated by "none" in the market access column of the Schedule)

P: Partial commitment (limitations inscribed in the market access column of the Schedule)

N: No commitment (indicated by "unbound" in the market access column of the Schedule)

Note: The figures in this table reflect only those entries inscribed under the computer services commitments in the schedules. It should, however, be borne in mind that entries made in the horizontal section of the Schedule relate to commitments made in this and all other scheduled sectors. Percentages may not add up to 100 due to rounding.

The table above indicates that for commitments on market access via cross border supply, around 60 percent of the countries have made full commitments, 22% of the countries have made partial commitments, while 18 percent have made no commitments at all. Specifically, important countries such as Australia, the European Community, United States of America, New Zealand, Japan, and Malaysia have made full commitments. However, there are several countries such as India and Thailand that have not made any commitments in this mode.

Looking at the market access commitments under mode 2 or Consumption Abroad, one finds that 70 percent of the countries have made full commitments, while 31 percent of the countries have made partial commitments and the remaining countries have made no commitments at all. As with Cross Border Supply, again most of the major WTO member countries such as Australia, Malaysia, Hong Kong, Japan, USA and the European Union have made full

commitments in this sector. However, India again is among the few countries that have left this mode of supply unbound.

Looking at the third mode of supply i.e. Commercial Presence, one finds that 68% of the countries have made full commitments in all the sectors, 31 percent of the countries have made partial commitments and only 1 percent have made no commitments at all. Australia, Hong Kong, New Zealand, Japan, USA and European Union are some of the major countries that have made full commitments in this sector. Some of the other countries like Mexico, Malaysia and India have made partial commitments in this sector. Malaysia has allowed Commercial Presence but only through a locally incorporated joint venture corporation with Malaysian individuals or Malaysian controlled corporations or both and the aggregate foreign shareholding in the joint venture corporation shall not exceed 30 percent. Mexico has insisted on foreign investment up to 100 percent of the registered capital of the enterprise. India has allowed Commercial Presence only through incorporation and with foreign equity participation not exceeding 51 percent.

Finally, in the case of mode 4 or the Presence of Natural Persons, only, 5 percent of the countries have made full commitments. As many as 91 percent of the countries have made partial commitments and only 4 percent of the countries have refrained from making any commitments. Within the four modes of supply, this is the most important mode of supply for countries like India which have a large pool of skilled manpower. In this mode, most countries have referred to their horizontal commitments. Therefore, it is necessary to look at the horizontal commitment schedules of selected countries.

In their horizontal commitments, most countries have resorted to quantitative restrictions on measures concerning the entry and temporary stay of natural persons in various categories. If we look at most of the developed and major markets we find that there is a restriction on entry and temporary stay of managers, executives, specialists and professionals. The following table summarizes the nature of these entry and stay restrictions and indicated in the horizontal commitment schedules of selected countries.

	Country	Personnel Whose Temporary Entry and Stay is Restricts under the Horizontal Commitments of the Country
1	Australia	Executives and Senior Managers, Independent Executives, Service Sellers and Specialists
2	Canada	Executives, Managers, Specialists and Professionals
3	India	Business Visitors, Intra Corporate Transferees including Managers, Executives, Specialists and Professionals.

4	United States	Service salespersons, Intra-Corporate Transferees including Managers, Executives, Specialists, Persons engaged in establishments and in specialty occupations
5	Korea	Executives, Senior Managers and Specialists

It is important to note that to date, none of the WTO Members have listed MFN exemptions specific to computer and related services. However, given the importance of commercial presence and movement of natural persons in this sector, some of the MFN exemptions relating to these modes are likely to have an impact.

Overall, it is evident that most of the major markets for software services have been relatively liberal on market access in this sector in the case of cross border supply and consumption abroad. However, the extent of liberalization is much less significant in the case of commercial presence and the movement of natural persons, which are the main modes of supply in this sector. Hence, effectively, liberalization in this sector is limited as far as countries such as India are concerned which rely heavily on onsite delivery of computer services and the requisite liberal market access for professionals and establishments in foreign markets. The significance of the commitments is further limited by the fact that horizontal commitments which are applicable in the case of modes 3 and 4 apply mainly to senior level professionals such as managers and specialists (the class termed intracorporate transferees) and not to middle and lower level software professionals where India's comparative advantage and interest really lie. This implies that the entry and stay restrictions on professional mobility discussed earlier in section 2 have not been removed under the earlier round of commitments and the nontransparent and discretionary barriers will continue to operate in the developed country markets.

It is also important to note that India's own commitments in this sector under GATS do not amount to much. It has made few full commitments. For most of the subsectors and in the case of most modes of supply, India has left its schedule unbound. Where it has made partial commitments, the limitation is mainly in the form of restrictions on foreign equity ceilings and restrictions on the movement of natural persons as indicated by its horizontal commitments. Thus, India too has not undertaken much liberalization in this sector and its commitments are less than the prevailing liberal environment for trade and investment in this sector within the country.

4. Strategy for Future Negotiations on Software Services

Analysis of the commitments and the earlier discussion on constraints to trade in software services clearly indicates that the main restrictions in this sector relate to the presence of natural persons in the territory of the foreign country. These measures include regulating entry of professionals in this field and prescribing qualifications and preconditions for their entry. Therefore, the main focus of future service negotiations in this sector should be to relax these restrictions and to make their application more transparent and non-discriminatory.

