

A New Transnational Capitalist Class?

Capital Flows, Business Networks and Entrepreneurs in the Indian Software Industry

The software industry has produced a new kind of transnational capitalist class in India. Most of the founders of software firms have come from the 'middle class', building on their cultural capital of higher education and social capital acquired through professional careers. This class, and the IT industry to which it belongs are also distinguished by their global integration and relative autonomy from the 'old' Indian economy dominated by the public sector and a nationalist capitalist class. The entry of multinationals into the IT industry has produced synergies that have helped it to grow and, for these reasons, the IT business class is also one of the most outspoken votaries of globalisation.

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Liberalisation and India's increasing integration into the global economy are assumed to have initiated significant changes in the political economic structure of the country. However, most analyses of globalisation in India have highlighted specific issues, such as the impact on labour, productivity, or competitiveness, while there has been little discussion on whether liberalisation and globalisation are bringing about a fundamental transformation in the structure of capitalism itself, or in the identity of the entrepreneurial or capitalist classes. This paper attempts to address this question through an analysis of entrepreneurship, capital flows, and business networks in the software exporting industry. This industry is of particular interest for the study of globalisation and liberalisation in India because it is more closely tied into the global economy than perhaps any other sector, and is largely free of state controls. For these reasons, current developments in the sector may provide a glimpse of the kind of changes that we might see in the future in the structure of Indian capitalism.

Indian IT Industry and Foreign Capital

The spectacular growth of the information technology (IT) industry (somewhat of a misnomer since the industry is confined primarily to software exports) in India from the mid-1990s is usually attributed to the introduction of liberalisation policies. However, the industry has also benefited enormously from favourable state policies that were put in place to tap its great potential for earning foreign exchange, such as tax holidays, an almost regulation-free regime, and provision of subsidised infrastructure.¹ As a result, India has become a major player in the global software outsourcing industry, accounting for 24 per cent of global offshored IT/ITES services in 2002. The industry had an impressive compound annual growth rate of about 50 per cent during the 1990s, and achieved US \$15.9 billion in revenues and exports of \$12.5 billion (IT and ITES combined) in 2003-04.² This still constitutes a relatively small sector of the Indian economy in terms of output and employment,³ but is significant in terms of its contribution to exports,

which came to 19 per cent of the total during 2003-04 (NASSCOM figures).⁴

In its initial stages, the IT industry was as controlled by the state, as any other sector of the Indian economy. In the 1970s, when the government demanded that IBM reduce its holding in its Indian operations to 40 per cent, IBM left India and the public sector Computer Maintenance Corporation was given a monopoly to service existing computer systems [Dossani and Kenney 2002:236]. The exit of IBM from India discouraged other multinationals from investing in the sector, but in the long run it had positive outcomes in promoting the growth of an indigenous industry. For instance, some ex-IBM employees started small software companies [Lateef 1997], and several of the major Indian software service companies, such as HCL and Infosys, emerged during this time. While there was no direct foreign investment in the IT industry during this time, the indigenous software industry was still indirectly linked to foreign capital as a service provider for foreign companies.

Foreign capital began to flow into the industry again after the government introduced policies in 1984 to allow 100 per cent foreign subsidiaries to be set up, and to promote software exports through infrastructure development and liberalised import of equipment. The success of Texas Instruments, the first multinational to establish a wholly owned software subsidiary in India in 1986, not only inspired other MNCs to set up operations in India, but also spurred the growth of the indigenous software services industry. Through the 1990s, the government continued to provide subsidies and other inputs for the industry, such as setting up the Software Technology Parks of India (STPI) in 1991 to provide telecommunications infrastructure and facilitate the establishment of software units. The current giants of the software industry, including Infosys and Wipro, grew up in the 1980s through software development contracts with a few American MNCs that had come into the country. But the software industry as a whole was established mainly on the basis of labour contract services, a system known as 'body shopping', in which Indian software engineers were hired out to companies abroad to work on 'on-site' projects. The body shopping system took advantage

of the world shortage of computer programmers and profited from the substantial labour cost differential.

In the 1990s, Indian companies began to shift away from body shopping towards the offshore model with the proportion of revenue from on-site contracts falling from 90 per cent in 1988 to 56 per cent in 1999-2000 [Kumar 2001:4279], and further to 41 per cent in 2003.⁵ The larger companies such as Infosys also started to 'move up the value chain' by offering turnkey projects, end-to-end business solutions, and consultancy rather than only low value added services.⁶

Although the IT industry today is dominated by a few large companies that were started in the 1980s, many small and medium size firms (SMEs) appeared during the 1990s in metros such as Bangalore, Mumbai, New Delhi, and Hyderabad, as ambitious 'techies' employed in the larger companies left their jobs to start their own companies. The start-up trend in India mirrored that which had taken place earlier in Silicon Valley, inspired by the spectacular success of Indian-owned tech firms in the US, soaring prices of tech stocks both in India and the US; growth of the internet and the consequent 'dotcom' craze of 1999-2000; and the easy availability of venture capital after 1995.⁷ Although many of these start-ups, especially the dotcoms, folded after the stock market crash and economic downturn in the US in 2000-01, a substantial number of small and medium size enterprises have survived, and new companies are still being floated. Some of the smaller companies have taken advantage of improvements in telecommunications to replace on-site work with offshore development, providing specialised remote services and even products to large multinationals rather than generic software services.

A distinctive feature of the IT industry in India is that it has emerged largely independent of the 'old economy', having few links to traditional sources of business entrepreneurship or capital in the form of the large industrial houses or business communities.⁸ Most software companies have been founded not by entrepreneurs from the 'traditional' business communities or by existing old economy companies, but by trained engineers of 'middle class' origin who had long careers as software professionals and/or managers in the IT majors.⁹ The middle class origins of many of the entrepreneurs, who have drawn on their cultural capital of higher education and social capital derived from professional experience, has lent a distinctive culture and orientation to the industry.

The other significant feature of the industry is that it has from its inception been closely tied into the global economy. Until the 1990s, there were two major kinds of connection: the dependence of Indian software companies on contracts with foreign companies, and foreign direct investment through the establishment of wholly-owned offshore software development centres by multinational companies.¹⁰ A third connection emerged only in the mid-1990s, at the time of the IT boom – foreign venture capital (VC). In this paper I argue that the operation of foreign venture capital funds is closely tied up with certain changes in the pattern of entrepreneurship and business organisation in the software industry – in particular the emergence of new kinds of transnational linkages.

