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WORK, CULTURE, AND SOCIALITY IN THE INDIAN IT INDUSTRY:
A SOCIOLOGICAL STUDY

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EXECUTIVE SUMMARY

This report presents the key findings of a sociological study of the Indian information technology workforce that was carried out over a period of more than two years, between November 2003 and March 2006, in Bangalore and in three countries in Europe. The objective of the research project, entitled 'Indian IT Professionals in India and Europe: Work, Culture, and Transnationalism', was to document the social and cultural transformations that have been set in motion by the rapid growth of the IT and ITES industries in India, and through this to shed some light on wider processes of globalisation. The study focused on the creation of the IT workforce; the new forms of work, employment, organisation, and management, and the new cultures of work that have emerged in this industry, and on the transformations in lifestyle, sociality and identity that are taking place within this new global workforce. The report covers the following topics:

Political economy of the IT industry in India

The rise of the IT industry in India must be understood within the larger political economic context, as an outcome of globalisation, the spread of new information and communication technologies (ICTs), and the liberalisation process. While the IT industry is widely regarded as a model for India's development, due to its concentration on the export of software and IT-enabled services, it is largely an enclave economy that is closely linked to the global economy but has few substantial linkages to local, regional and national economies. This has implications for the nature of employment generated by the industry and its wider social and cultural ramifications.

Work and employment in the software outsourcing industry

The software outsourcing industry is situated within the global informational economy primarily as a provider of low-end services, and this position has shaped the nature of the employment that has been created in this sector.

There are three major characteristics of work and employment in the IT industry:

- Mobility: Software engineers are highly mobile, circulating between India and 'onsite' as well as between jobs within India and outside. The phenomenon of 'virtual migration' (offshore, online work) can be seen as a form of 'immobile mobility' in which labour moves without the body of the worker.
- Flexibility: Because of the highly competitive and global nature of the IT industry, it requires a flexible workforce. Flexibility is reflected in the software labour market and in the emergence of new forms of employment, for instance in the extensive use of temporary contract labour and the high level of fluidity in the job market. Within companies as well, flexibility is maintained through 'resource management' systems such as 'the bench'.
- Individualisation: The emergence of individualised employment relations is seen in the absence of collective identity among software workers, the high level of attrition, and the tendency to build careers by job-hopping. This in turn is linked to

the volatility of the global IT market, the consequent lack of job security, and the emergence of the 'entrepreneurial employee' who must constantly upgrade his or her skills in order to remain marketable.

In addition, although the industry is 'moving up the value chain', most of the work continues to be low-end, creating a high level of job dissatisfaction because many employees believe they are over-qualified for their jobs.

Production and structuring of the IT workforce

The study highlights the social profile of the IT workforce and the processes through which it is produced and recruited. The findings indicate that the workforce is less heterogeneous than is commonly assumed, and that the large majority of IT professionals come from middle class, educated, urban backgrounds, and from the upper castes. This is due to the fact that the industry requires well-educated employees. Given the large pool of engineering and other graduates available, it is able to select the best students from the best colleges who, because of the exclusionary processes that operate within the education system itself, tend to be from middle class, urban families. In addition, software companies look for candidates with the right kind of 'cultural capital', a requirement that again tends to exclude those from weaker economic and social backgrounds and from rural areas. Such exclusion is not deliberate but is largely reflective of the highly differentiated system of education in the country, which also determines employment opportunities.

Through the recruitment process, candidates with a certain blend of technical, social, and cultural skills are selected by IT companies, but after they join the workforce they are further moulded through intensive technical as well as 'soft skills' training. The latter is considered to be especially important because software services work requires frequent interaction with foreign customers, while Indian software professionals are considered to be poor in communication and social skills. Through such training programmes, Indian techies are transformed into effective 'global professionals' who are able to interact with customers and colleagues abroad in socially appropriate ways.

Work culture and organisational control

The cultures of work and forms of organisation and management that have emerged within the software services outsourcing industry are substantially different from those in 'old economy' companies -- although there are also significant continuities. IT companies have imported a 'new age' management ideology based on flat structures, lack of bureaucracy, openness, flexibility, and employee empowerment. But, due to the requirements of the outsourcing business, new forms of direct or 'panoptical' control over the work process have also emerged, which are linked to the rationalisation of the work process through the application of modular programming techniques and international quality standards. In order to soften the routinisation of work and the rigidity of 'process-driven' management, and to build employee loyalty and motivation, IT companies employ 'normative' management techniques such as the inculcation of common values

and emphasis on teamwork. This combination of direct and indirect modes of organisational control enables companies to maximise the productivity of employees.

Another distinctive feature of work culture in the software outsourcing is the deployment of *culture* itself as a management tool and as a mechanism of control over labour. This is seen in the incorporation of employees into a strong 'corporate culture' as a motivational strategy; in the deployment of 'cross-cultural' management theories; and in 'cultural sensitivity' training programmes. Through the discourse of culture that operates in the global software labour market, Indian software engineers are categorised in terms of their culturally specific work habits, which are contrasted with those found in the West. While the dominant management discourse claims to validate cultural difference within the 'multicultural' workplace, Indian software professionals are trained to adapt their behaviour and attitudes to fit into the dominant model of 'global corporate culture'.

Social and cultural transformations: lifestyle, sociality, and identity

The study points to the diverse transformations that have been set in motion by globalisation, not only in work and the workplace, but also in the wider culture and in forms of sociality and subjectivities. The new generation of 'global Indians', represented by IT professionals, is caught in a web of contradictions around questions of identity and nationality. While they are well travelled, comfortable in international work settings, and masters of the latest technologies, many are nonetheless still embedded in 'traditional' social and cultural milieus and also articulate their adherence to 'traditional values'. This has resulted in a new blending of modernity and tradition, as seen for example in:

- The reconstitution of family and gender relations, through a process that both reproduces pre-existing forms but also alters them in substantial ways; for instance, the resurgence of the 'joint family' with grandparents as primary caregivers for children.
- The reinvention and reaffirmation of 'traditional Indian culture', filtered through diverse transnational work experiences and articulated through the medium of the new consumer culture. This in turn is linked to the celebratory discourse about India's global success in IT.
- Individualisation, not only in the workplace but also in social life, as IT employees are shaped into self-directed, goal-oriented, and autonomous individuals -- a process that conflicts with existing communitarian social values, giving rise to internal tensions and conflicts within the family.

Workers and work in the BPO industry

The nature of work, profile of the workforce, and employment-related issues are quite different in the ITES-BPO industry compared to software outsourcing. The study has focused primarily on the IT workforce, but some aspects of the BPO workforce have been covered as well, including:

- Creation of a youth workforce: BPO companies target a particular segment of the urban youth for recruitment, in the process creating a highly flexible and mobile

workforce -- one that is not only malleable due to its youth and inexperience, and unorganised due to the transient nature of employment, but which is also totally dispensable, as existing workers are replaced by new ones every year or two under a 'revolving door' policy that is designed to sustain profit margins.

- A blending of extreme 'panoptical' systems of control over the work process with subjective management techniques. For instance, companies attempt to create a 'fun' atmosphere at work in order to mask the rigid management system and to relieve the monotony and stress of the work itself.

- Individualisation of the employment relationship, non-recognition of ITES work as labour, and lack of collective identity or action among workers.

- Emergence of a call centre subculture, created deliberately by companies as a mechanism of control and retention, as well as spontaneously due to the young profile of the workforce. This new youth subculture, with its supposed consumption-oriented and 'fun-loving' lifestyle, is regarded as disreputable by the conventional middle class – giving rise to inter-generational and social tensions.

Policy implications of the study

The findings of this study point to several policy-related issues, which are highlighted in an Appendix. These include:

- ❖ Employment policies and practices in the IT/ITES sector:
    - Regulation of labour standards and laws – whether existing laws should be applied to the sector or there is a need to evolve new policies and laws; and whether the industry should be responsible for regulating itself or it is the responsibility of the state.
    - Use of contract labour
    - Job security
    - Sexual harassment at the workplace
    - Working hours and conditions
    - Employee rights with regard to contracts, privacy, and other issues
    - IP protection
    - Inclusivity in the IT industry

- ❖ Higher education policy and the IT industry – whether education policies should be geared towards creating a larger IT workforce, or they should be directed to wider social goals.

Preface

This report presents the key sociological findings from the research project entitled 'Indian IT Professionals in India and Europe: Work, Culture, and Transnationalism', which was carried out between November 2003 to March 2006, in Bangalore and in three countries in Europe. The rapid growth of this global industry since the 1990s has created a new kind of workforce, introduced new cultures of work into India, and set into motion diverse social transformations that are as yet dimly understood. This study was designed to throw some light on the social significance of the IT phenomenon in India, not only for those working in this industry but also for their families, communities and the society as a whole. As an industry that is emblematic of the new economy and globalisation in India, we hope that a detailed study of it will provide a perspective on the interlinked cultural, social, economic, and political changes that are taking place in contemporary India.

The report does not address directly the practical and everyday issues and problems that concern many IT companies and IT professionals, although some of the findings may be relevant to those questions as well. Rather, it aims to provide a broad sociological perspective on the changes that are being brought about by the entry of this global industry into India, and of a large number of young people into its workforce. Only some of the major findings from the study are presented here, based on preliminary analysis of the extensive data that have been collected between January 2004 and June 2005. More comprehensive and in-depth research output will become available over the next year or two in the form of published academic papers, books, reports, as well as a film series (see Appendix 3).

The research project was funded by the Indo-Dutch Programme for Alternatives in Development (IDPAD, a joint programme of the Government of India and the Dutch government), and was directed by A.R. Vasavi of the School of Social Sciences at the National Institute of Advanced Studies (NIAS), Bangalore, India, and Peter van der Veer, formerly of the University of Amsterdam and now of the University of Utrecht, The Netherlands. Carol Upadhya of NIAS was the Principal Researcher; Sahana Udupa and Sarita Seshagiri were Research Associates and conducted the bulk of the fieldwork. Research assistance and inputs at different stages were provided by Pallavi Bhatt, Michiel Baas, Rakesh Mehar, Pratish N, Sonali Sathaye, and Nagasena Gautama. Consultancy on some themes related to the project was provided by Gideon Arulmani and Latha Shashikumar, and data processing was done by Ravi Kumar and his colleagues. The film series that was produced under IDPAD's Alternative Dissemination programme was made by Gautam Sonti (see Appendix 3). We thank them all for their enthusiastic participation in the project. We would especially like to acknowledge Peter van der Veer for his personal and long-distance support.

This study would not have been possible without the cooperation of the software and BPO companies in Bangalore that permitted us to conduct interviews and observations on their premises, as well as the three companies that very magnanimously granted us permission to make films on them; the many CEOs, HR managers and other executives who patiently answered our questions; the numerous other individuals connected in various ways with the industry who shared their insights with us; and especially the

hundreds of IT and ITES employees and their family members, in Bangalore and in Europe, who agreed to sacrifice their valuable free time and talk to us. As a condition for conducting interviews, we have promised anonymity to all participating companies and respondents, so we cannot thank any of them by name.[*] However, these individuals and companies know who they are, and we would like to convey our gratitude to them through this report, which has been prepared in fulfilment of our promise that we would share the results of our study with the participants (as well as for the funding agency). We would also like to thank those who participated in the Dissemination Workshops held January and March 2006 for their inputs, participants in several seminars at NIAS where preliminary results of the study were presented, as well as those who sent their feedback on the Draft Report by mail. The Final Project Report has been a long time in the making, but we hope that the readers will find something of interest in it, or at least hear the echo of their own voices, filtered back to them through the sociologist's lens.