Given India's potential in software services and the variety of constraints to India's exports in this sector, India must press hard for further liberalization in software services under GATS. India's approach in this regard should be two-pronged. Firstly, it should press for bound sectoral commitments by important countries such as the US, the EU member countries, Australia, and Canada in the subsectors of software services covered by GATS, particularly in mode 4 (movement of natural persons) where India faces the majority of the constraints to its exports of software services. To the extent that restrictions in mode 3 prevent the delivery of software services by individual providers who are members of commercial establishments present overseas, India should also seek sectoral commitments in mode 3.

The second part of India's strategy should be to push for a multilateral framework or a set of multilateral guidelines on issues such as social security, entry and visa related regulations, recognition, and wage parity which affect its exports in this sector. The following section discusses the country-to-country as well as the multilateral strategy India must adopt in the upcoming negotiations on software services.

4.1 Sectoral Commitments in Software Services by Major Destination Markets

India's main strategy should be to press its major destination markets for software service exports (US, Canada, EU countries, Australia, selected South East Asian countries) to make binding sector-specific commitments in mode 4 rather than horizontal commitments. These commitments should be specific to the individual subsectors covered by GATS under Computer and Related Services. Furthermore, within each subsector, these commitments should be clearly laid down for detailed and well defined subcategories of service providers which are specifically relevant to the subsector rather than making use of some broad general classification of service providers that is applied across all sectors as at present.

As discussed in section 3, the majority of countries have made sector-specific commitments in modes 1, 2, and 3, i.e., cross-border supply, consumption abroad, and commercial presence (though the latter with some limitations on foreign equity

and form of establishment in several cases), but there are no sector-specific commitments on mode 4, the movement of natural persons. If one looks at the schedule of specific commitments filed by important destination markets such as the US, Canada, EU, and Australia for software services, one finds that modes 1 to 3 are subject to no restrictions, but mode 4 is *unbound* except for horizontal commitments in this mode. In turn, the horizontal commitments in mode 4 apply to only to the entry and temporary stay of certain categories of service providers, namely, business visitors, intracorporate transferees (managers, executives, senior personnel), and in a few cases specialists and professionals. The category of “other personnel” is not covered by the horizontal schedules for any of the major countries. In addition, these horizontal commitments remain subject to limitations in the form of economic needs tests, national immigration laws and regulations, and criteria regarding the recognition of qualifications and work experience.

Thus, broadly speaking, there are several problems with the way the present commitments in mode 4 are filed. They are not sectoral but horizontal which detracts from their effectiveness and relevance to the needs of the particular sector as they are formulated to cater to a wide range of sectors where movement of service providers is important. They are further limited by other qualifications and conditions relating to domestic laws, labour market conditions, and standards. They are applicable to a very broad category of service provider categories which may not always be suitable to the classification needs and details required for a particular sector. Finally, the horizontal commitments in mode 4 are often vaguely worded, not transparent, and not clear in terms of their implications due to lack of information on domestic laws, regulations, and other administrative procedures of the filing country (which are not provided in the commitments). Thus, there is an element of generality, non-transparency, and lack of specificity which limits the extent of liberalization granted under the horizontal commitments in mode 4.

A closer analysis of the nature of the commitments in mode 4 by some of the major destination markets will make clear the above points and therefore the country-specific strategy India must pursue. The US has filed commitments in all the subsectors of computer and related services. There are no restrictions for modes 1 to 3, but in mode 4, the commitment is unbound for market access except as relates to the horizontal commitments in this mode. The horizontal commitment in turn is unbound for market access for mode 4. This in effect means that there is no binding sectoral or horizontal commitment on temporary market access for service providers in this sector (or any of the sectors where labour mobility is important). The categories of service providers covered by the US’s horizontal commitment include intracorporate transferees (ICTs) and business visitors. The ICT category which consists of managers, executives, and specialists is subject to conditions on the prior employment of the service provider, the nature of the job, and the knowledge and skills owned by the person. In addition, the commitment also includes specialty occupations which are subject to labour conditions, professional licensing requirements, wage parity conditions, etc. There is a three year limit on the stay of ICT persons, extendable up to two additional years. It is also important

to point out that while there are no restrictions in mode 4 under national treatment, the horizontal commitment by the US in mode 4 is unbound for national treatment. In particular, under the heading of taxes, the US horizontal schedule permits differential treatment of national and foreign service providers in the case of taxes and benefits. This in effect dilutes the sectoral commitment on national treatment in mode.

What clearly emerges from the US commitment in software services is that there is no effective liberalization on the movement of software service providers, excepting a few categories, mainly at the higher level. This liberalization is further subject to various eligibility criteria and conditions on the nature of the job, source of remuneration, prior employment, and other local labour market conditions. Discriminatory treatment in terms of taxes and benefits and other provisions is also permitted.

If one looks at the EU's sectoral and horizontal commitments with reference to software services, one finds a similar and an even more restrictive picture. The EU has made sectoral commitments on all the subsectors in computer and related services and has filed for no restrictions on modes 1, 2, and 3. However, mode 4 is left unbound excluding the horizontal commitments made in this mode. The EU's horizontal commitments in mode 4 again apply only to certain categories, namely, to ICTs (people in senior positions, in management, and with supervisory roles and special knowledge). There is no coverage of professionals and specialists. Also, all member country as well as EU regulations on entry, stay, work conditions, social security etc. continue to apply even for these included categories. On the issue of recognition of qualifications and experience, the horizontal commitment filed says that it is the prerogative of the individual member states and competent bodies in the member states to decide on this matter. Thus, the EU commitment on the movement of natural persons is too general and is not framed for the specific requirements of the software sector. It is further limited by various country and community specific rules and regulations as well as administrative procedures and formalities which are not public knowledge or provided in the schedules. So the commitments are not transparent. Moreover, the fact that member countries can decide individually on the recognition issue leaves open scope for discretion and arbitrariness in the application of eligibility criteria for entry of service providers in the software sector. There is no clear specification of the recognition conditions and criteria in the schedules. The classification of the categories is even less detailed than in the case of the US schedule as specialists and professionals which are relevant to the software sector are not separately included. This makes the EU's horizontal commitments even less relevant to the needs of the sector.