Entry of Foreign Venture Capital

Because most of the early Indian software companies were started not by traditional business families or large old economy companies, with ready access to capital, but by middle class

professionals, and since finance was not readily available for such a business in 1980s most software entrepreneurs had to scrape together capital from their own savings and take loans from family and friends (the story of the founding of Infosys is archetypal).¹¹ Up to 1995 there were only a few venture capital funds operating in India through public sector banks and financial institutions: after guidelines to legalise venture capital operations in India were issued by the government in 1988, four venture capital funds were set up by state-owned financial institutions utilising World Bank loans [Dossani and Kenney 2002:239-40]. The first and most successful of these was Technology Development and Information Company of India (TDICI), established in Bangalore as a joint venture between ICICI and UTI. Several of the early software firms, such as Mastek, Microland and Wipro, received funds from TDICI.

While the software industry grew steadily from the mid-1980s, it really took off only in the late 1990s with the entry of foreign venture capital, whose primary target was the IT industry. In 1995, changes in financial regulations permitted the entry of foreign VC funds and institutional investors, and substantial capital became available for the first time to the Indian software industry. Much of the capital in these funds came from non-resident Indians (NRIs), especially wealthy NRI tech entrepreneurs who did well during the boom years in the US and were flush with cash [Dossani and Kenney 2002:229-45]. Draper International, the first private foreign fund to invest in India, was formed in 1995 by Bill Draper with investments from successful Silicon Valley entrepreneurs and investors of Indian descent, and was headed by Kiran Nadkarni from TDICI. In 1996 the Walden-Nikko India Venture Company was set up, and during the late 1990s many more funds entered the country, until by 1999 about 80 per cent of total VC investments were derived from overseas firms [Dossani and Kenney 2002:245-46]. In addition, several Indian venture capital firms, such as JumpStartUp, were set up to channel NRI and other US-based capital into the industry. Many of the VC firms operating in India focus on what is known as the 'US-India corridor', funding new companies that are US based but with development centres in India. The Indian VC community was formalised in 1993 with the establishment of the Indian Venture Capital Association (IVCA), led by Nadkarni.

While as many as 100 VC funds (including private equity firms) were operating in India at the peak of the dotcom boom, the number was considerably reduced after the 'shakeout', when many VC as well as dotcom and software firms closed operations. According to one source, there were about 60 foreign VC firms operating in the country in 2002. Unresolved policy and regulation issues have plagued the industry, and despite efforts to make the policy regime more hospitable to venture capital, most of the foreign and cross-border funds are registered in Mauritius to take advantage of a double taxation avoidance agreement.

Given its importance to the IT industry, it is somewhat surprising that concrete data on inflows of venture capital are not available. This is due, in part, to the fact that overseas investors are not required to register with the Securities and Exchange Board (SEBI), and the Reserve Bank of India does not provide disaggregated figures on foreign investment. Unofficial figures put the total investment from VCs in 2000 at over \$1 billion, but it is said that the inflow declined substantially from 2001 due to the global economic downturn [Dossani and Kenney

2002:249], and began to bounce back only in 2003.¹² Similarly, there are no reliable figures on the extent of NRI investment in this sector. However, knowledgeable people estimate that at least half of the IT companies set up in Bangalore since 1999 had some NRI funding.¹³ Vinod Khosla, a leading venture capitalist in Silicon Valley, is said to have more money invested in Bangalore companies than in the valley.¹⁴

There are three types of VC funds operating in India – Indian, foreign, and ‘cross border’. The Indian VCs are primarily the large institutional investors such as ICICI and UTI Venture Funds; there are few private Indian VC firms or Indian investors, because the legal and tax frameworks are not conducive and sources of capital are very limited.¹⁵ While the foreign VCs were the major players in the early days, what are known as ‘cross-border’ funds have come into prominence recently, funding new companies that are US based but that have their development centres in India.

The growth of foreign and cross-border VC funding in India is spearheading a decisive shift in the structure of the IT industry. Whereas in the past foreign capital entered the Indian IT sector primarily through direct investment by multinationals, now transnational capital is flowing even into smaller firms through the venture capital route.¹⁶ A major force behind this development was the interest of wealthy Silicon Valley NRIs in investing in India.

Indian Business Networks in Silicon Valley

The changing pattern of investment in the Indian IT industry has been closely linked with the emergence of a significant Indian-origin business community in the US, especially in Silicon Valley. The story of the successful NRI community in the US, based on the migration of many highly qualified professionals and technical and scientific personnel from India to the US during the 1970s and 1980s, is well known.¹⁷ By 2000 there were about 5,00,000 Indian professionals in the US, half of them in California. A major destination for Indian engineers and software professionals has been Silicon Valley and other hi-tech regions, and Indians are now well represented in technical and managerial positions in the American information technology industry.

With the establishment of a significant Indian ‘techie’ community in the US, it is not surprising that Indians were active participants in the entrepreneurial start-up culture of Silicon Valley and the American IT industry in general. While Indian entrepreneurs appeared on the US tech scene even in the early 1980s, Indian-founded hi-tech companies mushroomed during the 1990s. Between 1990 and 1998, 637 high-technology start-ups in Silicon Valley, or 8 per cent of the total, were headed by people of Indian origin [Saxenian 1999:24]. By 2000 Indians were running 972 valley companies [Saxenian 2002b:136], and they headed 10 per cent of the companies started between 1995 and 2000.¹⁸ Several well known US tech companies were started by Indian entrepreneurs, including Vinod Khosla (co-founder of Daisy Systems and Sun Microsystems), Kanwal Rekhi (co-founder of Excelan), Desh Deshpande (founder of Cascade Communications and Sycamore Networks), Suhas Patil (Cirrus Logic), Pradeep Sindhu (Juniper Networks), K B Chandrasekhar (Exodus Communications), Sanjiv Sidhu (i2 Technologies), and Sabeer Bhatia (Hotmail). Because of their success and the great wealth they accumulated during the tech stock boom

of 1999-2000, these individuals became icons of the NRI community as well as the Indian IT industry, inspiring many of the startups that appeared from the late 1990s, both in the US and India.¹⁹

One indicator of the consolidation of an Indian IT business community in the US is the formation in 1993 of an organisation called The Indus Entrepreneurs (TiE), by Suhas Patil, Prabhu Goel and Kanwal Rekhi. The mandate of the organisation is to foster entrepreneurship among people of south Asian origin by providing a forum for networking with venture capitalists, experienced industry professionals, and prospective entrepreneurs. Expanding from its base in Silicon Valley, TiE has established chapters in several cities in the US as well as in India.²⁰ The success of TiE in promoting entrepreneurship is based largely on its ‘mentoring’ system, through which prospective entrepreneurs can present their business plans to senior people in the industry and receive their advice. While TiE mentors offer their services pro bono and claim that TiE is not meant to provide funding, mentors have also invested in some of their protégés. One of TiE’s biggest success stories is Exodus Communications, founded by K B Chandrasekhar and B V Jagadeesh, which received mentoring and then investment from Kanwal Rekhi and Suhas Patil and later grew to be a \$10 billion company [Rajghatta 2001:228].²¹

The formation of TiE both reflected and facilitated the tendency of NRI tech entrepreneurs to circulate wealth within the Indian community. Almost all of the high-profile Indian Silicon Valley entrepreneurs, having made their fortunes, became significant investors in new companies, as promoters, individual investors (‘angel investors’) or through VC firms, many of which were started by Indians. Vinod Khosla, for example, who is with a venture capital firm in the valley, has backed a string of Indian-founded companies [Rajghatta 2001:33].