We would like express our gratitude to Dr. Sanchita Dutta of IDPAD, New Delhi, for so patiently arranging and reorganising the budget; Srinivas Aithal of NIAS for help in accounts; the International Institute of Asian Studies, Amsterdam, for hosting us in 2004 and 2006; and Dr. Heleen van der Minn of IIAS for her assistance.

Several friends and colleagues have been our sounding boards for the study and we would like to acknowledge them: Sarah Joseph, Narendar Pani, Solomon Benjamin, M. Vijaybaskar, Janaki Nair, Madhava Prasad, Mary John, Satish Deshpande, Supriya Roy-Choudary, Chris Fuller, Sonali Sathaye, Gautam Sonti, and Lata Mani. Participants in the International Conference on New Global Workforces and Virtual Workplaces: Connections, Culture, and Control, held at NIAS on August 12-13, 2005, as part of the IDPAD project, also contributed greatly to our thinking on the issues discussed in this report.

Finally, we would like to thank the Director of NIAS, Dr. K. Kasturirangan, and the Dean, School of Social Sciences, Prof. Dilip Ahuja, for their constant encouragement and support for this research project.

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[*] Only the identities of the companies on which the 'Coding Culture' film series was shot have been made public, with their acquiescence. In this report, companies are mentioned by name only with reference to information that is already in the public domain.

1. INTRODUCTION

1.1 Background and objectives

The information technology (IT) services and IT enabled services (ITES) industries in India have become highly visible nodes of the global economy, attracting substantial attention from international media and business interests as a prime destination for outsourcing and offshoring. The success of these industries, as well as the recent anti-outsourcing backlash in the U.S., have produced a new global image of India as a rising economic power. It has also created the figures of the Indian 'techie' and call centre agent as low cost (but 'high quality') technical workers who represent the main threat to American and European IT-related jobs in the current decade. Moreover, for many political and business leaders in India, IT has come to be regarded as a model for India's future economic growth and development, based on the policies of liberalisation and globalisation.[1] However, while much has been written about the history, growth and structure of India's IT industry, there have been few critical analyses of its significance or implications for India's overall social and economic development. Moreover, there have been few sociological studies of work in these outsourcing industries, or of their most crucial 'resource', the workforce.[2] IT has become the career option of choice for many young educated Indians, for whom it offers salaries unknown in other sectors as well as an opportunity to live and work outside of India. Software engineers, BPO workers, and others employed in IT-related occupations can be said to constitute a new kind of workforce: they are highly educated, well-paid, mobile, and closely linked into the global services economy, whether working in India or abroad. Moreover, work in this industry is distinctive in that it is not only catering to the global market, but is often performed 'virtually', giving rise to new kinds of workplaces, work cultures, and employment issues. The rise of the IT industry has also fed into ongoing processes of globalisation, stimulating significant transformations in the urban middle classes and in the cultural milieu of cities such as Bangalore. These include changes in lifestyles, forms of sociality, family structure, and self-identity, which are linked to the rapid upward socio-economic

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[1] The term 'IT industry' is used loosely in common parlance and has different meanings in different contexts. Strictly speaking, 'IT' includes hardware production as well as software, but in the Indian context the IT industry is almost entirely devoted to software services, hence the terms 'software industry' and 'IT industry' are often used interchangeably. Similarly, 'IT' is sometimes used to refer to ITES as well as software services. While ITES is a very different kind of industry from software, for historical and ideological reasons they have tended to be categorised together in India under 'IT' – not least because both come under the ambit of NASSCOM, the industry body that has been very active in promoting these industries. Our study has covered workers in both software and BPO/ITES companies, and the findings on each are reported separately, so in this report we use 'IT' as shorthand for software services and 'ITES' to refer to back office services, call centres, and the like.

[2] A number of studies of the Indian software industry provide information on its history and economic and organisational features. See, for example, Heeks (1996); Heitzman (1999); Kumar (2000a, 2000b, 2001); Lakha (1994); Millar (2000); Parthasarathy (2000, 2005); Patlibandla, et.al. (2000), Saxenian (2000), Saith and Vijayabaskar (2005a). For studies of labour in the IT industry see Rothboeck (2001) and Xiang (2001, 2002). Only recently have several sociological/ anthropological studies of Indian software engineers and the IT industry appeared; see van der Veer (2005) and Fuller and Narasimhan (2005, 2006, 2007).

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mobility experienced by employees in this industry as well as to their transnational work experiences.

The NIAS-IDPAD study entitled 'Indian IT Professionals in India and The Netherlands: Work, Culture, and Transnationalism' was designed to explore these social and cultural transformations. More specifically, the research project set out to answer the following questions:

1) *Production of the IT workforce and social origins of IT workers*: What are the educational and social avenues through which individuals come to join this profession? How is entry into various levels and segments of the IT industry structured by gender, caste, region, economic status and other social factors? What kinds of cultural, social and economic capital need to be invested to produce an IT worker, and how does this determine the social composition of the profession?

2) *Structure of IT employment*: The category of 'IT work' encompasses a wide range of skill levels, from 'high end' technically sophisticated work to 'low-end' IT-enabled services (ITES). How is IT work segmented and stratified; what are the various types of work available; and how do these relate to social differentiation within the profession? How does the IT labour market function, and what are the mechanisms through which workers are recruited into various categories of IT work?

3) *Work culture and organisational control:* In the labour intensive IT and ITES industries, in which the key resource is 'people', control over workers and the work process is central to profitability. What forms of control have emerged to manage these dispersed and virtual forms of production and services, and how are they similar to, or different from, those found in the 'new economy' of the advanced industrialised countries?

4) *Transnational work experiences:* How do Indian software engineers negotiate their position when they work abroad, in terms of cultural self-presentation and social relations? What is their experience of inclusion and exclusion, especially in The Netherlands, where political debates about skilled labour immigration have gained currency?

5) *Position of IT professionals in the larger urban class structure*: How has the rise of the IT industry altered the urban class structure and the wider cultural milieu? How do IT professionals relate to other segments of the middle class, and how are they located culturally and socially in the larger urban society of Bangalore?

6) *Changes in sociality:* How does IT work affect the personal, family, and social lives of workers? Are there changes in family structure, gender relations, inter-generational relations? What new forms of sociality have appeared within this class of highly mobile professionals?

7) *Culture, identity, and subjectivity*: How has working in the IT industry – especially their transnational work experiences -- shaped the cultural orientation, identities and subjectivities of employees and their families? Have IT workers developed a unique

subculture that sets them apart from other segments of the middle class? How do religious, caste, and regional identities intersect with new professional and middle class identities?

8) *Coping strategies:* How does IT work affect the personal, family, and social lives of workers? How do IT professionals cope with the long working hours and high levels of stress and mobility that accompany work in this industry? What are the effects of this kind of work on the nuclear and extended family? Have intergenerational and gender relations been renegotiated in this context?

1.2 Significance of study

The outcomes of this study have wider significance and implications for social policy in several areas:

1) The widespread adoption of modern information and communications technologies (ICTs) is regarded by many experts as a key strategy for India's development and growth in the 21st century, and several state policies and programmes have been designed to promote the diffusion of these technologies as well as the growth of the IT and ITES industries themselves. Moreover, the success of the IT industry is regarded by many observers as a major factor behind the recent rise in India's economic growth rate. Because the IT industry has been assigned a central position in India's development agenda, and also because it depends on state-supported investments in higher education as well as other policy initiatives, it is necessary to assess not only its contribution to economic growth and employment, but also the kinds of jobs and the quality of employment that it provides.

2) The projection of IT as a desirable career choice and as a model industry has been absorbed by the larger society, influencing the aspirations of youth and producing social practices such as high dowry demands by the families of IT grooms. Despite the high salaries that are characteristic of IT work, the negative features of long working hours and high stress levels have led to widely reported family and psychological problems among IT professionals and BPO workers. Given the constant media coverage of the industry and its workers, both positive and negative, an in-depth sociological study of these questions assumes significance.

3) The study also examines questions of identity and subjectivity, for instance the interlinkages between new professional and class identities and older 'traditional' identities of caste, language or region, as well as the influence of global work culture on identity formation -- themes that shed light on the rapid cultural transformations that are taking place more broadly in urban India today. A significant question here is whether existing caste, religious and gender inequalities are being reproduced or challenged by this globalised industry.

4) The findings of this study are relevant to the problem of the 'digital divide', which is deeper in the Indian context where even universal literacy remains elusive, and where there are sharp differences in language, education, and access to IT training. In this context, the promotion of these hi-tech industries may exacerbate social and economic

divisions. The political debate about the IT industry that has erupted periodically in Karnataka points to the salience of this question, as does the current debate on reservations in the private sector.

5) Finally, there is the issue of what kinds of changes in urban society are being initiated by the growth of this new global industry in India. A number of sociologists have argued that the advent of the 'information society' and the growing hegemony of the professional and managerial classes in the advanced industrialised countries have exacerbated class divisions, rather than creating a more inclusive and democratic society as predicted. If this is the situation there, what are the social consequences of the rapid development of an 'information economy' in cities such as Bangalore? While the research project was not designed to evaluate the impact of the IT industry on the city specifically, some of the findings are pertinent to the debate on 'urban dualism'; for instance, the study looks at the extent to which the IT industry is producing new forms of social differentiation.

1.3 Research methods and database

The project period ran from November 2003 to March 2006. Field research was carried out in Bangalore over a period of eighteen months (January 2004 to June 2005) and in three European countries (The Netherlands, Belgium and Germany) for a total period of four months (May-June and September-October 2004). The research strategy was primarily qualitative, aimed at producing in-depth knowledge about the topics investigated, although a small survey of IT and ITES employees was also designed to generate some amount of quantitative data. Altogether, we spoke with nearly 600 people connected with the IT and ITES industries, in Bangalore and in Europe, including employees at various levels and their families, managers, HR executives, consultants, and others. In addition, about eighty days were spent observing training programmes, work practices, meetings, company social events, and the like. Another fifty days were spent filming activities in three software companies, which added substantially to the archive of research material collected.

A substantial database of interview and observation notes, documentary material, as well as film footage, was generated through the following methods:
- semi-structured interviews with top executives, HR (Human Resource) managers and executives, and other managers from a cross-section of IT and ITES companies in Bangalore, totalling almost 100;
- structured interviews with a sample of employees from a cross-section of companies, totalling 132 IT professionals and 34 BPO workers.
- in-depth interviews with about fifty key persons connected with the industry, including training and manpower consultants, managers of training institutes, officials of engineering colleges, psychological counsellors, and ancillary service providers (Bangalore);
- informal and unstructured interviews and interactions (participant-observation) with approximately 160 software engineers and BPO employees and their families, including repeated interviews/ interactions with several informants (Bangalore);

- interviews with Indian IT professionals working in Europe and with some of their family members (total: 80);
- observation of work activities in several companies, such as training sessions, induction programmes, social events, team meetings and everyday work practices, as well as observation of several industry-wide events, in nine companies; about 80 days total;
- collection of relevant documents, media clippings and internet files, top create a database on the IT/ITES industries and their workforces;
- extensive candid filming of activities and interviews in three companies to produce a series of films on work culture in the industry (about 50 days total). This footage has yielded valuable observations and interview transcripts and has been used to create a film archive for research purposes.

The research methods and database are described in more detail in Appendices 1 and 2.

2. POLITICAL ECONOMY OF THE IT INDUSTRY IN INDIA

The history and structure of the IT industry in India has been well documented and need not be reiterated in detail here. However, it is important to situate the growth of this industry within the larger political economic framework, which includes not only the compulsions of globalisation but also the specifics of the state-led liberalisation agenda in India, the emergence of a new class of business entrepreneurs that are leading the IT industry, and the close relationship that has been forged between leaders of the IT industry and the Indian state at several levels. This chapter sketches briefly some of the significant aspects of the history and political economy of the IT industry in India, as background to the discussion of work and employees in the chapters that follow.