The US and EU cases clearly show the kinds of shortcomings in the present commitments bearing on the movement of natural persons which is the mode of primary concern for India's software service exports. One can conduct similar analysis of the commitments filed by Japan, Canada, Australia, and other developed country markets and the conclusions on the nature and extent of

effective liberalization that has occurred in mode 4 would be quite similar. The only difference among these various country schedules lies in slightly more or less classification of service provider categories, i.e., whether professionals, specialty occupations, and other personnel are included or not, the duration of stay, and whether additional requirements such as economic needs tests apply or not. To meet these problems in the existing schedules of software sector commitments and the relevant sections of the horizontal commitments, India must press the main export markets for its software services on several issues.

Foremost, is to try and *obtain sectoral commitments on mode 4* from the major export markets in this sector. India should press the US, Canada, EU, Australia, Singapore, Japan, New Zealand, and other developed countries which are presently/potentially important destination markets for its software service exports to make at least partial commitments in mode 4 under the sectoral schedule. The aim should be to move away from the reliance on horizontal commitments on the movement of natural persons to sector specific commitments in computer and related services.

Second, these sectoral commitments should be as *detailed and specific* as possible. This means that the countries must file mode 4 commitments under each of the subsectors in computer and related services sector, i.e., consultancy services related to the installation of computer hardware, software implementation services, data processing services, data base services, maintenance and repair services, and other services. In each subsector, countries should further specify relevant categories of service providers which go beyond the broader categorization that exists now, for instance including categories of workers such as programmers, key workers, systems analysts, technicians, consultants, etc. In particular, further subclassification is essential within certain categories such as that of professionals and specialists so as to make them specifically relevant to the individual subsectors. This would help narrow the scope for discretion and discrimination in determining the applicability of the commitments. Also, any limitations, conditions, exceptions, etc. should be clearly laid out in the sectoral schedules both for market access and national treatment rather than being broadly outlined in the horizontal schedules. Again, these qualifications/conditions should be as detailed and specific as possible to make them relevant to the individual subsectors and to the more detailed sub-classification of the service provider categories.

In addition to pushing for sectoral commitments in computer and related services, India must also press for more *specificity, and wider scope and coverage of service categories in the horizontal schedules*, especially with regard to mode 4 commitments. It would be useful to expand the categories currently covered in the horizontal schedules, in particular, to include middle level service persons such as systems analysts and programmers explicitly under the categories covered by the horizontal commitments or to permit scope for such inclusion under the broader categories by modifying some of the attached conditions. The present emphasis on ICTs and business visitors in the horizontal commitments under mode 4 and the

kinds of conditions attached to the nature of job duties and position provides limited scope to middle rung software service providers which is the main source of strength for developing countries such as India. The most effective way of addressing this problem would be to expand the coverage of the professionals and perhaps the “other personnel” categories to include such middle level positions explicitly. The sectoral schedule can then further expand on the classification as relevant to the individual subsectors. Specific categories of interest to India in the software sector include key workers in the EU and speciality occupation persons in the US.

In essence, it is suggested that the horizontal and sectoral commitments on mode 4 supplement one another rather than one standing for the other as at present. The horizontal commitments should cover a wider range of service provider categories than at present, going beyond the management and specialist type of emphasis to middle level professionals and other technical support personnel who may not necessarily meet the ICT type conditions. The sectoral commitments should provide more detailed classification within the categories covered by the horizontal schedules making them as relevant and specific as possible to individual subsectors within the overall sector. It is also important that inconsistencies between horizontal and sectoral commitments be removed. The idea should be for the horizontal commitments to provide the broader umbrella within which the sectoral commitments would fit. The horizontal commitments should not dilute what has been offered under the sectoral commitments, as in the case referred to above for the US’s commitment on national treatment with regard to taxes.

In addition to pushing for specificity, detail, and finer classification in the horizontal and sectoral schedules, India must also press for greater transparency in these schedules. One main way of achieving this would be to urge countries that are important export markets for India’s software services to attach an annex to their horizontal and sectoral schedules with general and sector-specific background information on all relevant laws and regulations, recognition criteria, labour market conditions, and administrative formalities, respectively, that are referred to/indirectly relevant to their schedules. There should also be some mechanism to update these annexes with latest revisions in domestic laws and regulations. This is especially relevant to the case of the EU where in addition to the EU schedule, member country as well as EU laws and labour market conditions continue to apply. This leads to such a plethora of complex rules and regulations on entry, stay, licensing, etc. that it is not possible for an individual service provider to be conversant of all the qualifications to the commitments filed. An annex disclosing all relevant information and updates of the same would be very useful and would increase transparency of the commitments.

Thus, for most of the developed countries where India has an export interest, the objective would be to:

- (a) Press for sectoral and subsectoral rather than horizontal commitments on mode 4
- (b) Expand the scope of the horizontal and sectoral commitments on mode 4 through finer classification categories for service providers;
- (c) Focus on easier entry for specific personnel categories of interest in this sector;
- (d) Lay out clear and transparent subsectoral provisions and conditions and narrow the scope for discretion.
- (e) Press for liberalization on entry and stay for middle level professionals and technical support personnel providing software services
- (f) Insist on public disclosure of information on domestic laws and regulations, labour market conditions, recognition, etc.
- (g) Aim for greater complementarity rather than substitutability between horizontal and sectoral commitments on mode 4.
- (h) Remove inconsistencies between commitments filed in sectoral and horizontal schedules

In addition to the suggestions above, India should seek the following commitments from some of its important markets. These are listed below:

Canada – Ask for commitments in all the subsectors (at present Canada has filed a sectoral commitment only for subsector (a), consultancy services related to the installation of computer hardware). More categories of software service providers should be covered, including middle level and technical personnel. This should be included under the headings of professionals and other persons or in the sectoral schedule where relevant.