Transnational Circuits of Capital

The entry of foreign VC funds into India represents not just the interest of international capital in the Indian software industry, but also efforts of the NRI tech business community to extend their business interests into India. NRIs have invested in the industry directly as promoters of firms, as well as through venture capital funding and private equity funds. While not many NRIs have actually returned to India to start tech companies (unlike their Taiwanese counterparts in Silicon Valley, who have been very active entrepreneurs in Taiwan),²² some have funded US-based ventures that have a strong Indian component. In addition, a number of NRI entrepreneurs, including Suhas Patil, B V Jagadeesh, K B Chandrasekhar and Prakash Bhalerao, have invested directly in Indian companies as angel investors or partners. Prakash Bhalerao, for instance, who sold his Ambit Design Systems for US \$260 million and became a ‘serial entrepreneur’, has invested in a number of Indian start-ups such as Alopa Networks and Ishoni Networks, as well as in US based companies.²³

The close connection between NRI business interests and the entry of venture capital into India is indicated by the fact that the Committee on Venture Capital (formed by the government to look into venture capital policy issues) was chaired by NRI and IT magnate K B Chandrasekhar and included Sabeer Bhatia as a member [Chandrasekhar, et al 1999]. Another indicator is the formation of the US-IVCA (US-Indian Venture Capital

Association), “an association of US-based venture capitalists interested in US-India cross-border investments. Its membership consists of venture capital firms, service providers, corporate investors and business professionals”, and its aim is to “foster US-India venture capital collaboration, investments, and entrepreneurship”.²⁴

Figures recently released by the Reserve Bank of India suggest a shift of NRI investment in India away from deposit schemes to FDI in the form of investment in shares of Indian firms – mainly software and biotech.²⁵ Additional evidence for the growing nexus between Silicon Valley NRIs and the Indian software industry comes from a survey which found that about half of Indian entrepreneurs in Silicon Valley have business relations with India, including partially or wholly owned subsidiaries (37 per cent), sub-contractors or materials or parts suppliers (28 per cent), or joint ventures or partnerships (16 per cent). The work performed in India includes software or content development, software services, R and D, and back office or remote services [Saxenian 2002a:43].

My own study of software entrepreneurs in Bangalore highlighted the significance of venture capital, and especially NRI capital, for the industry [Upadhyay n.d].²⁶ All of the firms covered in the survey had received VC funding at some stage, in most cases in the initial or early stages. Some companies had also received investment from angel investors, all of whom were wealthy US based Indian IT entrepreneurs and financiers, including Ashok Narasimham, Kumar Madavali, and Prakash Bhalerao. The amount of initial investment from VCs was around US \$ 5 million in most cases, while second and subsequent funding rounds pulled in as much as US \$ 25 million. Although most of the funding for the sample firms was from VCs that were operating in India (Indian as well as cross-border funds), several firms had received funding from American VC funds that do not have Indian operations. Many of the entrepreneurs chose VCs that operate in the ‘Indo-US corridor’, which enabled them to get funding in dollars.²⁷

VCS provide not only finance for start-ups but also other important inputs, such as advice on strategy, technology, management, or human resources. Perhaps most important are the business networks to which VCs can give access (especially to those who were themselves entrepreneurs). In addition, VCs provide the crucial element of trust and credibility that is needed for business success. As the head of a large VC fund in Bangalore put it: “Money alone can’t make you a successful entrepreneur, you also need credibility, which comes from who your partners [i.e., the VCs] are. You need a strong brand with a global presence”. Venture capital funds with major NRI presence provide access to the transnational business networks as well as the ‘symbolic capital’ (reputation and trust) that Indian entrepreneurs need to succeed in the global market.

The majority of venture capital funding in the Indian software industry may not be NRI money – many of the funds are floated by large multinational finance companies with diverse sources of capital – but NRIs have played a crucial role in bringing even these funds into India. For example, a medium-size Bangalore firm covered in the survey received its initial funding from a large US based VC fund because one of the founders knew a prominent NRI in that company. Although the flow of NRI capital into the Indian software industry is probably still small in comparison with their investments in the US, it is a growing trend that was concretised by the founding of a TiE chapter in Bangalore

in 1999.

Cross-Border Firms

The flow of transnational capital into the Indian software industry appears to be producing significant changes in its culture and structure, a development that is evident particularly in a new type of corporate structure known as the ‘cross-border’ firm. As noted above, a substantial number of second-generation small and medium size IT companies have been established in Bangalore and other cities. These firms are oriented to specific markets abroad and are funded largely by venture capital. In contrast to the first generation companies that offered generic, low-end (mostly on-site) software services, most of the new generation are ‘boutique firms’ carrying out high-end work in specialised areas. The most striking feature of this new breed of start-ups is their corporate structure. While the older Indian companies such as Wipro and Infosys are incorporated in India and have set up branch offices abroad to handle sales and marketing, many of the newer start-ups are incorporated in the US and have constituted their Indian operations as wholly-owned subsidiaries of the parent companies. In industry lingo, these are called ‘cross-border’ firms.

The cross-border structure is linked both to the source of finance capital and to the need for a substantial presence in the US, which is the primary market for most Indian software companies. According to current wisdom, in the prevailing tough economic and political climate it is essential for Indian companies to have a strong sales and marketing ‘front end’ in the US right from inception, rather than attempting to market their services or products from a distance.²⁸ Because companies of this type need to set up offices in both the US and India, they require VCs that can invest in both countries. The cross-border VCs mentioned above have come into being to cater to the needs of this new type of firm, because a VC firm incorporated in India is not allowed to invest in a company that is incorporated in the US.