2.1 Globalisation and the rise of the Indian IT industry

The rise of the global IT industry and the spread of modern information and communication technologies (ICTs) have been inextricably linked with processes of globalisation and the transition to a post-industrial economy in the advanced economies of the North. The more recent phenomenon of outsourcing of IT and other services is a central part of this process. A number of scholars have analysed the shift from the Fordist mass production system to a 'post-Fordist' system of networked flexible production (or 'disorganised capitalism') that caters to volatile consumer-driven markets (Lash and Urry 1987; Castells 1996).[3] Under the regime of 'flexible accumulation' (Harvey 1989), production is increasingly organised through transnational production networks or global 'commodity chains' that link together diverse economic entities across the globe, from huge transnational corporations (TNCs) to small family firms, through various kinds of subcontracting and outsourcing arrangements (Gereffi and Korteniewicz 1994). Even large multinational corporations (MNCs) have been restructured, from vertically integrated bureaucratic organisations into 'network enterprises' composed of semi-autonomous entities that contract out work to one another.[4] The development of these flexible forms of organisation has been accompanied by the 'flexibilisation of labour' as well as increased mobility of capital.

The diffusion of modern telecommunication and computer technologies has been central to the transition to a post-industrial economy and to the restructuring of global capitalism since the 1980s. Not only have the new ICTs facilitated the emergence of transnational production networks, they have also altered the way in which production itself takes place. Because work is increasingly performed through the manipulation of symbols in computer systems rather than of material objects (what Zuboff [1988] has called 'textualisation' of work), both production and services have become 'dematerialised' and

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[3] As Harvey points out, the geographical dispersal of production does not necessarily mean that capitalism has become 'disorganised', as Lash and Urry argued; rather it is "becoming ever more tightly organized *through* dispersal, geographical mobility, and flexible responses in labour markets, labour processes, and consumer markets…" (1989:159). The increasing centralisation of capital has made information or 'knowledge' a valued commodity, the production of which has spawned an organised knowledge-producing industry (1989:160).

[4] See Castells (1996: Chap. 3). This feature is central to understanding the operation of MNC software development subsidiaries in India.

'disembodied', allowing work to be divided among geographically distant sites and workers, and performed without the physical presence of the worker (Aneesh 2001a:355). This pattern of dispersion of production and services across the globe has resulted in the 'despatialisation' of production, feeding into the phenomenon of space-time compression or 'distanciation' that is regarded as a central feature of globalisation (Harvey 1989, Giddens 1990).

Closely linked to these changes in the organisation of production is the increasing 'servitisation' of the advanced economies. It is for this reason that Castells (1996), among others, argues that the globalisation of services constitutes the latest phase in the development of global capitalism. Certain types of service work – especially those referred to as 'knowledge work' -- are especially amenable to spatial dispersion because they are based primarily on control over mental labour. In the earlier phase of globalisation, manufacturing jobs moved from the industrialised economies to the low-cost locations in the 'Third World', and now service jobs are moving in similar fashion – both 'high tech' professional jobs such as computer programming as well as 'low-end' services such as insurance claims processing and telemarketing. In what has been heralded as the new 'knowledge' or 'informational' economy, information and knowledge themselves have become the key resources, factors of production, as well as the primary products.[5]

A central feature of the global informational economy is the emergence of complex networks that are engaged in creating and supporting information technology systems or providing remote backend services, which increasingly link together workers, managers, and customers located across multiple sites and borders. The global IT industry has been both facilitator of the 'new economy' as well as one of its primary industries, and the back office and low-end software services providers, such as India, have played a central role in the development of this economy by enabling work to be performed faster, cheaper and around the clock. As Castells (1996:101-2) notes, the distinctive feature of the new global economy is its capacity to work as a unit in real time, on a planetary scale.

For many social theorists, these changes in the structure of the global economy and in the organisation of production, and the spread of the new ICTs, have initiated a fundamental social transformation to what is understood as a new phase or type of modernity, what has been called the 'risk society', 'second modernity', 'reflexive modernity', or the 'network society'.[6] While theorists differ on the specifics and emphasis, most point to the following features of the new social-economic order. First, as already noted, globalisation has despatialised work and production, as economic organisations and individuals located in distant sites are linked together through complex economic and communication networks, blurring temporal and spatial boundaries. Work thus becomes transnational and delocalised, and is managed globally through sophisticated ICTs. Second, with the increasing flexibilisation of labour, risk becomes the key organising principle for work, as

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[5] The "emergence of a new technological paradigm organized around new, more powerful, and more flexible information technologies makes it possible for information itself to become the product of the production process" (Castells 1996:78).
[6] See Beck and Beck-Gernsheim (2002), Beck (1992, 2000), Castells (1996), Giddens (1990, 1991).

workers have to calculate their chances for gaining income under different situations (Beck 2000). Beyond the specifics of labour and organisation in the 'new economy', several theorists consider post-industrialism and globalisation to have created an entirely new type of society -- what Castells calls the 'informational' or 'network society' – that is fundamentally different from the industrial society that came before it. The informational society is based on a specific form of organisation in which information generation and processing and transmission become fundamental sources of productivity and power (Castells 1996:21, note 31). While it is doubtful whether the idea of the 'informational society' can be applied to the Indian context where the information technology sector is primarily an outpost of global capital within a largely agrarian and still industrialising economy, it may be that certain features of the 'network society' identified by these theorists are relevant to understanding work and workers in this sector.

At the most general level, the rise of the Indian software services and IT enabled services industries can be seen as a direct outcome of these developments in the global economy, as companies located in the advanced industrial economies are outsourcing and offshoring an increasingly large proportion and range of their activities to places where skilled human resources are more easily available and at lower cost. The process of internationalisation of the production, distribution and management of goods and services accelerated rapidly in the 1990s (Castells 1996:116), coinciding with the period when India's IT industry took off. The outsourcing of software development projects by American companies to Indian services providers, the setting up of offshore software development centres by multinationals in India, and the burgeoning of international call centres and other such back office operations, are examples of this wider phenomenon.

The software and services industry in India has grown rapidly from small beginnings in the 1980s, to generate total earnings of $13.5 billion in 2004-05, of which $10 billion were from exports. The industry was growing at an annual rate of 50 per cent during the 1990s, and since 1999-2000 the growth rate has been around 28 per cent per annum. Riding on the back of the software industry's success, IT enabled services (or BPO, business process outsourcing, including call centres and the like) entered India more recently and has become the new high growth industry, growing by nearly 50 per cent from the previous year to generate export revenues of $4.6 in 2004-05 and employment for about 300,000 people. But software or IT services continues to be the dominant sector, producing about half of the earnings from all IT-ITES activities. While the domestic market for IT services and ITES is also expanding, IT-ITES remains primarily an export-oriented industry, with export earnings accounting for about 64 per cent of the total IT sector earnings of $28.4 billion. Of the $22.6 billion generated by software and services together, $17.7 billion were export earnings.[7] In 2001, software and services exports constituted 14 per cent of India's total export earnings, and by 2005 gross revenues from IT services accounted for 3.3 per cent of the gross domestic product (Chandrasekhar 2005b). More significantly, India now accounts for 65 percent of the global market for offshore IT services and 46 percent of global business process offshoring.[8] The IT sector has been experiencing a boom over the last few years, and IT

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[7] NASSCOM, 'Indian IT Industry – Factsheet'. www.nasscom.org, accessed May 2006.
[8] Summary of NASSCOM-McKinsey Report 2005, in NASSCOM Newsline No. 50, December 2005, www.nasscom.org.

and ITES companies – Indian as well as multinational -- have been ramping up their staff strengths rapidly. The industry has also expanded due to the entry of a number of new companies, especially multinationals, as the outsourcing and offshoring wave in the advanced industrialised countries continues to grow. Accurate employment figures are difficult to obtain, but NASSCOM estimates that the total direct employment generated by the industry came to 1.3 million in 2005-06 – representing a rapid expansion from the figure of 284,000 for 1999-2000.[9]

While global economic restructuring has provided the opportunity for software services and IT enabled services industries to emerge in India, the rapid growth of these industries cannot be attributed to the forces of globalisation alone, but must also be explained in terms of specific political and economic processes that have unfolded since the 1980s. These include the deepening policy of liberalisation that has exposed India to global economic forces; the push towards technological modernisation, especially in the computer and telecom sectors, that began under Rajiv Gandhi's regime; and the emergence of indigenous 'middle class' entrepreneurs in the IT sector who represent a new model for Indian business (Upadhya 2004b). Equally significant was the migration of large numbers of highly educated Indians, especially engineers, to the U.S. from the 1970s and the consequent formation of a wealthy and influential NRI community, especially within the IT industry. Several high-profile and wealthy 'tech entrepreneurs' emerged within the NRI community and became icons for the aspiring middle classes in India, as well as key players in the emergent transnational business networks that have served as conduits of capital, knowledge, and entrepreneurship in the IT industry (Saxenian 1999, 2002a, 2002b; Upadhya 2004a).

All these facets of the history of the IT industry in India have been described by others and will not be discussed in detail here. The following section focuses only on the relationship between the IT industry and the state, and its significance for India's development.

2.2 The IT industry, the state, and India's development

The relationship between the IT industry and the Indian state is a complex issue that goes beyond the scope of this study. However, some background on this issue is necessary in order to understand the political economy of the industry and of the outsourcing phenomenon, and their implications for India's development.

The received story most often told about the rise of the IT industry brings into play several factors, which on the surface have little to do with the state: the availability of a large pool of skilled English-speaking technical manpower, especially engineering graduates; the labour cost difference between India and the U.S.; the early entry of multinationals such as Texas Instruments and the establishment of satellite links to enable data transmission overseas; and the success of the first Indian software services companies such as Wipro and Infosys, whose founders spotted an opportunity in the

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[9] NASSCOM, Knowledge Professionals - Factsheet, www.nasscom.org. Of the estimated one million IT employees, about 345,000 are in the software exports sector, 348,000 in the ITES-BPO sector, and the rest are in the domestic sector or are 'in-house' IT professionals.

global market and built up their businesses on the basis of contracts with American companies. On Bangalore's emergence as 'India's Silicon Valley', observers usually point to the fact that the city houses numerous scientific and technology research establishments and consequently had a ready supply of expertise and trained manpower.

This story usually neglects to note that the ready supply of skilled manpower had been produced by the long period of economic policy based on import-substitution and development of state-driven scientific and technical expertise. Moreover, the industry has enjoyed significant state support right from its inception, at both the national and state levels. The various technology missions initiated under Rajiv Gandhi's government after 1984, and the new telecom and computer policies that were brought in, provided the infrastructural base on which the industry could grow. This growth was further encouraged also by the policy of liberalisation in the 1990s. Moreover, from the 1980s the IT industry has been specifically promoted through policies such as tax holidays, duty-free import of equipment, provision of free or subsidised infrastructure and land, the establishment of software technology parks, and the like. At the state level in Karnataka, additional policies such as the provision of land and tax breaks were designed to attract software units to locate in the state.[10]

Parthasarathy (2005:206-9) outlines an important shift in the approach to policy making during the 1990s as the government began to include the software industry in the policy making process -- a process that he refers to (following Evans 1995) as the increasing 'embedding' of the Indian state in private capital.[11] The industry body, NASSCOM (National Association of Software and Service Companies), was formed in 1988, and subsequently major policy decisions were taken in consultation with this organisation, the best example of which was the establishment of the Software Technology Parks of India (STPI) in 1991.[12] NASSCOM has been represented on important committees of the Department of Electronics and Technology, and the Ministries of Commerce, Finance, Human Resources Development and Labour, as well as on the various task forces and committees established to look into the specific requirements of the industry.[13] This constant state-industry interaction has resulted in many sector-specific policy changes that have benefited the software industry (Parthasarathy 2005:209). It is noteworthy that IT is one of the few industries that enjoys a functioning, fast track, single-window clearance

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[10] See the website of the Department of Information Technology, Government of Karnataka, for information on IT policies.