US – Either specialty occupations should not be subject to labour condition applications, professional licensing requirements, and other conditions mentioned in the horizontal schedule of the US or only a subset of specified specialty occupations should be subject to these conditions. The sectoral schedule for computer and related services should make clear which positions fall under specialty occupations to remove discretionary possibilities and misapplication of the attached conditions from the horizontal schedule. The categories of service providers should be expanded to include other persons and professionals in addition to ICTs, business visitors, and specialty occupations. The inconsistency between the sectoral and horizontal schedule on national treatment, especially in the area of taxes and benefits should be removed. National treatment commitment on mode 4 should be bound in both schedules.

EU – The EU horizontal schedule must have a wider coverage of service categories, including professionals, specialists, and other persons to give scope for entry by a larger range of software service persons. Criteria for the recognition of standards and qualifications should be clearly specified in the schedules rather than being left to the competence of individual member states. Individual member state laws and regulations on entry, stay, social security, etc. should be published and

made available with the schedules. It is better if there is a common EU stand on matters such as entry, taxes, recognition rather than having both an EU level and individual member state level condition attached as it is difficult to know which supersedes and makes it difficult to gauge the implications of the commitments.

Australia – The Australian offer is more generous than for most of the other developed countries as it covers more service categories and spells out more clearly the nature of the limitations and conditions attached. However, the requirement for specialists to comply with labour market tests should be removed or at least the conditions for exemption in terms of minimum qualifications and experience could be laid down. A blanket requirement for such tests of all specialists is too restrictive and leaves room for discrimination in applying these conditions. There is also scope to get a commitment on database services for which Australia has not filed any commitment. Again, as with the other countries, the coverage should be expanded to include middle level professionals and technical support personnel, programmers, etc.

New Zealand – The requirement for labour market tests for specialists should be removed or certain categories of specialists should be exempt and the criteria for exemptions and application of the labour market test should be clearly specified.

4.2 India's Commitments in Software Services

India's demands for the commitments suggested above should also be supported by commitments on its own part. As noted in section 3, India has left modes 1 and 2 unbound, made a partial commitment on mode 3 with a requirement of 51 percent foreign equity participation, and has left mode 4 unbound. India should make full binding commitments on modes 1 and 2 as has been done by most countries filing commitments in computer and related services. In mode 3, India should move from a partial to a full commitment and remove the limitation on foreign equity participation in view of the fact that the current foreign investment and trade policies pertaining to the software sector are highly liberal. It is feasible to consider 100% foreign equity participation which would increase the scope for joint ventures and collaboration with foreign companies and facilitate technology transfer. Therefore India should at least bind the status quo for mode 3. Under mode 4, India should make a sectoral commitment rather than leaving it unbound except for the categories covered under its horizontal commitments. The categories covered by the horizontal schedule should also be expanded beyond those of business visitors, ICTs, and professionals to also include the category, other persons. The main thing to note about India's commitment in software services is that it is more restrictive than the status quo and so there is room for making a more liberal commitment in all four modes of supply.

4.3 Issues for multilateral/bilateral discussion

It was discussed earlier that there are a variety of barriers which affect software service exports from India. The most important of these barriers include restrictions on entry and stay by software service providers in overseas markets, wage parity conditions, double taxation, labour market and economic needs tests, and conditions for recognition. The preceding discussion has outlined ways in which some of the barriers to entry and stay can be relaxed through more specific and transparent sectoral commitments. However, in addition to refining the existing setup of horizontal and sectoral commitments, there is a need to press for multilateral guidelines and disciplines to regulate the use of some of the aforementioned nontariff barriers. India must push for a multilateral discussion in these areas, not merely in reference to the software sector but also more generally to all sectors where movement of service providers is relevant. However, it must be noted at the onset that many of the multilateral and bilateral issues discussed here will be really enforceable and effective only if the kinds of specific and transparent sectoral commitments outlined above are realized. Also, many of these issues for multilateral discussion and the multilateral frameworks and guidelines suggested below really do not stand alone. They are really a subset of a larger proposal for a multilateral framework on the movement of natural persons, to be discussed in a separate paper.

(a) *Separate temporary from permanent movement of labour*

There should be a separation of permanent and temporary entry and stay of professionals providing services. Software professionals seeking to enter an overseas market should not be subject to immigration rules and procedures in the foreign country and should be treated as a separate class of entrants. For instance, provision of software services by persons deputed abroad should be treated as deployment and not employment and therefore a visa such as the H-1B in the US, which is an employment visa should be ended. This would reduce the administrative burdens and delays they face in obtaining work permits and visas. It would also mean that entry would no longer be bound by the broad visa classification categories of the destination countries and terms and conditions of entry could cater to the specific needs of professional categories that are relevant to the sector.

Some consideration could be made to grant a separate class of visas that is multilaterally accepted and which is only for temporary service professionals. For instance, there could be a *GATS visa* which is given to software service providers entering a foreign country if the latter country has filed a sector specific commitment in software services under mode 4 which covers that category of service provider. This makes the specificity, finer classification, and sectoral commitments mentioned above all the more important. While the issue of separating temporary from permanent labour needs to be discussed bilaterally with countries of interest in terms of the changes that would be required in immigration

and labour market regulations, it is also an issue that needs to be discussed multilaterally to develop guidelines.