Because the decision about how to structure a new company is guided primarily by VCs, who are the major stakeholders, entrepreneurs may choose VCs according to their preference in this regard. An entrepreneur who wants to incorporate in India would choose an Indian VC, while one who is looking for a US base will try to get funding from a cross-border or foreign VC (of course, more often it is the VCs who choose the entrepreneur, rather than vice versa). While purely American VCs usually insist on a US incorporation, cross-border VCs may or may not require it. It is often the VCs, especially those focused on the Indo-US corridor, who insist on having a ‘strong front end’ and who prefer to fund a US holding company rather than the Indian subsidiary. This is thought to be necessary because (1) it is easier to acquire customers when you are close to them; (2) the chances of subsequent funding are better in the US, and new investors and VCs would be more willing to invest if the firm is American; (3) the scope for a profitable exit is greater in the US, where the most common ‘exit’ is through mergers and acquisitions (M&A) rather than initial public offerings on the stock exchange (IPO). Also, there are legal obstacles to the acquisition of Indian companies by US or multinational companies. In the case of an IPO exit as well, incorporating the firm in the US would make it easier to list on the Nasdaq or other US markets.

The emergence of cross-border firms represents a shift to a new kind of transnational corporate structure within the Indian

software industry, in which ownership and control are increasingly concentrated outside of India although the original entrepreneurs are usually Indians based in India, and the actual work, or production of value, takes place in India. Shareholding is divided among the founders, who may be Indians as well as Americans located in both the US and India, and the VCs, who may be based in the US or Mauritius but who control capital sourced from various countries and agents (but mainly the US). Most of the employees as well as founders and managers are Indians located in India, but legally these are American firms with largely American funding. The composition of boards of directors or advisors reflects the ownership structure: they usually include all or some of the founders, representatives of the VCs and other investors, and in some cases one or two expert members. Firms incorporated in the US also include at least one prominent American or NRI on their boards, who may be representatives of the VCs, other local investors, or co-opted expert members. The reason for this, according to one entrepreneur, is that it is advantageous to have “the right faces” on the board, by which he meant (white) American faces.²⁹

The question of how to structure a new company is not just a matter of finance or marketing requirements, but for some also of national loyalty and identity. Most of the Bangalore firms surveyed that were started since 1999 faced the issue of whether to incorporate in India or the US, and several entrepreneurs recounted the debates and struggles that went into taking this decision. From a purely financial and legal point of view there are pros as well as cons, which are contingent on the type of business and its market. However, some entrepreneurs decided at the outset that their companies would be purely Indian (and so they sought financing from Indian VC funds), and their narratives reflected an unexpressed feeling that the other choice would be somehow unpatriotic. However, most of the entrepreneurs whose firms were incorporated in the US did not appear to have been troubled by such sentiments.

It is difficult to categorise these ‘cross-border’ companies in conventional terms – technically they are US based multinationals with wholly-owned subsidiaries carrying out their operations in India, but all the major inputs, apart from capital, are Indian. Clearly, the older discourse of economic nationalism predicated on clear national boundaries is inadequate to comprehend this kind of structure. In the era of globalisation, capital is no longer situated anywhere, does not belong to any ‘nation’, and is free to go wherever it is most profitable to invest. In response to a question about foreign venture capital and the restructuring of IT companies, one consultant replied, “Capital is capital, wherever it comes from” – a response that is a far cry from the suspicion with which foreign capital was viewed in the years of economic nationalism.³⁰

Transnational Business Networks

The entry of venture capital, the growing involvement of NRI entrepreneurs and financiers in the Indian IT industry, and the transnational structure of the new generation of start-ups, all point to the emergence of complex transnational connections within the industry and of a new transnational business class. This class includes, apart from NRI tech entrepreneurs and venture capitalists, the founders and top executives of large and medium-size Indian IT companies, top managers of MNC software

centres in India, and entrepreneurs of the new breed of high-end start-ups.

One indication that a significant new transnational business class is emerging in the IT industry is the formation of transnational business networks. As Saxenian (2002b) points out, the global IT industry is increasingly structured through networks among diverse actors rather than through large multinationals, and the ‘ethnic’ connection between Indians in Silicon Valley (or more broadly, the US). India provides a ready-made basis for creating the social networks that enable firms to locate markets, capital or labour across the globe. These networks are crucial for successful entrepreneurship because the scarce resource in the IT business is, “the ability to locate foreign partners quickly and to manage complex business relationships across cultural and linguistic boundaries” [Saxenian 2002b:120].³¹ However, transnational business networks are being forged on the basis of diverse connections and strategies (not simply through the ‘ethnic’ connection), and they are utilised by different actors within the system for various purposes – from wealthy NRIs seeking new companies for investment to fledgling Bangalore entrepreneurs searching for VCs or customers.

From the NRI perspective, one of the most significant networks is TiE: the establishment of TiE chapters in different locations in the US and India has formalised and elaborated cross-border business networks and provided avenues for actors on both sides to make connections. Even within Bangalore, the most active IT industry association is the local chapter of TiE, which was established in 1999. The charter members of the Bangalore chapter include the ‘who’s who’ of the local IT industry: Nandan Nilekani (MD and CEO of Infosys), Ashok Soota (chairman and MD, MindTree, former president of Wipro), Sudhir Sethi (president of InfoTech Enterprises), Sridhar Mitta (MD of e4e), Pradeep Kar (chairman and MD of Microland); two representatives of venture capital firms (Poornima Jairaj of Global Technology Ventures and AJV Jayachander of Dresdner Kleinwort Capital); and key government officials for this industry in the state, the IT secretary and the director of STPI, Bangalore. The monthly TiE meetings provide a forum for networking among entrepreneurs, prospective entrepreneurs, venture capitalists, consultants, and other people connected with the industry. The association also organises an annual IT conference, TiECon, which features mentoring clinics in which aspiring entrepreneurs can interact with VCs from the US. TiE promotes networking not only within Bangalore but more importantly between the US and India, or more specifically between potential Indian entrepreneurs and NRI capital. It is significant that the founding of a TiE chapter in Bangalore coincided with the increasing interest of NRIs to invest in India.