[11] Rather than understand this process as the 'embedding' of the state *in* private capital, it could be termed the *colonisation* of the state *by* private capital.

[12] The STPIs are essentially export zones dedicated to the software industry. They were crucial to the growth of the industry because they provided communication and other facilities that allowed software companies to offer offshore services, rather than working through 'bodyshopping', which had been the primary form of outsourcing in the 1980s (Parthasarathy 2005:208).

[13] An example of this close symbiosis between the state and the IT industry is that fact that the report for the Task Force on Meeting the Human Resources Challenge for IT and IT Enabled Services that was constituted by the Department of Information Technology was written by KPMG and commissioned by NASSCOM. (Government of India 2003, NASSCOM 2004). Earlier, a National Task Force on IT and Software Development was established in 1998 to make recommendations to transform India into an 'IT superpower', but many of the recommendations are yet to be implemented (Parthasarathy 2005:221).

system for the setting up of new units, and which also has a high level of public visibility due to the activities of the IT departments of the government.

There are several reasons for this promotion of the IT industry by the state. First, in the late 1980s and early 1990s the software exporting sector was seen as a good source of foreign exchange earnings at a time when India was facing a balance of payments crisis. Second, IT was regarded as a significant new avenue of employment, especially for the 'educated unemployed' when, following liberalisation, the Indian economy did not 'take off' as was envisaged and there was evidence of shrinking employment opportunities in the organised sector. Moreover, India, by investing heavily in ICTs and ICT-based economic growth, has followed a standard economic development strategy that is seen by many economists as a shortcut to development through technology. In theory, the spread of ICTs and other advanced technologies, and concentration on the development of 'knowledge' industries, will enable developing countries to 'leapfrog' over the stage of industrialisation (Saith and Vijayabaskar 2005b:26). For all these reasons, the software industry was identified by the central government as critical both to the growth of the Indian economy and to the generation of new jobs, and was provided with a range of fiscal incentives (Rothboeck, et.al. 2001:18-19).

This history of state support for the IT sector needs to be borne in mind when considering policy issues, especially employment policies. The leaders of the IT industry have been among the most vocal advocates of liberalisation in India, from which they claim to have substantially benefited. They have repeatedly made the argument that the industry would not have grown as fast as it has if it had been subjected to the kind of bureaucratic controls that have been imposed on Indian industry from the time of Nehru. This argument is usually made in defense of their resistance to government regulation of any kind, especially with regard to labour laws. But while the IT industry supports a *laissez-faire* policy for itself with regard to government regulation, it has not been known to oppose or reject the subsidies and tax breaks that it has received from the state.

Although these incentives and policy measures suggest that state support has been largely responsible for the success of the IT industry in India, there are different points of view on the question of the relationship between the state and this industry. First, as already mentioned, the IT industry's position has been that it has been successful not due to state support but precisely because of non-interference by the state. Several economists, on the other hand, have suggested that because the state has failed to support the industry sufficiently it has developed in a 'skewed' manner, in favour of software services exports and to the neglect of hardware and the domestic market (Chandrasekhar 2005a). Parthasarathy (2005) also argues that the state, for political reasons, has not been able to develop policies sufficient to nurture the Bangalore software cluster. While the 'embedding' of the state in private capital allowed the Bangalore industry to grow in the first place, he suggests, it has lost the autonomy to formulate transformative economic policies, for instance by encouraging the growth of the domestic market for software.

These arguments draw upon political economy approaches to economic development and reflect positions about the relative importance of the state and the market in fostering development. But while economists and policy experts may debate about the extent to which a particular industry has been effectively promoted or neglected by the state, and

which policies are needed to foster or regulate its growth, what is most significant about the case of the software industry is that it is popularly *perceived* to have received an unfair measure of state subsidies – especially in Karnataka – giving rise to an acrimonious political debate that has pitted the IT industry against certain political parties and large sections of the local population. One reason why this debate has taken place in Karnataka more than in other states with similar software sectors is related to the nature of the state-industry relationship here – especially the alignment of particular class interests with the ruling elite at certain points in time. The close relationship that the IT industry enjoyed with the S.M. Krishna-led government in Karnataka (in power from 1999-2004) is well known, to the extent that the industry was able to redirect the development agenda towards the 'Singapore model' (Nair 2000, 2005). The establishment of the Bangalore Agenda Task Force (BATF) in 1999 -- a 'public private partnership' in which industry was supposed to work with the government to improve Bangalore's infrastructure and civic amenities – represented the fruition of this close relationship (Ghosh 2005).[14]

The political debate about IT has become most visible in Bangalore around the question of infrastructure. The provision of infrastructure is widely regarded by industry and economists alike as one site where state intervention is required to support economic development, and this is an area in which the Karnataka government has been repeatedly accused of neglect by the IT industry itself. While industry leaders have threatened periodically to quit Bangalore and the state if something is not done to improve roads, traffic conditions, and the like, many local people view the industry as elite, de-rooted, and too privileged – demanding and receiving subsidised land and other incentives from the government but giving nothing back to the city, apart from rising prices of land and housing and ever-growing traffic jams. The 'infrastructure debate' has revealed the fault lines that have appeared in Bangalore's civil society, and highlighted the contradictions between the model of development that is represented by the IT industry, and the reality of a rapidly growing city in the midst of a stagnant agrarian economy and a declining 'traditional' industrial sector.

This debate also has pointed to the regional disparities in development that are being exacerbated rather than smoothed over by the growth of the IT industry. Despite recent attempts by software companies to establish themselves in smaller towns and expand into new geographical regions, the industry remains clustered around six or seven cities that have well-developed infrastructure and communication facilities as well as readily-available manpower (Kumar 2005:126). According to NSSO data, 94 per cent of 'IT occupation workers' are located in urban areas. Of the top 600 IT firms, 21.8 per cent are located in Mumbai, 20.3 per cent in Bangalore, 18.5 per cent in the National Capital Region, and 10.7 per cent in Hyderabad (Basant and Rani 2004:5323; NASSCOM data). While IT hubs developed first in big cities due to the availability of qualified human resources and infrastructure, smaller cities such as Ahmedabad, Pune, and Kochi are now emerging as IT centres. But there continues to be unevenness in the regional distribution of IT companies and workers, with the southern states dominating, although some

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[14] However, the BATF and other IT industry-led initiatives faltered after the change of government in 2004, which brought the Janata Dal to power partly on an anti-IT platform.

'deepening' of the labour market is occurring on regional level as well.[15] According to several scholars, this pattern of concentration has reinforced regional inequalities, apart from reproducing existing rural-urban disparities.

In popular discourses and media reports, the IT industry is often represented as a dynamic sector that will produce beneficial downstream effects all around, generating three times more indirect employment than direct employment, stimulating economic growth through trickledown and forward and backward linkages, and generating ancillary economic activities and corresponding new employment. In the midst of the euphoria about India climbing onto the world stage on the back of IT, the sharp divide between this 'global' industry and the rest of the economy and society tends to be overlooked. Several economists have questioned the ability of the ICT sector to create adequate positive linkages in the macro-economy and thereby transform India's position in global division of labour (Chandrasekhar 2005a). According to Kumar (2005), most software companies operate as export enclaves with few linkages to the domestic economy.[16] Moreover, the 'skewed' development of ICT sector towards low value software services and exports has meant that capacity for more high-end work has not been built up. More value-adding segments such as design and systems analyses are retained by client firms in high-income countries due to concerns about IP protection and lack of quality control in Indian firms. India's competitive edge continues to be its low cost of labour, and as long as it is unable to break into higher value segments in a significant way, it is vulnerable to competition from other low-cost countries such as China (Kumar 2005). The author suggests that given the significant opportunity costs to IT exports, there is a need to rethink tax incentives. The enclave and skewed nature of the software exporting industry, rather than being a temporary aberration brought on by rapid growth, may be understood as endemic, an outcome of the process of 'uneven and combined development' that is characteristic of the global capitalist economy (D'Costa 2003).

It should also be noted here that the Indian software industry's position in the global economy as the receiver of outsourced and offshored projects means that it is dependent on global capital and markets for its sustained growth. Global capital is highly mobile, and seeks flexible workforces in low cost locations that can be tapped to perform work more cheaply or efficiently. This reliance on mercurial global capital and markets means that the industry is highly vulnerable to larger economic forces. As happened during the downturn of 2000-02, a shift in the global economic climate, a downturn in the U.S. economy, or a decline in India's relative competitiveness due to rising costs, may lead to flight of business and/or of capital. Also, although the industry's dependence on the U.S. for its market (around 68 per cent of exports are to the Americas) is on the decline as the industry is expanding into other markets, it is still highly vulnerable to macro-economic shocks (Saith and Vijayabaskar 2005b:31).

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[15] Both 'IT occupation workers' and 'IT industry workers' are concentrated in a few states: Maharashtra (26.7 per cent of IT industry workers), Karnataka (14.5 per cent), Tamil Nadu (10.3 per cent), West Bengal (10.3 per cent), Delhi (12.7 per cent) and Andhra Pradesh (9.7 per cent). Source: Basant and Rani (2004:5323), based on NSSO 55th round data.

[16] "The enclave nature of operation generates very few knowledge spillovers for the domestic economy" (Kumar 2005:117).

2.3 Bangalore's IT industry

Bangalore emerged as a major centre of global software outsourcing and other IT-related services in India due to the availability of skilled technical and scientific manpower in its public sector industries and laboratories as well as good communication facilities. The advent of the software industry in the city is usually traced to the late 1980s, when Texas Instruments set up the first satellite data link and established a software development centre in the city. Other companies soon took advantage of this infrastructure and the availability of cheap technical manpower and followed suit. Simultaneously, the early Indian software companies such as Infosys, Tata Consultancy Services (TCS) and Wipro established themselves primarily by getting contracts from foreign companies (mostly U.S.-based) to provide onsite software services. After a period of slow growth mostly led by multinationals (MNCs) investing in IT, the industry took off in the 1990s due to liberalisation, improvements in telecom infrastructure, and a favourable global economic climate. The establishment of the first STP (Software Technology Park) at Bangalore gave a major boost to the industry, and the post-1991 period saw the emergence of offshore 'software factories' (Parthasarathy 2005:211), both domestic and multinational, as well as numerous small and medium size firms.