The GATS visa would be like a passport for service providers whenever there is a sectoral commitment filed by the host country for modes 3 or 4 that is relevant to that category of service personnel. There can be conditions attached to the issuance of the GATS visa but these should not be more onerous and restrictive than those already specified in the sectoral schedule. The first time validity period can be limited so as to introduce some kind of safeguard mechanism to prevent misuse of the visa and entry into the permanent labour stream of the host country. Safeguards can be introduced to prevent personnel from jumping companies, especially from domestic companies based overseas to host country companies, eventually enabling them to enter the permanent labour market. However, there should be simple mechanisms for renewal once the person is within the host country. Also, for reputed companies with a well established record in the home and host countries, company-related GATS visas could be issued on short notice to employees from these companies who are deputed for temporary periods overseas. In such cases, multiple entry visas could also be issued to avoid administrative hassles of renewal and repeated filing requirements.

There should also be some mechanism for finding out the status of applications at each stage of the visa and work permit issuance process, to question the grounds for rejection, and to have easy access to information on all administrative procedures and formalities involved in the application process. One could also consider some kind of single window clearance system as is done with foreign investment proposals in priority sectors in many countries, particularly, for business visitors and senior management professionals for whom delays in the receipt of visas and permits for such persons can mean a loss of a business opportunity altogether. In view of the problems with delays and onerous requirements associated with visa and work permit applications, the multilateral GATS-visa framework suggested above should include guidelines on the maximum processing period, a set of permissible administrative formalities and requirements, and a mechanism for notifying unavoidable delays and additional formalities. The applicant company or professional should have a forum to file complaints in the case of inordinate and unjustified delays and additional requirements and the host country would need to respond to the complaint within a specified time period. It is also important that GATS visa dependents not be discriminated against and be given easy entry into the overseas market, unlike the current stringent procedures facing H-1 B dependents. The administrative and other guidelines concerning the GATS visa should also ensure that they are not discriminatory towards the smaller and less global companies. Given all these proposals for the introduction of a GATS visa, it is apparent again is the fact that such multilateral guidelines and safeguard mechanisms can only be effective if individual member countries file sectoral commitments in mode 4 to which they can be held accountable.

Some specific recommendations in this context are:

- (i) GATS visa for temporary service professionals, including software professionals if sectoral commitments on modes 3 and/or 4 in computer and related services
- (ii) Work permits and visas within 2-4 weeks maximum (if GATS visa not possible)
- (iii) Blanket permits for some companies
- (iv) Transparent application process and ways to find status of application, rejection, requirements
- (v) One day business visitor and certain ICT category visas
- (vi) Multiple entry visas for senior executives and CEOs
- (vii) Reduced formalities and administrative requirements
- (viii) Border availability of visas
- (ix) Recourse to complaint mechanism and response

Some of the provisions in NAFTA for the cross border movement of service providers should be considered. For instance, issuance of I-94 cards at the port of entry for certain categories of software professionals, freedom from the job validation process can be considered.

(b) Finer classification and sub-classification of software service providers

The issue of classification of software service providers into finer categories and specially tailoring these classifications to the subsectors covered by GATS in computer and related services would also have to be discussed multilaterally. This would help reduce the stress on higher level and managerial persons who would more likely be affiliated with global software companies based in developed countries. The relevant bodies on software services in all member countries must provide a detailed listing of categories of service providers in software services along with the qualifying criteria. This categorization and these criteria should then be reflected in the sectoral and horizontal schedules to the extent possible. More broadly, there is need to expand the categories covered in the horizontal commitments for movement of natural persons. These broader categories which allow for middle and lower level professionals could then be supplemented by specific categories relevant to the software sector in the sectoral commitments filed in mode 4.

(c) Double taxation avoidance treaties

It was noted earlier that software professionals deputed by Indian companies for onsite services in the US are required to pay social security taxes while also being subject to employment taxes like PF, PPF, and ESI in India. They are not exempt from social security contributions and must pay irrespective of their citizenship or visa

status under “US Common Law”, even though they would not be eligible for any benefits in the future. This amounts to double taxation of their earnings.

India should push for a multilateral treaty/framework on taxes that provides guidelines for the treatment of service providers who are deputed to overseas markets with regard to taxes and benefits. The idea underlying this treaty should be to prevent double taxation of such professionals. A multilateral totalisation agreement could include the following guidelines and WTO member countries would frame their policies and bilateral agreements in accordance with the most suitable recommendations:

(i) Temporary service professionals who are subject to home country employment taxes would be exempt from taxes in the host country as long as their deputation period is less than the period required to obtain benefits in the future. For instance, if a software professional is present in the US for a period of 5 years, he should not be subject to social security taxes as he would require to make contributions for at least ten years so as to recover the benefits in the future. In the case that the service provider becomes part of the permanent labour market or seeks residence, past contributions would be calculated and deducted at the appropriate time.

(ii) Social security and like taxes would be deducted from earnings in the host country as long as the software professional (broadly all professionals) remains in the host country but the deducted earnings would be reimbursed at the time of the professional’s return to the home country. This would safeguard against cases where the software professional might become a part of the permanent labour force. In such a case where the professional takes up residence in the host country or transfers his visa to a job where permanent residence is imminent, the social security contributions made during the deputation period would not be returned.