While TiE as a formal organisation is one visible face of the transnational IT business class, the more significant networks are probably the informal ones, and these are formed on several different bases. One important type of network is based on pre-existing business relationships among Indians and NRIs who have worked in the IT industry for a long time. As noted above, most of the software entrepreneurs studied have moved out of professional careers in the IT industry to start their own companies, and they rely heavily on networks built up during their careers to do business. One such network is the ‘Wipro network’, comprised of ex-Wipro employees who are now entrepreneurs, VCs, and top executives in IT companies, both in India and the

US. The spread of ex-Wipro employees across various IT companies and locations has created a readymade network for new entrepreneurs seeking capital or contacts. Several Wipro-ites have joined venture capital firms (e4e and JumpStartup are prominent examples) or are otherwise active in promoting IT companies. Wipro is supposed to be unique for having produced the largest number of IT entrepreneurs, which in turn is linked to the strength of the Wipro network. Although it functions most strongly within India, the Wipro network is also a major component of the transnational IT network.

The functioning of transnational networks in linking US based investors and entrepreneurs with the Indian industry can be illustrated by the example of e4e, a 'technology holding company' that has funded or incubated several IT companies in India. e4e was founded in 2000 by NRI tech entrepreneur KB Chandrasekhar, Sridhar Mitta (formerly head of Wipro's Global R and D centre and a well known figure in the Indian industry, who was also founding president of the Bangalore TiE chapter), and Somshankar Das (who established the Walden Nikko India Fund). The company was formed with a capital investment of US \$120 million, gathered from VC funds such as Walden, wealthy individuals such as Chandrasekhar, and several companies. It is incorporated in Santa Clara but the main facility, a subsidiary, is located in Bangalore. Most of the partners and managers are of Indian origin and have had relationships with one another due to their earlier positions in the IT industry and through the Wipro network.

The NRI entrepreneur and investor Ashok Narasimham provides another example of how such networks are formed. Narasimham was founding president and CEO of Wipro Infotech and Wipro Systems and subsequently started several successful companies in the US, including Prio, Inc. As a 'serial entrepreneur', he has invested in a number of ventures in the US and India, and sits on the boards of several Bangalore-based companies as well as Global Internet Ventures, a US venture capital firm with interests in India. He is also a limited partner and advisor in several VC funds, including e4e. His latest venture is July Systems, a high-tech cross-border company with headquarters in the US and a development centre in Bangalore, co-founded with well known techie entrepreneur, T Rajesh Reddy. Narasimham's multiple business interests in the US and India are typical of the transnational IT magnates. In fact, the boards of many of the medium size IT firms, smaller start-ups, and VC funds in India are closely interlocked, with the names of a few key individuals appearing time and again on company web sites. The emergence of a pattern of interlocked boards of directors is yet another indication of the consolidation of a transnational Indian business class in this sector.

Transnational business networks have been constructed not only by NRI entrepreneurs and VCs in order to extend their business activities into India, but also by Bangalore-based IT entrepreneurs who leverage a variety of transnational connections in their quest for capital and customers. For instance, some Indian IT entrepreneurs talk about how they use the 'desi network' in the US, which extends much beyond the tech community. People of Indian origin are now found in executive positions in a range of companies across the US, forming a ready-made network for Indian entrepreneurs marketing their services and goods. The links in this 'desi' network are of course not purely 'ethnic': it includes not just anyone of Indian origin but only well placed and influential professionals and executives. In most cases, contacts

are made and relations built on the strength of a common educational or professional background: people who studied at the same IIT (Indian Institute of Technology), IIM (Indian Institute of Management), or college, or who worked together in the same company, are more likely to form relationships and networks that can be accessed for business purposes.

A powerful network within the IT industry, especially among Indians in the US, is the IIT network. There are an estimated 25,000 IIT alumni in the US and about 5,000 in the valley. While many IT professionals and entrepreneurs are from the IITs, a number of them are also in executive positions outside the IT sector, providing useful contacts for entrepreneurs seeking customers. According to several Bangalore entrepreneurs, this network is useful not only in establishing contacts with key players in the US,³² but also for the 'symbolic capital' that an IIT background provides: IIT-ians are said to share an "implicit sense of trust", as one respondent put it.³³ The IIM network plays a similar role, because many IIM alumni are found in responsible positions in US companies, as they are in India.

These transnational networks are utilised by Indian IT entrepreneurs mainly as a sources for contacts or credentials when looking for customers or financiers in the US. Different types of networks give access to different resources: those in high-tech areas cultivate contacts in Silicon Valley, whereas those who are selling software services look for customers in other sectors. In either case, contacts from their educational institutions, former companies or other sources are often crucial for the success of Indian entrepreneurs in the US market. One Bangalore-based entrepreneur recounted that when his project was under consideration by a VC fund, the people who were sent out to evaluate the company were Indians, which he implied helped him to get funding. Another said that it was only through the 'desi network' that he was able to get customers during the recent slowdown. One respondent mentioned the fact that there are many Indians in McKinsey, which may help Indian companies in getting a good rating.

Transnational Indian networks operate even in the context of multinationals outsourcing to India. For instance, when an American company is considering outsourcing to an Indian firm, Indians who work in that company may be asked if they know the software firm or its promoters, and their recommendation may clinch the deal. NRIs who work for multinationals in the US may provide contacts when their companies want to invest or set up operations in India. Many MNCs, including Intel, Microsoft, Sun, and Oracle in Bangalore, have taken advantage of their Indian-origin staff by sending them to India to set up or run their offshore development centres. The relocation of such executives to India, at least temporarily, provides another link in the growing transnational Indian business class.

Becoming Global

The foregoing discussion has focused on transnational networks and flows of capital mainly within one segment of the software industry – the high-tech start-ups. However, even the larger and older Indian IT companies have been compelled to respond to globalisation by reshaping their culture, organisation and image. While IT companies in India have always claimed to have a distinctive corporate culture that marks them as separate from old economy companies (modelled largely on the American), recently all the major players, from Wipro to Infosys to

TCS and medium-size companies such as MindTree, have been polishing their images and restructuring their organisations. They are attempting to appear more 'global', 'multinational', or 'multicultural' – or not purely Indian. The main reason given for this is that large Indian software companies now compete not just with each other but also with the leading IT companies in the world. One strategy that is used to make their presence felt is to have extensive networks of offices and subsidiaries around the world, primarily to look after sales and marketing. More recently, Indian companies have been going a step further by setting up service centres in different countries to look after delivery as well.³⁴ As noted above, even small Bangalore-based start-ups follow this pattern of maintaining one or more small offices for sales and marketing in the US and other countries where they have customers or potential markets. In the case of firms incorporated in the US, one overseas office doubles as the head office and includes an American CEO or other executives, but the majority of employees are located in India.

In addition, software companies attempting to go global now commonly hire local staff in their offices abroad for sales and marketing functions, in order to have local faces for their 'front end', but also increasingly for technical and managerial positions. Infosys, TCS, and other large companies have developed deliberate strategies to have a mix of local and Indian staff in their foreign offices, both to give a more multinational appearance and to deflect the anti-outsourcing wave.