Bangalore now hosts a number of offshore development centres (ODCs) and subsidiaries of multinationals, as well as large campuses of the major Indian players such as Infosys and Wipro. MNCs that have established ODCs in Bangalore include U.S.-based companies such as IBM, Intel, HP, Sun, Oracle, Cisco, Texas Instruments, European companies such as SAP, Philips, Siemens, and Robert Bosch, as well as a few Chinese and Japanese companies. There were about seventy ODCs in the city as of 2005, but more and more MNCs are opening development centres in Bangalore, or expanding existing facilities. The official 'FE' (foreign equity participation) category also includes a number of smaller firms that have been started by Indians (and some by NRIs based in the U.S.) and were funded by venture capital. Although the large software exporters account for the bulk of exports and revenues, the majority of firms in the city (and in the software industry in general) are small to medium sized Indian companies,

According to STPI figures, there were 1721 registered software exporting and other IT-related firms in Karnataka in 2005-06, including about 200 new firms in that fiscal year, but only around 1200 of them were operational, and the majority are very small firms.[17] However, estimates of the actual number of software firms vary quite a bit because not all firms are registered with the STPI, and even fewer are members of NASSCOM. There are numerous small companies in Bangalore devoted to low-end services such as data entry, website design, computer training, etc, which constitute what might be called the 'informal sector' of the IT economy and which are not accounted for by STPI or other government figures. Thus, it is difficult to arrive at a reliable estimate for the number of IT firms in Bangalore, but a rough estimate would place it at around 1200. Karnataka state is the leading exporter of software in the country, with software exports totalling Rs 37,600 crores in 2005-06, or about $8.3 billion. The distribution of firms in terms of size

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[17] *Economic Times,* May 8, 2006.

is highly skewed: while the majority of firms are small, there are only five firms in the state with revenues of more than Rs 1000 crore.[18]

Reliable employment figures for the IT sector and for Bangalore are also hard to come by. The widely accepted figure for software engineers in Bangalore in 2004 was about 115,000, plus about 30,000-40,000 ITES workers, bringing the total IT workforce to about 150,000. But these figures are probably collected only from registered companies -- it is not clear whether they include contract workers and informal sector workers, or even those in very small companies with less than five employees. According to a recent STPI press release, 35,000 IT professionals were recruited in Karnataka during the period April to December 2005, taking employment in the IT sector in the state to 3.2 lakh.[19] Based on these figures, the number of IT employees (including ITES) in Bangalore may be estimated at around 200,000 to 250,000, out of a population of about 7 million.

The account of work, employment, and the workforce in the IT industry presented in the following chapters is based primarily on research conducted in Bangalore. Although on some issues it may be unwise to generalise from the study of one city to the entire IT sector in India, we assume that many of the features described here are common throughout the industry. The main distinguishing characteristic of Bangalore that may produce some differences, however, is the fact that it is widely regarded as the premier centre for the IT and ITES industries in the country, as well as the industry's high visibility. Unlike Mumbai and Delhi, which have developed thriving IT sectors within more diversified and older industrial economies, Bangalore has become rather 'IT-centric' (despite the fact that there are other important industries in the city that employ larger workforces, such as garment manufacturing). Bangalore's reputation as India's 'Silicon Valley' attracts both IT professionals and prospective BPO employees to the city in search of work, and continues to lure companies to establish or expand operations, despite their complaints about poor infrastructure. The result has been a rather overheated job market in which many companies compete for well-qualified employees, even while IT professionals vie for the best jobs. These aspects of employment and the job market are discussed in detail in Chapters 3 and 5. In addition, Bangalore's IT-centricity has imparted a level of visibility to IT professionals and BPO employees that they perhaps do not enjoy in other cities. They are clearly distinguishable by their lifestyles, and are regarded by the wider society as something of a *nouveau riche* class (for which reason software engineers have become a favourite target of petty criminals – reports of thefts and muggings for cell phones, cash and credit cards being daily fare in the local newspapers). Aspects of the 'IT lifestyle' and the 'call centre subculture' are described in Chapters 7 and 8.

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[18] According to NASSCOM, there are just three to four 'Tier I' companies in India with revenues exceeding $1 billion, but they account for 45 per cent of IT services export revenues. The seven to ten Tier Two players with revenues USD 100 million-USD 1 billion account for another 25 per cent, while the offshore operations of MNCs account for 10-15 per cent. That leaves less than 20 per cent of the pie for the hundreds of small and medium companies. NASSCOM, Indian IT Industry - Factsheet, www.nasscom.org, accessed May 2006.

[19] *The Hindu*, Bangalore, February 18, 2006.

3.   WORK AND EMPLOYMENT IN THE SOFTWARE OUTSOURCING INDUSTRY

At the most general level, software engineers, call centre agents and others employed in India's IT and ITES industries can be said to constitute a new 'knowledge' workforce that caters to the global informational economy. The advent of the information economy has transformed the labour market, generating demands for certain information goods and services, and therefore for specific kinds of skills and specialised labour, worldwide. Two basic kinds of services are in increasing demand -- software and IT enabled services. Due to competition, developed country firms are outsourcing many IT and ITES activities to low cost locations in the developing world, transforming the labour market in countries such as India (Basant and Rani 2004).

In order to understand the structure and characteristics of this new workforce, it is necessary to distinguish among the wide range of jobs, types of work and employment conditions that are encompassed within the category of 'IT' -- from 'high-end' computer science research to very 'low-end' services such as data entry and back office processes. This chapter outlines the key features of the IT industry that shape the demand for different types of labour; describes the various kinds of IT work, jobs and employers of IT workers in India, and discusses the main characteristics of the workforce and work in this industry – flexibility, mobility, and virtuality.

3.1 Types of IT work and jobs

The software business is usually divided into three major categories: software solutions, products, and services. However, the major distinction usually referred to by software engineers is that between 'projects' (software services, such as tailoring applications to client requirements) and 'products' (development of a software package or product for sale). This division of software production into 'services' versus 'products' arose due to the trend towards the customisation of software, in which generic products are tailored to the specific requirements of customers. This distinction roughly corresponds to the difference between 'high-end' (which includes products and consultancy as well as research) and 'low-end' work (generic software services for customers). While the distinction between high- and low-end work is not hard and fast, it refers to the fact that as one moves down the steps of the software development process, from conceptualisation, design and analysis, to coding, testing, delivery/ installation and maintenance, the skill requirements reduce. Consultancy, analysis of requirements, and design require a higher level of skill and/or domain and market knowledge, whereas coding, testing, and maintenance are labour-intensive but low-skill processes. Because the stages of software development have become well defined over time, they can be undertaken as separate projects or units in different locations, and by different teams or companies. This has led to a pattern of geographical dispersion of software production and services in which low-end, labour-intensive processes are delinked from the software development cycle and outsourced to low-cost locations such as India (Rothboeck et.al. 2001:15-16). The outsourcing of software development took off especially in the 1990s due to the increasing complexity of software requirements, the trend towards customisation, and the enhanced viability of breaking up the production process into small parts, as well as of outsourcing and offshoring of these services.

As noted above, the Indian software industry has tended to specialise in low-end services, although the ODCs (overseas development centres) of several multinationals have taken on higher end work, and the major Indian companies have moved into consultancy and are able to execute end-to-end projects. In fact, the range of software-related activities carried out by companies in India is more diverse than the low-end / high-end dichotomy suggests, and individual companies may be engaged in several different activities at the same time. ITES (IT enabled services) is often categorised under low-end IT services, but because it is a very different type of business it is treated separately in this report. 'Low-end' should also include the large 'informal sector' of the IT industry, such as the 'bodyshops' or employment consultants who contract out software labour; the many small DPT/ Xerox shops and internet cafes that dot India's towns and cities; small computer training institutes; and the very small companies that take on subcontracted work such as small web design or data processing projects. The segment of the IT labour force that works in such companies is particularly insecure and mobile, and paid less. Although there may be a large number of computer programmers and other trained IT professionals employed in this 'informal' IT economy, studies of the IT workforce initiated by industry bodies such as NASSCOM have tended to ignore this segment, focusing instead on the well-qualified engineers employed in the large companies and MNCs, and the growing demand for employees in this segment. Because existing surveys of IT professionals have failed to capture this heterogeneity in the job market, we do not have adequate data on the size, composition and stratification of the IT workforce. NSSO (National Sample Survey Organisation) data for 1999-2000 show that 38 per cent of 'IT occupation workers' are employed in small, informal enterprises (proprietorships or partnership firms), 25 per cent in public limited companies, and 28 per cent in private limited companies -- indicating that small firms participate in the labour market in significant manner. While the distribution of revenues is skewed in favour of large firms in the IT industry, employment of IT workers is fairly evenly distributed across small and large enterprises (Basant and Rani 2004:5324).

The present study has not captured the entire range of software work, but has concentrated on the 'organised' and export-oriented sector of the IT industry -- especially the registered Indian (large, medium and small) and multinational software and BPO companies. This focus was deliberate because the aim of the study was to understand the culture and impact of a global industry in India. For the same reason, the study has not captured the large segment of IT workers who cater to the domestic market or who are in-house staff of non-IT companies (including public sector companies and organisations). While the number of IT professionals working in export-oriented software services and products is about 3.5 lakh (350,000), another 3.5 lakh are employed in the domestic sector or are captive in-house staff.[20] In the ITES-BPO sector as well, there are some units that cater to the domestic market, but our research has focused entirely on the export-oriented sector.

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[20] Knowledge Professionals - Factsheet', from NASSCOM website (www.nasscom.org). According to NSSO data, 40 per cent of IT professionals work in user organisations, compared to 32 per cent in exports. Basant and Rani (2004) argue that this represents the diffusion of IT workers into other sectors and hence a "deepening" of the labour market.

3.2 Employers and types of employment

Software firms in India are usually classified into three categories -- small/medium enterprises (SMEs), major Indian companies (MICs), and multinationals or firms with foreign equity participation (MNCs/FEs).[21] The major Indian companies include the well-known global services providers such as Infosys, Tata Consultancy Services (TCS), and Wipro, while the SME category includes a wide range in terms of size – from ten up to 1000 employees. This categorisation, however, is unsatisfactory, for it conflates two different dimensions – ownership (Indian or foreign) and size. According to the STPI definition, firms in the 'SME' category are all Indian owned, while those in the MNC category may be subsidiaries of large multinationals such as Intel or IBM with several thousand employees in India, or they may be small venture capital-funded startups (registered outside of India) with less than twenty employees. In selecting the sample for this study, we attempted to capture companies and employees across the range in both dimensions -- MNCs as well as Indian, and small, medium, and large companies.

The experience of working in IT varies considerably depending on the type and size of company. While the large services companies have workforces of 50,000 or more, spread across several centres in India and many locations abroad, there are many small and medium size companies with workforces of less than 500. At the time of the research (2004-05), most of the MNC development centres had workforces of between 500 and 1000, but they have been ramping up rapidly over the last couple years (many at the rate of 30 per cent this year), so that several ODCs in Bangalore now have workforces of 1500-2000 or more. While the large Indian companies and MNCs dominate exports and employ a large proportion of software engineers, the majority of software firms are small, with less than fifty employees (Parthasarathy 2000). In addition, as mentioned above, there are many small companies and enterprises, registered and unregistered, with workforces of twenty or less, and an unknown number of temporary workers who are employed in the large companies on contract basis through employment agencies. This is one reason why it is difficult to get reliable estimates of the size of the workforce.

Most of the large Indian companies focus on software services outsourcing, and most of their clients and customers are located in North America, but increasingly also in Europe and in East and Southeast Asia. Companies such as Infosys and Wipro have perfected the 'global services delivery model', in which large outsourced software projects are executed across several locations. The Indian software services industry started out with 'bodyshopping' – a system in which companies send teams of software engineers to the customer site – but an increasing proportion of work is now being performed 'offshore' (in India), rather than 'onsite' (except during the 'Y2K crisis' of 1998-99, which saw a revival of bodyshopping due to the heavy demand for programmers in the U.S. and other developed countries). After the establishment of satellite links, it became possible to perform much of the outsourced work offshore, further reducing labour costs as well as the time needed for completion of projects. Under the 'global delivery model', the full 24 hours of the day can be utilised, taking advantage of the time difference between India

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[21] This is the classification used by STPI (Software Technology Parks of India), the semi-autonomous government agency that acts as a clearing house for companies wishing to set up IT operations in India.

and the U.S. (Parthasarathy 2005; Rothboeck, et.al. 2001:20-21). The magnitude of this shift is shown by the fact that in 1990-91, 90 per cent of Indian software and service export revenues came from onsite work and only 5 per cent from offshore, whereas by 2002-03 the proportion had changed to 39 per cent onsite and 58 per cent offshore (estimated; Basant and Rani 2004:5318). According to an employee of a large services company, the typical model now is 70:30 offshore/ onsite work, but this varies depending on the type of project.