(iii) The software professional would have the choice to select the country where his earnings would be deducted. Bilateral totalisation agreements or some regional agreement would be required for exercising this choice. In this context, India should consider signing totalisation agreements with its main software export markets, in particular, the US, UK, Canada, Australia, and other selected developed countries. As with many of the double taxation avoidance treaties that exist among the developed countries today, if the software professional is sent abroad temporarily, he would be subject to the laws of only the first contracting state as long as his deputation is less than five years. Furthermore, there would be specified rules on the provision of benefits in the future, on the eligibility period and conditions attached to receiving benefits, pro rating issues, etc. and mutual cooperation between the authorities of the two signatory countries would be essential. It would be useful for India to look at the DTATs in existence and also the tax treaties in the context of regional agreements such as NAFTA. Relevant features of these bilateral and regional agreements should be adopted by India to

frame its own totalisation agreements with our main destination countries for software services.

(iv) The multilateral framework on the issue of taxation of temporary service providers should also try to facilitate the process of framing bilateral totalisation agreements and creating scope for transitivity in the extension of exemptions from double taxation from one WTO member country to another. Although countries would want to address the issue of double taxation bilaterally through mutually acceptable totalisation agreements, the process of realizing these agreements can be facilitated by including the common features of the existing bilateral and regional DTATs in the multilateral framework on taxation of service professionals. As long as two countries wanting to enter a totalisation agreement are signatories to the multilateral framework and broadly agree with the latter's principles and guidelines, they could if they wish sign a bilateral agreement on the basis of the multilateral framework. Country-specific issues would then be worked out to finalize the agreement. One should also consider the possibility of extending existing DTATs with a member country to other member countries if the bilateral terms and the governing principles in the multilateral framework are mutually acceptable. Thus, being a signatory to the multilateral treaty would facilitate signing of bilateral treaties and introduce scope for MFN treatment. The multilateral framework should also include a mechanism for filing complaints and investigating of violations to bilateral totalisation agreements.

It should be noted that the multilateral framework discussed here would be more effective if it were part of a broader agreement on the movement of natural persons, of which tax related issues would be treated as a subset. The recommendations for the movement of natural persons will be outlined in a separate paper, but will have substantial overlap with the recommendations above.

(d) Recognition of work experience and qualifications

The scope for discretion and non-transparency in the recognition of work experience and qualifications of software service professionals (and more generally for all service professions where recognition and licensing issues are important), needs to be reduced. Some sort of multilateral framework with disciplines on recognition and licensing issues is required (again as a subset of a broader agreement on the movement of natural persons to be discussed in a separate paper). Some key elements of this framework are outlined below.

It is important to have explicit criteria and conditions for the convertibility and equivalence of work experience to academic qualifications and degrees. In many countries such as the US, on-the-job experience is not considered equivalent to an advanced degree and work experience is not convertible. Some thought should be given as to the kinds of jobs/positions and the kinds of academic qualifications that may be considered equivalent and substitutable in terms of meeting entry requirements. Without such explicit guidelines on equivalence, there

is room for discretionary treatment of those seeking entry. Competent bodies in the member countries need to provide such an equivalence list along with names of well recognized training and higher education institutes in their countries. In addition, differential treatment of the value of work experience and qualifications between foreign software professionals and domestic labour should be removed. For instance, a software professional applying for an H-1B visa may be more qualified academically than a domestic professional but may still be treated as displacing the latter, which effectively translates into differential treatment of the work experience of the foreign and domestic professional. Once multilateral guidelines on equivalence are introduced, such differential treatment would be difficult.

The multilateral framework on recognition issues should also introduce exemptions from economic needs tests and other conditions in all cases where the professional holds an advanced academic degree. At present, such software professionals are exempt from various additional provisions only if their academic degree in a specialty is directly related to the employment. Again, the determination of such direct applicability of the academic qualification to the employment has scope for discretion. It must be accepted that if the professional is highly qualified and also has an advanced degree in some specialization, then his qualification for entry should not be restricted to the nature of the job. Moreover, if such tests are used, there should be transparent criteria for their use and interpretation. Discriminatory application of such tests and violation of the stated criteria should be made subject to dispute settlement.

One can also consider the possibility of exempting all professionals from such additional provisions and conditions when they are deputed by companies with well established reputation in the home and host countries, and with sound recruitment policies. This would amount to some sort of accreditation of the larger and well-established companies by facilitating entry of their professionals (in line with the recommendation for multiple entry and blanket company visas made earlier). Of course, there is the problem of discrimination among companies and their employees as the newer and smaller companies would not qualify for such favourable treatment. However, the benefit of establishing such a system would be that professionals from some companies would be subject to minimum restrictions while professionals from other companies would benefit more generally from the various multilateral provisions being discussed in this section and would at least not be any worse off otherwise. But it is critical that the scope for discretion and discriminatory practices in the use of economic needs test be reduced. Fewer occupational categories should be subject to such tests. There should be clearly specified criteria for these tests, the application procedures, the duration or review period of such applications, administrative guidelines, public information on the requirements, and legal provisions for challenging the requirements and decisions at the national and WTO levels.

Another important issue for multilateral discussion is licensing. Where there are licensing requirements for practicing engineering specialties in the host country that are absent in the professional's home country, procedures could be developed for temporarily licensing engineers to practice in the specialty area. Countries could select specialties, which could be given priority in temporary licensing. Multilateral discussion on the subject of temporary licensing of software and other professionals, given all other qualification criteria are met, is required.

Thus, it is important to establish common standards and guidelines on the value of academic degrees and work experience and on licensing norms. If these are clearly specified in a multilateral framework or explicitly noted in the sectoral and horizontal schedules for individual subsectors under computer and related services and to the extent possible for individual service provider categories relevant to the sector, it would be a major step forward. Requirements relating to local competency exams and certification could be removed if the professional has certification in the home country from a training institute or higher learning centre that is well reputed and with good past record. In such cases, certified copies of educational and other credentials should suffice. Temporary licensing provisions would reduce the possibility of rejections for lack of certified qualifications and mechanisms in the home country.