Apart from creating a 'global' image in their offices abroad, IT companies attempt to mark themselves as global and cosmopolitan even within India, through their physical presentation. The offices of Bangalore software companies are barely distinguishable from US corporate offices: housed in cold steel and glass high-rises, with professionally designed interiors, central air-conditioning, open floor plans divided into grids of cubicles with individual work stations, and courteous, well-heeled receptionists tend to erase anything that resembles the local or the Indian. If you want big American or Japanese customers, one CEO said, you need to look "respectable", and "you can't operate from a garage". This image-making extends to corporate culture and human resources policies as well, where in many companies follow the American model and the latest management fads (at least in theory), such as having an 'open' culture, a 'flat' and non-hierarchical structure, and flexible work routine. Another indication of the global orientation of Indian software companies is their effort to align themselves with 'global best practices' by gaining international certifications such as ISO 9000 and SEI-CMM Level 5 (a certification that is held by more Indian companies than American).

In the race to become 'global', winning is marked by a listing on a foreign stock exchange – a cherished goal for many Indian IT companies. As Nandan Nilekani explained with regard to Infosys listing on Nasdaq, "We wanted to be recognised as a global company, and it was imperative that we get listed on the largest and deepest capital markets in the world" [Rajghatta 2001:310].³⁵

Iconisation of the IT Business Class

In a sense, the software industry has produced a new kind of capitalist class in India. As noted above, most of the founders of software firms have come from the middle class, building on

their cultural capital of higher education (usually in engineering) and on the cultural and social capital (knowledge and networks) acquired through professional careers. This class (and the IT industry itself) is also distinguished by its close integration into the global economy and its relative autonomy from the 'old' Indian economy dominated by the public sector and a nationalist capitalist class. For this reason, the IT elite differ sharply in their ideological orientation from the established business class, many of whom (represented by the 'Bombay Club') oppose unbridled globalisation. In contrast to the old bourgeoisie, the IT business class emerged within the global economy and a liberalised environment, and as I have attempted to show, is already highly transnational in its composition. The entry of multinationals in the IT industry, far from posing unwelcome competition to domestic firms (except perhaps in the area of human resources, where they are able to attract software engineers with higher salaries), has produced synergies that have helped it to grow. For these reasons, members of the transnational IT business class are, for the most part, outspoken votaries of globalisation.

Viewed against the larger canvas of the Indian and global political economies, the transnational IT business class may still be relatively insignificant. Yet the IT industry and its leaders have had a disproportionate impact on public policy, both directly by forging links with the state, and indirectly as icons of a 'resurgent India'. Indeed, the new business class not only embraces the ideologies of liberalisation and globalisation, but is also supposed to exemplify what can be accomplished through them. In public discourses, the success of the IT industry is linked to the liberalisation agenda, which is supposed to have freed the natural entrepreneurial energies of Indian people so that they can create their own wealth. The enthusiasm for IT that is displayed by many political leaders as well as some intellectuals in India, who see it as a catalyst for economic growth and a shortcut to social development, is partly a response to the positive images of IT entrepreneurs that circulate in India and abroad.

Moreover, the transnational business class, together with some of the political elite, is promoting a new high tech-led development paradigm centred on the idea that India can, through technological prowess, 'leapfrog' over the usual stages of development to become a 'knowledge economy'. As Kanwal Rekhi put it,

The balance of power is shifting from labour intensive to intellectual intensive. In twenty years, India will be unrecognisable. It will thrive in the age of the knowledge worker [Rajghatta 2001:23].

In the words of Gurcharan Das [2000:xvi], the "knowledge industries" will be the "leading sector" of the economy that will finally bring India out of its backwardness and realise the dream of progress that Nehru's programme of planned industrialisation could never achieve.³⁶ It remains to be seen to whether this new paradigm of development and the new transnational business class will bring about a significant transformation in the political economic structure of the country, or whether the IT industry will remain a minor outpost of global capital within India, feeding on India's cheap technical labour force without forging effective linkages with the wider economy.

Postscript: Transnational Capital and Labour

While liberalisation and globalisation have not done away with

borders and controls in most sectors of the Indian economy, the IT industry is a separate and privileged sphere. Both physically and financially, it appears to be more an extension of the global 'information economy' than an integral part of the Indian economy. The process of production links Indian software firms and their foreign customers seamlessly through real-time online networks, and capital flows unhindered across borders as venture capital comes in and profits move out, along with products, services, and IPs, with few checks or controls in either direction. This transnational system of production and finance is owned, controlled or managed by a new transnational business class that operates more through formal and informal networks than fixed structures.

But it should be remembered, as Xiang Biao (2002) suggests, that the transnational entrepreneurial class has emerged in tandem with a transnational labour regime in which circuits of labour and capital intersect and reinforce one another. The profitability of the IT industry continues to be dependent primarily on the difference in the cost of software labour – a fact that many in the industry try to gloss over with talk of quality, expertise, on-time delivery, and other supposed benefits of outsourcing to India. Although software workers are the major 'resource' for the industry,³⁷ their work is taken for granted and their voices rarely heard in the media blitz about India's IT success story. Cross-border firms and alliances, global image-making, and the building of transnational networks are among the strategies employed by the new business class to leverage India's 'natural' advantage in cheap software labour power.

While the flow of Indian software workers across borders is still restricted and controlled by the receiving countries, this is becoming less problematic for Indian IT companies as offshoring progressively replaces on-site work. Thus, even as capital and capitalists in the Indian software industry have become virtually transnational, spanning and crossing borders with ease, software engineers are becoming increasingly immobilised within national borders as 'bodyshopping' declines and disembodied labour is harnessed through virtual systems of work and organisation within complex outsourcing arrangements. These rapid shifts in the flow and deployment of capital and labour in the software industry point to the emergence of a new form of post-industrial global capitalism that is making significant incursions into the Indian economy, but whose larger impact on the structure of capitalism in India cannot yet be known.

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Notes

[This paper is based on a study of entrepreneurship in Bangalore's IT industry that was carried out between August 2002 and April 2003. For the purpose of this research I was affiliated to the Indian Institute of Information Technology Bangalore (IIITB) as a research fellow. I thank the director, the Institute, and its faculty, especially Balaji Parthasarathy, for granting me affiliation and for their help in carrying out the research. The full report is forthcoming in the working paper series of the IIITB. An earlier version of this paper was presented at the International Convention of Asian Scholars, Singapore, August 19-22, 2003. Thanks are also due to Vijay Baskar, A R Vasavi, Janaki Nair, and Lawrence Liang for discussions about the IT industry and Bangalore, and to Peter van der Veer and A R Vasavi for comments on earlier versions of this paper. All errors of omission, commission and interpretation are of course my own.]