The large software companies primarily provide 'generic' services – they are able to take on a wide range of software development, maintenance, testing and other types of projects, on many different platforms and in diverse 'domain' areas. While the Indian industry has concentrated on the low end of the software development cycle (coding, testing, and maintenance) -- the high end of design work being retained by the client or outsourced to another company -- with the shift to the offshore model the large Indian companies have established their reputations in the global market and have taken on more complex projects. Several companies have 'moved up the value chain' into consultancy and some amount of design work is being done in India now, but still only a few Indian companies, such as i-Flex, have successfully produced products for the global market (Rothboeck, et.al. 2001; Heeks 1996).

Many of the small and medium size software companies follow the same outsourcing model, but because of their size they tend to specialise in particular domains (such as financial services), in particular functions (such as networking), or in particular platforms (such as Java). Many small companies also provide low-end generic services, but another category of small company consists of venture capital-funded startups that are developing products, independently or under contract to MNCs. Thus there is a wide range of skills required by small companies, from relatively unskilled generic programmers and testers to highly qualified computer scientists, depending on the type of company and work.

While most Indian companies are software services providers, most MNC overseas development centres in India are working on software products for the parent company's IT products or on embedded software for non-computer products. For this reason, many software engineers prefer jobs with MNCs, where they are more likely to get not only better pay but also more challenging work. However, even within the MNCs a range of skill levels are tapped, from Ph.D.'s in computer science for the few research positions, to ordinary graduates with MCA degrees (Master of Computer Applications) who are employed for simpler work such as testing.

Despite some moves towards higher value-added work, the Indian software industry continues to be dominated by software services, with engineering services, R&D and products together constituting only 18 per cent of total software and services exports in fiscal 2005.[22] Several senior industry insiders acknowledged that the Indian industry continues to concentrate on the low end of software services, in spite of the fact that the large services companies have been attempting to create a different image of their work

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[22] NASSCOM, 'Indian IT Industry – Factsheet'. www.nasscom.org, accessed May 2006. According to another source, products and packages accounted for only 4.1 per cent of software and services exports in 2001-02 (Basant and Rani 2004:5318).

by stressing their move into consultancy and their ability to execute end-to-end projects. Moreover, the difference in labour cost is still a major competitive advantage of the Indian industry in the global market, which is one reason why even the large American software services outsourcing companies such as IBM Global and EDS have established centres in India. While the industry is concerned that rising salaries will erase this advantage (due to competition for scarce skilled labour among companies), one study shows that there is convergence only of high-end salaries while salaries for low-end jobs remain very competitive (Kumar 2000a, quoted in Rothboeck et.al. 2001:23).

In our survey of 132 software engineers employed in eight different companies in Bangalore, 39 per cent of respondents were working in software development and 22 per cent were in testing or quality assurance. Only 29 per cent were in higher-end technical jobs such as design/ architecture, research or consultancy, while 18 per cent were in management (see Appendix 1 for details of sample selection).

3.3 Nature of employment and work

The type of work and terms and conditions of employment vary widely in the industry, depending largely on the type of company and type and location of work.

As noted above, the largest employers of software engineers and other IT professionals are the four major software services companies with revenues of more than US$ 1 billion. With workforces of more than 50,000 each, they corner a large share of the software labour market. These companies provide a range of software services primarily to customers outside of India, including software development, enterprise applications, systems maintenance, and so on. Fresh recruits in these companies typically are posted to one of the Indian offices after the training period, where they work for one or two years before getting their first 'onsite' assignment. Most software engineers are sent on such assignments several times in their careers, which range from short-term stints of a few weeks to a few months, to long-term assignments of a year or more. However, with the trend towards offshoring, often only one or two team members on a project are deputed to the customer's site. A key feature of work in these companies is the fact that they are *services* companies, which depend on contracts with customers to carry out projects. As in any service industry, customer satisfaction is a top priority, and employees are given extensive training and orientation towards this end.

Most of the MNC ODCs in India differ from the Indian services companies in at least two important respects. First, they generally work on product development projects for their parent companies. Although in many cases the Indian teams are consigned to lower-end coding and testing of software products, a few companies have substantial research divisions and execute complete projects in Bangalore. Second, the nature of relationship with the 'customer' (the parent company or a division of it) differs: although in most cases, technically an Indian ODC is an independent entity for whom the parent company is the 'customer', it is not a strict 'service' relationship and so there is less emphasis on customer satisfaction compared to services companies. Because MNC employees are not catering to external customers, their work is generally perceived to be less demanding. Like software engineers employed by Indian services companies, MNC employees also travel abroad, usually to another office of the parent company for training, 'transfer of

technology', or other such assignments. The length of stay abroad is often shorter than in the case of onsite assignments. However, much of their work is carried out through 'virtual teams'.

Employees of large Indian services, consultancy, and products companies and MNC ODCs can be considered to be the 'cream' of the software profession. At the lower end are those who work in small companies (except for high-end startups) or as temporary workers, whose jobs are less well-paid and quite insecure due to the high level of instability of companies in this industry.

The lowest end of the Indian software services industry is 'bodyshopping', a system of contract labour in which employment consultants in India recruit software engineers and place them with clients abroad to work on specific projects, taking a large cut of their salaries as their fee. In this system, the Indian companies simply supply software professionals ('bodies') according to given specifications, who are then supervised by the local contracting company. 'Bodyshopped' techies provide a relatively cheap source of skilled labour for businesses in the U.S. and other developed countries. By supplying software professionals temporarily and only for the length of time needed, bodyshops help companies to reduce the costs of keeping a large permanent labour force or of contracting out the work locally (Xiang 2001, 2002). This is true for all forms of temporary contract labour organised by recruitment agencies, but the transnational character of work in this case adds an element of temporary migration. Bodyshopping exemplifies the regime of flexible labour, and is analogous to the 'just-in-time' production techniques characteristic of the postindustrial economy (Aneesh 2001a:358).

In bodyshopping arrangements, Indian engineers work only onsite, along with direct employees of the customer, and there is no offshore component. While the employment conditions, compensation, and nature of contract are determined by the consultant, the actual work is managed by the customer. The Indian engineers are employees of the contracting Indian company, with whom they sign a contract to work at a specified hourly rate. The consultant company in turn signs a contract with the customer or with another consultant company in the receiving country to supply the workers at a given hourly rate, which is of course much higher than what the engineer is being paid. The Indian employer usually arranges for the employee's travel, visa, and accommodation, and pays a basic monthly maintenance allowance when he or she is between assignments ('on the bench'). The engineer is paid at the contracted rate only when s/he is actually working. Typically, bodyshopped software engineers carry out low-end maintenance or coding jobs. In these arrangements, the engineer is usually allowed to stay in the receiving country only as long as he is employed by the original contractor. However, it may be possible for a bodyshopped techie to change jobs if he (or rarely, she) has a job offer from the customer or another company willing to sponsor his visa and work permit. It is through this route that a number of techies have been able to stay back in Europe (and the U.S.) as temporary or permanent employees of local companies.[23]

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[23] On the bodyshopping system, see Xiang (2002), van der Veer (2005), and Mir, et.al. (2000). Also see Upadhya (2006).

The incidence of bodyshopping has diminished over time as customers now prefer to give contracts to the large and software services companies, which offer offshore services as well. But there continues to be some amount of bodyshopping from India, especially to smaller companies. Increasingly significant is the incidence of local bodyshopping, in which temporary workers are supplied by consultants to software and other companies within India. The use of temporary contract labour is discussed in Chapter 5.

3.4 Mobility of workers and work

The key characteristics of the IT workforce flow largely from its role in the global 'informational' economy, which requires workers who are mobile and flexible but which at the same time has created a new category of 'virtual' workers who work remotely from different 'geographies'. As discussed above, the major trend in the outsourcing industry is towards offshoring: instead of workers moving to where the jobs are, as in the earlier 'bodyshopping' phase of the industry, jobs increasingly are moving to where the workers are, who work remotely with colleagues and clients in other locations, most of whom they will never meet in person. Thus, while the global IT economy makes use of various forms of mobile labour, it is also producing new forms of labour immobility. Which type of labour is deployed, and in what combinations, varies according to the type of company and the nature of the project and work.

3.4.1 Geographical mobility

The Indian IT industry grew up on the basis of bodyshopping, or mobile labour. The earliest companies fulfilled their contracts for software services primarily by sending software engineers to the customer site. While the 1990s saw the beginning of the move towards offshoring, the Y2K crisis gave a new lease on life to the bodyshopping system, as software engineers with certain 'skill sets' (such as familiarity with Unix) were in great demand in the U.S. and Europe. As a result of bodyshopping as well as the migration of more highly-skilled engineers, there are many Indian software professionals living and working outside of India, mainly in the U.S. and other developed countries. In addition to these long-term and permanent migrants, most software engineers based in India travel abroad at intervals for onsite assignments or other kinds of work. Indeed, foreign travel, and the 'exposure' to Western countries that it affords, is considered to be one of the most attractive and significant perquisites of IT work. Geographical mobility (especially onsite work) continues to be a significant feature of the software industry, despite the gradual shift towards offshoring.

This mobility is illustrated by the data from our survey of software engineers, of whom 64 per cent had worked outside of India for varying periods of time. Foreign work experience is largely a function of position and years of experience: all of the senior managers and 88 per cent of those in team leader, project manager, and middle management positions had gone abroad. Of those who had been working for two years or less, only 5 per cent had gone, while among those who had been working for three to five years, 72 per cent had been abroad. These figures reflect the fact that software engineers are usually not sent onsite until they have completed at least two years in the company. While one informant had been abroad as many as forty times, the majority had travelled only once or twice. The average number of foreign trips in this sample was 4.5.

Employees of Indian software services companies travel more than those of products companies and MNCs. The vast majority of foreign assignments were in the U.S., followed by Germany and the U.K. While the U.S. clearly dominates the market for Indian software companies, our respondents together had visited 23 different countries, from Greece to Thailand to Australia.

Most of the assignments for which foreign travel was undertaken were for onsite coordination work, systems maintenance, gathering of requirements from customers, software development and installation/deployment. In addition, employees of MNCs frequently are sent to the parent company for 'transfer of technology' assignments, training, and cultural exposure. Very few of the respondents had been sent abroad for design or conceptualisation work. The majority of assignments were of two weeks to three months duration, followed by three months to one year. Employees of MNCs had more short-term assignments (less than three months) compared to those of the Indian services companies, and women had been on fewer long-term assignments than men (and fewer foreign assignments altogether; see section 6.2.5).

Onsite assignments are highly desired by IT professionals for several reasons. First, they get international 'exposure', which adds to their resumes. Second, it is possible to save a substantial amount of money. Engineers on short-term projects continue to get their Indian salary, which becomes a saving, plus they receive a daily allowance to spend while abroad, much of which they can bring back to India, virtually tax-free. Those on long term projects usually do not get their Indian salaries but are paid local salaries (in local currency) at the prevailing rate, but they are still usually able to save a lot of money to bring back to India. Techies attempt to live frugally while abroad in order to save money. We were told that onsite workers are usually able to save Rs 100,000 to 200,000 by working in the U.S. for three months.

Apart from their foreign travel experience, software engineers are also highly mobile within India. The younger, unmarried male engineers in particular are willing to go wherever their work leads them, or where they get the best job offer. Geographical relocation may be due to change of job or transfer within the same company, which is common especially in the large services companies. These factors work together to create a high level of physical mobility among software professionals: more than one-third of our survey respondents had worked in at least two other places apart from Bangalore.