Wage parity requirements

India should argue the unfairness of imposing wage parity requirements as it erodes the cost advantage it possesses in software and other services. However, this is a difficult issue to discuss as it gets into issues of fair wages, welfare considerations, and exploitation of cheap foreign labour and encroaches upon domestic labour laws and wage regulations that countries would not be willing to modify. Therefore, a limited approach is required to address this constraint. It can be argued at the multilateral level that employees being deputed abroad for less than a specified period should be paid their wages in the home country plus living and other required expenses (which would need to be explicitly specified) so as to ensure a fair standard of living for that specified period in the host country. The time period for the application of this condition could be 6 months or less than 1 year, whatever is mutually acceptable to the concerned countries. One could also consider a pro rating of the wage requirement depending on the period of stay overseas, with the wage and the other expenses proportionately rising with the length of stay and reaching parity upon reaching a certain time frame. The details of the pro rating and the length of the specified period would have to be determined by the two countries in question and in accordance with local living conditions, expenditures, tax and other contributions, eligibility for benefits, etc. Thus, some multilateral guidelines on remuneration of temporary service professionals working overseas could be framed within which member countries would negotiate mutually acceptable bilateral wage agreements for such professionals. What is required is a common formula for determination of

comparable wages and which categories of persons would be subject to/exempt from a wage parity requirement.

An alternative to the above suggestion and perhaps an easier recommendation to adopt for the developed countries would be to exempt certain classes of professionals, those posing least threat to the local labour force in terms of competition and job displacement from the wage parity requirement. This could include specified top management positions and CEOs, i.e., certain groups of ICT professionals. Middle level professionals and specialists could remain outside the purview of this recommendation to reduce the coverage of this exemption and thus the sensitivity of the issue.

It is also important to ensure that wage parity requirements do not impose an unnecessary administrative burden and delays in the visa and work permit issuance process. The recommendation earlier for a specified time frame for issuing visas and work permits and notification requirements for delays and additional requirements should take into account wage parity considerations. Delays/rejections on account of wage parity requirements should be open to question and complaints and would require a response within a reasonable time period from the host country.

Thus, each of the constraints discussed earlier in section 2 will have to be addressed simultaneously through multilateral and bilateral discussions. Some of the multilateral guidelines noted above on taxes, recognition, entry and stay for temporary as opposed to permanent labour will be very difficult to reach an agreement on. A practical approach would therefore be to use bilateral discussions on DTATs, recognition and licensing, on easing of entry and stay restrictions in the short run along the multilateral lines noted above, while parallelly continuing with the multilateral discussions to develop such frameworks over the medium term, by the time the negotiations conclude.

5. Domestic Reforms In the Software Sector

The Government of India has recognised the software industry to be a thrust area and high priority sector. For this reason the government has introduced several sops to promote this industry and encourage more exports. Some of the major incentives given are: -

- Income Tax exemptions allowed under Section 80 HHE of Income Tax Act for profits derived from software exports and IT enabled services
- Benefits to subcontractors or supporting developers under section 80HHE of Income Tax Act
- Zero customs duty on import of IT software

- Zero duty on imports of Capital goods with threshold limit of only Rs 10 Lakh under Export Promotion Capital Goods (EPCG) schemes at Ministry of Commerce
- Sales of Special Import License (SIL) issued against exports SIL in an open market at a premium.
- Quality certified companies to get additional SIL benefits
- ADR/GDR linked dollar stock options for software companies.
- No Sales Tax on software companies in many states.
- Liberalised regime at Reserve Bank of India (RBI), Exchange Control Manual modified for easy availability of foreign exchange.
- Rebates on the cost of High speed leased datacom links for software exporters.
- Priority to software sector by Capital and State Government.

Thus on the domestic front of the Indian Government has undertaken many measures to encourage the growth and exports of Indian software. However, it is on the external front the sector faces many problems. Indian software exports are severely constrained by non-tariff barriers like visa insurance and work permits for visiting software professionals in the principle markets of USA and Canada.

The following discussion highlights some of the measures that are required at home to overcome these constraints.

(a) Liberalising Foreign Exchange Transactions

Firstly there is need to liberalise further on capital account transactions. Although India has liberalised foreign exchange transactions to some extent on the capital account, there still exists the necessity of obtaining prior approval from the RBI for certain transactions. This, often impedes the operations of knowledge based industries such as software and also restricts the efforts to globalise.

The software industry should be allowed the free use of all foreign exchange kept in Exchange Earners Foreign Currency accounts for all current and capital account transactions without any approval from the RBI. The software exporters should be allowed to open, maintain, operate and close these accounts as long as they have foreign exchange earnings.

A second important domestic reform concerns the issue of ownership. The increasingly transnational nature of the Software industry places high demand on their agility in the global marketplace. Therefore the industry needs to be given a free hand in determining the ownership pattern of the overseas subsidiaries. The existing norm for acquisition of companies abroad (upto \$25 million) requires prior approval from the RBI. This often hinders the ability of the parent company to quickly capitalise on an opportunity where the available window of time might be small. This problem can be addressed by stipulating that companies report such transactions to the RBI, within 7 days of remittance instead of having to seek prior approval.