- 1 As such, the IT industry provides an almost perfect contrast to the Nehruvian model of development: instead of public sector-led investment and growth, in this case state policies have promoted rapid growth in the private sector through a judicious mixture of laissez-faire and hidden and visible subsidies. The new equation between the state and private enterprise that is emerging in this sector, especially in states such as Karnataka and Andhra Pradesh, suggests major shifts in the political-economic structure of the country which cannot be discussed in this paper.
- 2 NASSCOM figures, see www.nasscom.org. With the rapid growth of the IT Enabled Services (ITES) industry, which includes business process outsourcing (BPO) and call centres in the last few years, NASSCOM has adopted this sector as its own and has been combining figures for software services and ITES, although they are very different types of business.
- 3 According to the industry association, NASSCOM, the IT industry, including ITES, currently employs only about eight lakh people.
- 4 As Kumar (2001:4282-83) points out, export earnings are a poor indicator of the industry's contribution to foreign exchange generation because software companies also spend foreign exchange heavily. However, neither the government nor NASSCOM provides figures on foreign exchange utilisation by the industry.
- 5 See www.nasscom.org.
- 6 On the growth and structure of the Indian software industry, see Heeks (1996), Kumar (2000, 2001, 2002), Lakha (1990, 1994), Lateef (1996), Parthasarathy (2000), and Saxenian (2000).
- 7 The listing of Infosys on the Nasdaq in 1999 (the first Indian company to be listed on any foreign stock exchange), and the rapid rise in its valuation to US \$17 billion by August 2000, created a euphoria for technology stocks on the Bombay Stock Exchange, driving up prices and increasing the market capitalisation of other IT companies by Rs 6,000 crore [Rajghatta 2001:311]. The media hype surrounding Indian IT entrepreneurs located both in India and the US – such as Azim Premji of Wipro and Sabeer Bhatia of Hotmail, who became multi-millionaires almost overnight – contributed to the start-up mania.
- 8 Significant counter-examples are Wipro and Tata Consultancy Services, both of which grew out of old economy companies, but they remain in the minority. In fact, most of the IT ventures launched by large old economy companies during the IT boom have not been very successful, whereas many of the leading companies today were started as small ventures by techies with no previous business experience.
- 9 This statement is based on the results of the survey of software entrepreneurs in Bangalore carried out in 2002-03, as well as the observations of several other academics and journalists who are familiar with the industry. There has not been any large-scale survey of the social origins of Indian software entrepreneurs that could reliably confirm this assertion. Of course, 'middle class' is a vague category in sociological terms, and identification of 'class status' (whether understood in terms of economic status, occupation, education, or other such factors) is a difficult task. However, a rough picture of the class origins of company founders interviewed for the study was drawn from information collected on the education and occupation of respondents' fathers and other family members. Most of their fathers were employed in government service, as civil engineers, bureaucrats, or in lower level occupations such as postmaster, teacher or school headmaster, while several held executive positions in public sector companies. Only one respondent was from a wealthy industrialist family. One could argue that it is this 'middle-classness' that is partly responsible for the success of these entrepreneurs: the heavy stress laid on higher education which led them into engineering colleges and from there into careers in the IT industry.
- 10 Practically all the major IT and technology companies have development centres in India today, including HP, Microsoft, Oracle, Intel, SAP, Philips, Siemens, Accenture, and many others. However, according to Kumar (2001), the entry of MNCs has not resulted in a substantial inflow of capital FDI in the industry: the total subscribed capital of 79 foreign subsidiaries set up by 1999 was US \$115 million. Nor are the forward linkages of this kind of investment clear: most of the subsidiaries are cost rather than profit centres, and the distribution of gains has been heavily in favour of the home country. MNCs do provide employment for a large number of software engineers and other workers, and they have stimulated the growth of the industry indirectly by helping to create an experienced IT workforce. However, this form of capital investment has not flowed into the creation of new businesses, except to the limited

- extent that MNCs may hire temporary workers through local companies and generate demand for ancillary services. Moreover, the multinationals have not developed significant relationships with local IT companies, apart from outsourcing arrangements in a few cases.
- 11 According to the often told foundation legend of Infosys, it was started by Narayana Murthy and six others in 1981 in a one-room apartment in Pune with a capital at Rs 10,000 gathered from family and friends [Rajghatta 2001:305]. However, Infosys also received seed capital from public sector financial institutions [Patlibandla et al 2000:1265]. Software companies find it difficult to get finance from banks because they do not have many tangible assets. While ITES companies may get bank loans because they have regular incomes from their contracts, software firms require large initial investments and can look for profits only two to three years down the road.
 - 12 According to NASSCOM figures, investment by VC funds in hi-tech firms in India amounted to \$370 million in 1999-2000 alone, but much of this investment went into e-commerce start-ups and dotcoms, many of which subsequently failed [Kumar 2002:19]. In an interview, the IT secretary for Karnataka quoted a figure of US \$300-350 million for VC investment in 2000, which dropped to US \$100-150 million in 2001. However, the CEO of a large VC fund said that the VC market in 2002 was US \$2 billion, of which about 80 per cent is offshore money. According to one report, the VC fund inflow in India in 2000-02 amounted to US \$907.6 million across 101 enterprises [*Times of India*, October 12, 2002], while VC and private equity firms are reported to have invested US \$300 million in 10 firms during the last quarter of 2003 [*Times of India*, January 6, 2004]
 - 13 The director, STPI Bangalore estimates that about 70 per cent of the FE (foreign enterprise) companies in the city are supported by NRIs.
 - 14 *Times of India*, February 13, 2004. Khosla was recently replaced by Pramod Haque as the 'world's top VC', according to *Forbes* magazine [*Times of India*, February 8, 2004]. Both Haque and Khosla visited Bangalore during 2004 to scout for investments.
 - 15 Unlike in the US where most of the big companies have VC arms, large Indian companies are not interested in investing in risky ventures. Infosys is one of the few Indian companies to have set up a VC fund. Global Technology Ventures (floated by the son-in-law of the former chief minister of Karnataka) is an example of a private Indian VC fund, but even this fund has substantial investment from the US.
 - 16 The impact of this shift is evident in one analysis of the performance of software firms, which indicated that 1995-96 was a year of transition for the industry with an increase in export orientation and rise in profit margins [Kumar 2001:4282].
 - 17 It is often pointed out that the approximately one million Indians (Indian citizens and US citizens of Indian origin) living in the US are the 'ethnic' group with the highest average income. But a section of Indian immigrant with high levels of education and income constructed themselves as a 'model minority', thus glossing over the actual diversity of the south Asian community in the US. Moreover, many Indians are migrant workers on temporary work visas rather than immigrants – some 200,000 Indians entered the United States on H1-B visas between 1989 and 1999. On Indian IT labour flows, see Xiang Biao (2002).
 - 18 Other estimates of Indian entrepreneurship are higher: a Dun and Bradstreet report in 1998 estimated that 788 Silicon Valley companies were led by Indians, of which 385 were founded between 1995 and 1998. Another estimate pegs the proportion of Indian founded companies at 40 per cent in 1999, the height of the dotcom boom [Singhal and Rogers 2001:28].
 - 19 See Chidanand Rajghatta's (2001) chronicle of the non-resident Indian IT community. Successful Silicon Valley NRIs have been extensively covered in both the US and Indian media. Kanwal Rekhi in particular became a legend: his company Excelan was bought by Novell for US \$200 million, and he later became an angel investor in several successful Silicon Valley firms.
 - 20 Each chapter of TiE is led by several charter members – successful entrepreneurs, top corporate executives, and other key players in the industry who are inducted by invitation.