3.4.2 Virtual migration

While the Indian IT workforce is clearly quite mobile within the global economy, due to offshoring and the geographically dispersed nature of the software outsourcing industry, the physical mobility or circulation of workers is becoming less significant. New forms of mobility have appeared and become central to the way in which the production and distribution of goods and services are organised globally – especially the mobility of 'knowledge work' minus the body of the worker. The spread of sophisticated information and communications technologies has enabled a large proportion of work in outsourced projects -- including software development and testing, systems maintenance, and so on -- to be performed remotely or 'virtually'. As noted above, taking advantage of this possibility to reduce costs and provide round-the-clock services, the Indian software

outsourcing industry has moved rapidly towards the offshore model, reducing the need for software engineers to move physically among different locations. In the model typically followed today, software engineers located in India are linked into the computer networks of their customers abroad, working on projects as part of 'virtual teams' consisting of colleagues, managers and customers spread across several geographical locations.

This characteristic of software outsourcing, which is perhaps more significant than the physical mobility of software engineers, has been described by Aneesh (2001a, 2006) as 'virtual migration'. He suggests that online software services should be understood as labour flows rather than movement of goods and services (as is usually done), because offshore services is basically a technique for supplying labour that is analogous to onsite work or bodyshopping. He points out that Indian software services companies are not for the most part supplying products but services (i.e., labour), and that similar work is done through both routes.[24] The main thrust of his argument is that 'labour migration' no longer necessarily requires the movement of bodies, and that globalising forces can also produce *localising* effects by restricting labouring populations to their national territories. This kind of offshore/ online virtual work is one of the major developments that has been enabled by the new ICTs. One of the significant features of online labour is that programmers are directly connected to their clients' machines, so that the client is able to monitor progress, check the quality of the work, and communicate with programmers as if they were on site. It also enables work to be carried out round-the-clock.

Thus, although the Indian software labour force is still geographically mobile to a large extent, it is becoming increasingly immobilised as more work is performed offshore. Or to put it more accurately, the bodies of workers are immobilised, since in many ways they are working elsewhere even while sitting in Bangalore or Mumbai, connected through computer and satellite link to their customers and colleagues located on the other side of the globe. While software companies still need to place at least a few engineers at customer sites in order to execute projects, the immobilisation of workers is almost total in the case of IT enabled services, which are performed completely offshore. The phenomenon of virtual migration is most visible in the call centres and BPOs, whose agents spend almost their entire working days or nights interacting with foreign customers or engaged in work for clients outside of India (see Chapter 8). As Gephart (2002) notes, digitalisation has facilitated the flexibilisation of labour as well as the virtualisation and rationalisation of the work process, but at the same time a "diffuse mode of work and transnational capital flows affect labour which is culturally tied to a given locale" (Gephart 2002:331). The virtualisation of labour in the IT industry has had diverse and profound consequences in terms of the work process, forms of organisational control, and work culture, details of which are discussed in Chapter 6.

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[24] What Aneesh overlooks is the fact that most outsourced projects are carried out though a combination of onsite and offshore work, i.e., they are part of a single process and are carried on simultaneously or sequentially. Most projects still require some amount of onsite presence due to time zone differences and the need for customer interaction.

4. PRODUCING THE INDIAN IT WORKFORCE

By 2006, the Indian IT industry had generated employment for an estimated one million people. The rapid growth of the industry, and the lucrative job opportunities that it provides, has made IT a premium career option for young people, and there is stiff competition for entry into software companies. However, from the industry perspective there is a dearth of qualified people, and too many jobs chasing too few people has led to rising salaries, potentially reducing India's competitive edge. According to manpower consultants, there is already a 20 per cent shortfall in availability of software engineers, and NASSCOM estimates that the industry will need another 1.3 million people by 2010. Although India churns out a large number of engineering and computer science graduates as well as diploma and degree holders in IT-related subjects each year, a sizeable proportion of them are not considered suitable to be absorbed by the industry, or are employable only in low-level jobs. Further, while the BPO industry has also been identified as a major future source of employment for India's educated youth, these companies are also facing a shortage of workers with the appropriate skills and dispositions, despite the large number of unemployed graduates available.

Identifying the reasons for this mismatch between the supply and demand for IT workers, and developing strategies to produce more qualified 'knowledge workers', has become a central concern of the industry as well as the government. Their focus has been on the quality of education and the need to produce more workers with the appropriate skill sets. However, apart from examining the education system, it is also pertinent to investigate whether there are other factors that lead to the exclusion of large numbers of graduates from employment in the IT and ITES industries. For instance, global services outsourcing companies look for certain 'soft skills' in their employees as well as technical knowledge. This means that the 'cultural capital' possessed by potential employees may be crucial to their success. This includes not only the obvious skills such as fluency in English but also more subtle ones such as the ability and confidence to interact easily in cosmopolitan and multicultural settings – skills that are acquired from one's family and social background as much as from the education system.

This chapter discusses the production of the IT workforce through the education system and the recruitment process, and presents data on the socio-economic background of IT employees covered in our survey.

4.1 The education system and the IT industry

Software companies prefer to recruit engineering graduates, of which India produces a large number, creating a large pool of potential manpower. Many come from the southern states of Karnataka, Tamil Nadu and Andhra Pradesh, which have the highest number of engineering colleges (most of them private). Some companies also hire graduates and post-graduates with non-engineering but computer-related degrees, especially science graduates with MCA (Master's in Computer Applications) degrees, but engineers are still favoured. According to a NASSCOM survey in 2004, 67 percent of software professionals hold B.Tech., BE or MCA degrees, 13 percent have M.Tech., MBA, CA,

ICWA, etc, degrees, while 20 percent are diploma-holders or simple graduates.[25] The data from our survey of software professionals in Bangalore show a similar pattern: 76 per cent had graduate or post-graduate engineering degrees -- 28 per cent in computer science and related subjects and 43 per cent in other branches of engineering (reflecting the fact that software companies hire students from any branch of engineering and then train them in software development). Another 13 per cent had post-graduate degrees in computer-related subjects such as MCA (Masters of Computer Applications), while only nine respondents were graduates in non-engineering subjects.

As noted above, although India produces a large number of engineering graduates each year, there is a mismatch between the output and the requirements of the IT industry. The number of engineering colleges in the country grew from 375 in 1995 to 1208 in 2003, with an annual intake of about 350,000 students. Currently there are 1346 institutions in India that offer B.E. and B.Tech. degrees, and about 60 per cent of engineering students take up IT/ software related streams as their specialisation. But while 290,000 engineering degree and diploma holders enter the workforce annually,[26] according to the 2005 NASSCOM-McKinsey study only about 25 per cent of them (and 10-15 per cent of ordinary graduates) are suitable for employment in the offshore IT-ITES industries.[27]

Several studies of the manpower needs of the industry have been commissioned, all of which highlight the need to produce more software engineers and qualified graduates with the appropriate technical and 'soft' skills to meet future requirements.[28] The shortage of suitable engineering graduates is usually attributed to the poor quality of education imparted by many of the engineering institutes.[29] Increasing the supply of qualified IT personnel has been one of the major issues on which the industry has been proactive, both by initiating its own programmes, such as promoting primary education and use of computers in schools, and by putting pressure on the state and technical education bodies to improve the quality and orientation of engineering education. State initiatives have included the establishment of BITES (Board of IT Education and Standards) and the AICTE (All India Council for Technical Education), and programmes such as the 1500 crore Technical Education Quality Improvement Programme (TEQIP) supported by World Bank. On the industry side, NASSCOM has been conducting an annual HR Summit to provide a forum for industry to interface with academia to develop solutions to the industry's 'HR challenges'. It has launched an 'IT Workforce Development Initiative', designed "… to focus sharply on the creation and nurturing of the human resources", and has also signed a Memorandum of Understanding (MoU) with the University Grants Commission (UGC) to jointly undertake a 'Faculty Development Programme' to upgrade the knowledge and skills of existing technical faculty in

[25] NASSCOM, 'Knowledge Professionals – Factsheet'. Accessed at www.nasscom.org, April 2006. It is not clear how many or what kinds of software engineers were covered in this survey, and it is rather surprising that 20 per cent are simple graduates or diploma holders.
[26] UGC data, from 'NASSCOM Strategic Review', 2004. www.nasscom.org.
[27] Summary of NASSCOM-McKinsey Report 2005, in NASSCOM Newsline No. 50, December 2005, www.nasscom.org.
[28] See, for example, Government of India (2003), NASSCOM (2004), and NASSCOM's annual surveys of knowledge professionals (available on NASSCOM website).
[29] A recent report on higher education in Karnataka has highlighted the oversupply of graduate engineers as well as the overall poor quality of the graduates (Government of Karnataka 2004).

partnership with the industry.[30] Apart from these NASSCOM initiatives, individual software companies have entered into collaborations with engineering colleges to help them to revamp their computer programming courses and improve the quality of education.[31] In addition to these efforts to improve technical education, the industry has influenced engineering colleges to introduce soft skills training, such as communication skills.

These steps indicate that engineering education in India is being reoriented to cater to the needs of the IT industry -- a trend that has been questioned by several academics as well as by other industries.[32] It is important to note here that IT companies prefer to hire engineering graduates not because their training is directly related to the work they will be doing (unless they have studied computer science), but because they believe that they have already been pre-selected for a certain level of intelligence and aptitude. Engineering programmes are also thought to train students in logical thinking, problem-solving, and analytical skills, all of which are required in computer programming. That much of the content of engineering education is not directly related to the job profile is shown by the fact that the large outsourcing companies hire graduates from any branch of engineering and then put them through intensive training programmes in software development; most do not even require any prior knowledge of computers for selection. Athreye (2005:159) suggests that the preference for engineers is also a means for software companies to signal quality to customers: due to their limited market power, Indian companies try to distinguish themselves from the competition by pointing to the quality of their processes and people (also see Arora and Athreye 2002). She argues that the strategy of hiring engineers for software services work represents an "inefficient allocation of resources in a social sense" (2005:159), which also involves negative externalities for other industries by drawing engineers away from them, as well as from public sector research and development institutes. Another reason why software companies prefer to hire engineers is because it is easier to get H1B visas for them – a fact that creates a hierarchy in terms of skills between those who perform onsite and offshore work.

The preference for engineering graduates indeed appears to lead to a major waste of educational resources (much of which are government-subsidised, despite the burgeoning of private engineering colleges). Because of the lure of high salaries and plentiful job opportunities in IT, graduate engineers are entering careers for which they have not been trained (and in which they often have no real aptitude or interest), while other industries are finding it difficult to recruit good graduates in chemical or mechanical engineering because most are being absorbed by the IT industry. Similarly, leading scientists and professors in research institutes such as the Indian Institute of Science observe that they

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[30] NASSCOM, Knowledge Professionals Factsheet, www.nasscom.org, accessed June 2006.

[31] For instance, the Vishweshwaraya Technical University (VTU) has signed MOUs with organisations such as IBM, Intel, and Microsoft to provide training for faculty, guidance for student projects and the like. These MOUs allow colleges affiliated to the University to get software at subsidised rates, suggesting that there are other motivations for entering into such collaborations other than improving the quality of the workforce.