(b) Employee Retention Schemes

The software industry is technology intensive and knowledge driven. There is tremendous demand for knowledge workers both in India as well as abroad. Recruiting and retaining the brightest talents is a major challenge facing Indian software. Retaining such employees requires a compensation that is globally competitive and institution of schemes that enable employees to create and share wealth. An Employee Stock Option Plan has been widely accepted as an answer to this issue. In India such schemes have not taken off because of the pricing restrictions of SEBI guidelines. The tax laws too inhibit the operation of such schemes and act as a barrier. Such options must be given consideration and supported by the government.

The software sector should be free to pick stock options issued to employees. The incidence of tax on stock options should arise only on sale of stock and not on exercise of stock options. The income from such sale of stock must be taxed as capital gains and not as part of salaries. Also at present, the quantum of shares in a year under an ESOP is limited to 5% paid up capital. This provision should be replaced by a stipulation that the Board of Directors approves the limit.

(c) Administrative Reforms

Another set of measures concern the software companies that are operating under Software Technology Parks (STP) scheme. These companies are required to have their premises custom bounded and need prior approval from government agencies for duty free import of goods. The need to obtain multiple approvals from various government agencies results in considerable administrative works and delays. These units need to be provided with greater operational flexibility. The monitoring of these units should be on a self-regulatory basis and there should be minimum intervention by government agencies. Alternatively a single government agency may be designated as a single window for providing all necessary approvals and clearances.

To the extent that labour laws need to be adapted to the needs of knowledge workers such as with respect to flexible working hours or mobility, such changes in labour laws should be introduced to the software industry.

(d) R&D Promotion and Infrastructure Related Reforms

While there is no dearth of intellectual potential in India, companies need support and encouragement to make rapid advances in R&D. There is a need for government support and a conducive climate for investment in R&D activity in the software sector. The lack of infrastructure as well as capital can be partly overcome by pooling industry and government resources in order to exploit economies of scale and scope.

(e) *Telecom Related Measures*

The rapid development of telecommunications in the past decade has led to the creation of a global village. It has enabled instant communication across thousands of miles. The software sector more than any other knowledge-based industry depends heavily on telecommunications. Access to good telecommunications is extremely critical especially when companies have clients across the globe. Even though the telecom sector has shown signs of improvement in India is not at par with the rest of the world.

Therefore telecom sector reforms and improved telecom facilities are critical for improving the efficiency and competitiveness of the software sector. One specific area of reform in this regard is in telecom tariffs. As software companies start setting up multi-location development centres across states in India, these centres need to be linked up. Today such linking is available only through the use of DoT terrestrial links whose tariffs are very high. It is important that tariffs for terrestrial connectivity from dedicated links be reduced

Also software companies that are STPs/EOUs and in the DTA area, should be allowed to network their offices across the country without the payment of additional charges or creating a closed user group network and without the need for any additional approvals. These companies should also be granted special tariffs to international trunk dialing at 50% of the normal tariff. These software companies should also be allowed to lease multiple 64kbps data circuits at discounted rates for multiple units. They should be given discount by VSNL/STP/DoT for multiple links on company wide volumes rather than on location wide volumes. The discount should be based on the total usage across multiple locations by a company and should not be for individual lines so as to enable companies to expand their link facilities at reduced costs.

Sometimes the software companies are required to communicate with their customers even after regular office hours since there is a time difference of 12 hours between USA and India. Employees of KBCs should therefore be permitted to dial in to the corporate leased lines even from their residences. Connectivity between public network and private leased lines will help to boost both customer satisfaction levels and employees morale.

Even though some of these recommendations have been made by TRAI, the issue of their implementation needs to be addressed immediately. The internet has emerged as a leading source of information and also as a platform for transacting business and for disseminating information. For development of the software sector unconstrained access to the web is a critical factor. Toward this end, the government needs to consider the following recommendations.

- Permitting private sector ISPs to provide web-related services through their own gateways.
- Partially subsidise access to Internet in the initial years.
- Provision of leased line to all knowledge based companies at concessional rates.
- Permitting dial up from home connectivity to the net through corporate leased lines for the employees of software sector
- For companies wanting to have a presence on the web from India, a critical enabler is a high quality link to the nearest hub. This would permit the Internet users to freely access the company's website. The government needs to ensure that high capacity and high quality links are provided to such companies at reasonable rates.

(e) *Move towards higher value added activities*

One of the main problems with the software industry in India is its reliance on professional services and limited expertise in higher value added activities such as package development, IT consulting services, and R&D. Experiences of countries such as Israel and Ireland which have been successful in capturing the high value added segments of the software export market need to be considered. Appropriate government incentives should be given to reduce the industry's dependence on on-site delivery of services and to make India a preferred choice for off-shore development for global software companies. The focus on value addition would make trade in software services via modes 1 and 3 more important and help mitigate some of the constraints currently faced due to our reliance on mode 4 based trade in this sector, especially since the mode 4 related constraints are difficult to remove. The latter would also have the added benefit of retaining trained software professionals in the country and stem the brain drain and company hopping that is occurring at present. However, it should be noted that given the demand and supply imbalance in developed countries for software professionals, movement of natural persons will continue to be important and could even accompany the growth of value added and off shore development activities.

(f) *Other Measures*

As the software companies globalise their operations, a strong legal framework for Intellectual Property Rights is essential. Under the WTO, India has made certain commitments on patent laws to be in synchronisation with global standards on the issue. It is essential to study the entire gamut of IPR laws in India, benchmark Indian laws against the same and amend or add to the Indian laws so that the software companies have a strong legal framework as well as good implementation of this legislation to protect their IPRs.

Finally the Indian government must strive to promote the “India” brand to governments abroad. It must communicate our ability in high technology knowledge based sectors. It must evolve a logo that can be used to highlight a product from India. This logo should communicate the above idea.

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