- 21 According to one report, TiE's charter members, including Vinod Khosla, Gururaj Deshpande, Suhaas Patil and K B Chandrasekhar, by 1999 had invested over US \$100 million of their own money in start-ups in the valley and raised over US \$400 million in venture capital [Singhal and Rogers 2001:157]. Kanwal Rekhi has invested in more than 20 start-ups since 1994, earning US \$100 million in the process. Referring to TiE, he said: "I've made more money since I left Novell than I made in my own company. This is a very, very lucrative non-profit activity" [quoted in Richardson 1999].
- 22 Saxenian (1999: 56-68). See also Saxenian (2002a, 2002b). There are, however, several examples of NRIs who have returned to India as VCs.
- 23 It is said that at one time Bhalariao had investments in more than two dozen companies in India [Rajghatta 2001:203-14].
- 24 IVCA-US website, www.ivca-us.org.
- 25 FDI inflows from NRIs amounted to US \$600 million since May 2004, twice that during the corresponding period of the previous year. One-third of the amount went into shares acquired by NRIs in Indian firms, around its \$212 million, and the acquisitions have been mainly in software and biotech [*Economic Times*, September 17, 2004].
- 26 Software Technology Parks of India (STPI), the single window clearance agency for the industry) classifies software firms into three categories: small/medium enterprises (SMEs), 'major Indian companies' (MICs), and multinationals or firms with foreign equity participation (MNCs/FEs). MICs are defined as companies with exports of three crores and above, SMEs fall below this, while MNCs are not defined in terms of volume of exports. This category includes MNC subsidiaries such as IBM, Intel, HP, Sun, Oracle, etc, but also a number of smaller Indian firms. Of the 275 companies that were registered with STP Bangalore between 2000 and 2002, 143 were in the MNC/FE category, pointing to the high level of venture capital funding. The survey on which this paper is based focused on high-end start-ups, which are more likely to have VC funding, but there are many other firms (categorised as SMEs) that are too small or low-end to have such funding. Data was collected on a total of 16 firms.
- 27 Of the approximately 600 registered software exporting firms in Bangalore, about 150 have foreign equity participation. In keeping with its position as a software hub, Bangalore is host to most of the major VC firms operating in India, including ICICI Venture Funds, UTI Venture Funds, Draper, Walden-Nikko, JumpStartup and e4e.
- 28 This development reflects the situation in the IT industry globally: while in the past only large corporations could be multinational in reach, now even small Silicon Valley start-ups are global actors [Saxenian 2002b:120].
- 29 Also, several of the cross-border firms covered in the survey were started with one or more Americans (NRIs or white Americans) as founding partners. The choice of partners and board members is often dictated by the firm's market and the need to develop contacts with potential customers; for example, a firm targeting the broadband market would have a prominent person from that industry on the board.
- 30 Interestingly, a recent report points to the beginning of a reverse trend known as 'flipping', in which the subsidiary in India becomes the parent company, and the erstwhile US parent company becomes its subsidiary, so that the newly formed Indian company can get listed on an Indian stock exchange, or have a dual listing. Conventional wisdom in the industry just a year or two ago had it that profit could be made only from listing on a US exchange. However, recent changes in tax regulations appear to have stimulated rethinking [*Economic Times* January 24, 04]. This development does not however contradict the thesis of this paper, rather it reinforces the idea that the IT industry is practically borderless. Software companies can have multiple locations and structure and restructure themselves ('flip') relatively easily in response to changing financial regulations and economic climates, just as venture capital funds migrate to locations that offer the most financial benefits.
- 31 Similarly, ethnic networks are central to the operation of lower-end 'body shopping' schemes, as body shops in different countries form associations on this basis [Xiang Biao 2002:20].
- 32 One entrepreneur interviewed said that when she was launching her firm, all the meetings with prospective VCs and customers were organised through contacts that she or her husband had from their student days at IIT, Chennai.
- 33 IIT associations in the US have become major vehicles for the mobilisation of Indian professionals and platforms for building community solidarity and business networks. For instance, in January 2003 hundreds of IIT

alumni gathered in Silicon Valley to celebrate the 50th anniversary of IIT Kharagpur, and the occasion was graced by Bill Gates and the then minister for human resources development, Murli Manohar Joshi. This was just one example of wider efforts by IIT alumni to promote networking and an IIT 'brand name', largely to further their business interests.

- 34 As of 2001, 212 Indian software companies have set up 509 overseas offices or subsidiaries, of which 266 are in North America [Kumar 2001:4281].
- 35 The opening of a Nasdaq office in Bangalore in 2001 is another indicator of the increasing integration of the Indian IT industry into the global economy.
- 36 For examples of this discourse, see Narayana Murthy (2001) and Basu (2001). Among political leaders, the former chief ministers of Karnataka and Andhra Pradesh, S M Krishna and Chandrababu Naidu, were staunch advocates of the IT industry and the use of IT in government. The strength and hegemony of the IT industry has become evident recently in Karnataka, when even after a new government was elected partly on an anti-IT (and pro-rural) platform, the chief minister has had to bow to the demands of IT industry leaders not to be 'ignored'.
- 37 It is revealing that CEOs and HR managers of software companies consistently refer to their employees and software engineers in general as 'resources' – not 'human resources' but simply 'resources'.

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