[32] A study conducted on the EduSat Programme in Karnataka's engineering colleges also indicated this. See the NIAS report on EduSat (2005).

are not getting enough good students for postgraduate and doctoral courses in the pure sciences because they are all attracted to engineering as a route to the IT industry. This trend, they fear, will handicap India's future efforts in science and technology research and development.[33]

In the earlier period of the IT boom, a number of private computer training institutes sprang up across India, but the courses offered by these institutes are often of poor quality. Moreover, there is no system of regulation or accreditation, and many students pay handsome fees to become certified as Java or C++ programmers, only to find that they are unable to get jobs. There is no information about what happens to the degree and diploma holders of these new courses who are not absorbed by the IT industry, but many probably enter the ranks of the 'informal sector' of the industry. According to a NASSCOM study, only 2 per cent of all software developers trained in private training institutes joined software firms (Athreye 2005:158). New courses in computer science and computer applications (such as BCS, Bachelor's in Computer Science) have been introduced by colleges and universities in a belated attempt to catch up with the private institutes in computer training, but most of their graduates also do not pass muster at the recruitment stage. Thus, while MCA degree holders and even diploma holders from reputed institutes such as NIIT are becoming more acceptable for low-end jobs, engineering graduates are still preferred by most companies.

4.2 The recruitment process

Human resources are considered to be key to the software outsourcing business, and software companies invest much time and money in recruitment, training, and retention of their 'resources' – especially during boom periods such as 2004 to the present. IT companies – especially the large Indian services companies -- have evolved sophisticated mechanisms for identifying and recruiting personnel with the right mix of technical, communication and social skills. Apart from direct recruitment, an entire 'ancillary industry' of employment consultants or 'headhunters' has emerged to cater to the manpower needs of the IT industry (see following chapter).

IT companies hire both fresh graduates as well as experienced personnel ('lateral hires'). They employ several avenues for recruitment: campus placements, advertising in newspapers and on employment websites, walk-in interviews, through employment consultants, and employee referrals. With the rapid ramp-up in staff strength in most companies over the last couple years, the majority (55-75 per cent) of recruitments in the large companies have been entry level, while the balance 25-45 per cent are experienced workers hired from other companies. Of the entry-level recruits, about 35-40 per cent are sourced through campus recruitment while the balance come through other channels, including temporary staffing.[34] Companies vary in their preference for 'freshers' or

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[33] This position was articulated by participants in the National Conference on 'India's Competitiveness and Preparedness in Science and Technology' held at NIAS, October 26-27, 2005.
[34] The ILO study, carried out several years before this one, also found that the major source of entry-level software engineers is campus recruitment (60-70 per cent; Rothboeck et.al. 2001:37).

experienced people: while the large services companies hire many fresh graduates, some MNCs and products companies prefer only those with three or more years of experience.

Regardless of the avenue of recruitment, the screening processes are similar, except that experienced engineers usually do not have to take the written tests that are administered to fresh graduates. Because the large software services companies hire large numbers (15,000-20,000 or more) each year, and have to process a large number of applications, they have streamlined extensive processes for recruitment. For instance, these companies advertise positions periodically, screen the resumes received, and then invite applicants to come for a test or walk-in interview that is held in a number of centres across the country on a single day. We were told that the success rate through the open competition that is held regularly by one of the software services majors is only about one out of one hundred.

Because of the perceived shortage of skilled software engineers in the last few years, and the sharp competition among companies to recruit the best talent, recruitment has become a key HR function. HR managers refer to recruitment as a 'marketing' function, since all the companies are competing for the same small pool of qualified engineers. Recruitment officers interviewed said that they have to "sell themselves" to the techies rather than vice versa, and so they have to understand what candidates are looking for in terms of work or company culture, and accordingly pitch their 'sale'. Corporate branding is aimed not only at attracting customers but also employees. That such branding can be effective is indicated by the fact that some techies prefer to join a company with a good 'brand image' even though they might get a better salary elsewhere.

While the bulk of hires come through campus recruitment and the other methods described above, employee referral schemes are a particularly favoured method of recruitment. Companies advertise positions on their intranets and employees may refer their friends; if the recruitment is successful the referring employee receives a substantial bonus. This is considered to be a good source of recruits because the employee would have already apprised the candidate about the company and the job requirements, and there would likely be a good 'fit' between the two. Many companies get about 25-30 per cent of their new hires through employee referrals, although one MNC claimed that half of their people come through this route. Employee referral schemes draw on existing networks of software professionals that extend across companies and locations, and which are invoked more generally in the job market as sources of information about employment opportunities (see following chapter). The operation of these social networks in the recruitment process assumes significance in relation to the discussion of processes of exclusion and inclusion in the industry in the following section. As in other fields of social life, social networks not only facilitate cooperation and exchange of information, they may also produce closure and exclusivity and strengthen the monopoly of members over social and economic resources. To the extent that software engineers employed in the larger companies maintain social networks primarily with former classmates and current and former colleagues (see Chapter 7), and information about job opportunities flows primarily through these networks, they may create barriers to new entrants. On the other hand, with the rapid growth of the industry and expansion of the workforce, opportunities are not scarce and salaries are high, so one would not expect to find

monopolistic tendencies within the software profession (as has happened historically with other professions).

4.2.1 Campus placements

Although software companies obtain their human resources through several avenues, the major source is campus recruitment, and it is in this process that filtering mechanisms are most visible. Because of the wide range among engineering institutions and graduates in terms of quality, all the major IT companies have developed their own rankings of engineering colleges, based on external evaluations such as that done by AICTE as well as their own past experiences with hires from those colleges. The rankings of the top fifty colleges are more or less the same for all the companies, which means that they are competing for a limited pool of well-qualified engineering graduates. Campuses may be graded into three tiers or on a points/grade scale: 'Tier One' or 'A+' institutions include the IITs, IIMs, the Indian Institute of Science, BITS Pilani, and a few others. Tier Two or 'A' level include the RECs (now the NITs), and the top state campuses such as Delhi College of Engineering and Punjab Engineering College. The good private institutes such as RV College of Engineering in Bangalore and Manipal Institute of Technology are rated Tier Two or B.

As mentioned in the previous section, the large Indian IT companies and the MNCs are considered to be the best employers and so are able to recruit from the best engineering institutions. The large services companies usually visit the top 50-60 campuses each year; the MNCs and the medium-sized Indian products or services companies may visit about ten select campuses while smaller companies usually go to the same few colleges each year. MNCs prefer to recruit from the 'Tier I' institutions such as the IITs, but also must go beyond these in order to fill their requirements. The services companies, on the other hand, focus more on Tier II and III institutions, although they visit all the major campuses. With the large and medium Indian companies and MNCs attracting the best students from the better colleges, smaller firms are forced to hire less qualified candidates, such as science graduates with MCA degrees. The exception to this trend are the small high-end startup companies, who are able to attract well-qualified and experienced people because of the nature of the work that they offer. As noted above, non-engineering graduates face strong entry barriers to big software firms (cf. Rothboeck, et.al. 2001:40).

Because IT companies are battling for the same pool of candidates, the colleges have instituted complex placement systems in which companies are invited to come in one after the other to recruit students. The company that comes first is able to pick up the best students, and it is usually the big companies, such as Infosys and Wipro, which get the first slots.[35] The campus placement process is for third year engineering students, which means that they receive offer letters that become valid only after they complete their graduation, in another year. The large companies project their requirements for the coming year and attempt to recruit their projected requirements from campuses; if there is a shortfall, they make up the balance through other methods such as nation-wide walk-in

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[35] Apparently, companies have to pay the colleges for their slots, which means that large companies with more resources can afford to come in first.

interviews. This system of advance recruitment has created problems in the past, such as during the downturn of 2001-02 when several companies did not honour the offer letters issued earlier, and fresh graduates were neither able to take up other jobs nor join the companies that had recruited them. By recruiting third-year engineering students, software companies are playing something of a 'futures' game, in which they are betting on their estimated future manpower requirements; if their projections are wrong they may not actually take on those who had been recruited a year earlier. But now, with the intense demand for software engineers, companies face the reverse problem of recruits not joining when they finish their degrees. The HR manager of a large services company said that there is a large gap between the number who are given offer letters and the number that actually join.

From the students' point of view, the campus recruitment system is a mixed blessing. While it provides a guaranteed job after graduation for those selected, it reduces their choice because once a student has been given an offer, s/he is not allowed to attend any other company's interview. Because the more influential companies are invited to come in first, students may be forced to accept offers from companies that are not their first choice, rather than refuse an offer and take a chance that they will be selected by another company. However, some colleges have what is called the 'Dream Option', in which recruited students are allowed to pick one other company to apply for a placement. This is done in order to accommodate companies that have later slots in the placement process.

Most software companies follow similar campus recruitment procedures. First, only those students with a certain cut-off percentage throughout their course (ranging from 60 to 70 per cent aggregate marks in most cases) are allowed to apply. These students are given a written test, which may be purely technical and based on the engineering syllabus, or may be a test of aptitude and reasoning ability. The software majors usually test reasoning/logical, analytical and problem-solving skills, and sometimes English and maths, but not computer skills. Those who pass the test are then asked to participate in a group discussion in order to assess their communication skills, personality, and spontaneous thinking abilities. The candidates who are short-listed after the group discussion are then individually interviewed.

There are usually two types of interview, the technical interview and the HR interview. The emphasis in the interview process depends on the kind of job for which the company is recruiting: for a job that involves more customer interface they look for candidates with good communication skills, while for pure development work high marks and technical ability are given more value. But most companies stress that they are looking for 'learnability' rather than knowledge of any particular technology or specific skills: their software engineers should be able to be trained easily and to pick up new technologies on their own. As noted above, the large software services companies hire engineering graduates from any stream, or MCAs with the right aptitude, and then put them through a thorough entry-level training course. At the entry level, the employees do not even need to have any knowledge of computers. But even the MNCs stress potential to learn rather than prior training, although some of them will hire only computer science graduates or those with post-graduate degrees in the relevant vertical (such as telecom).

Apart from 'learnability' and technical aptitude, software companies place great emphasis on attitudes and values, personality, and soft skills. The HR interview round is designed to assess these aspects, including the candidate's career aspirations, family background, and personality, and to determine whether s/he will fit into the company's culture and (in some cases) into the group or team for which s/he is recruited. They also look for candidates with the right attitude -- being a 'good team player' is especially important. HR officers use innovative methods to test these aspects of the candidate's personality and to ensure that s/he is a good 'fit' in the company and would not be 'disruptive' in the team. For instance, team skills and level of individualism are gauged by posing mock situations, or by asking about study habits (alone or in a group?) and extracurricular activities (group or individual sports or activities?). As the HR manager of an MNC put it, "A high achiever is not necessarily a team player, the question is whether they will fit into the company". In smaller companies, the project manager may also be asked to interview the candidate to ensure that s/he fits into the team. MNCs in particular look for 'cultural fit' with the company, i.e., in terms of values and attitudes. One HR manager said that they look for employees who are not only technically sound, but are also 'confident', good in communication, and flexible: "They should exhibit a great deal of flexibility. They should show willingness to travel to any location, anytime. They should be open about long working hours".

Moreover, companies look for engineers with the right 'attitude', by which they mean flexibility and malleability:

> There are certain tones. Some guys speak as though they can never be assigned to projects that use old technology. A Java skilled guy never wants to learn anything other than Java. Freshers always want to be in nice-sounding technologies. But it doesn't happen that way. Many things continue to use old technology. If they show such an attitude, it is difficult for us. He should be open to learning new things. It is very critical.

The interview process is designed to filter out people with "undesirable attributes". For instance, the candidate is asked whether he or she is willing to work on any project at any location.

> We tell them that we reskill them based on the requirements. Only if they are agreeable to this, we proceed. Later when they throw a tantrum, we refer to this and tell them how these issues were already discussed during the interview process. We have our induction program, which further orients people about these values.

This highly desirable attribute of flexibility is discussed further in section 5.2.2.

The second major 'soft skill' that is assessed during the HR interview is communication skills. Because most software jobs, especially in the services companies, are 'client-facing', good oral communication skills are considered to be essential, and a candidate may be rejected purely on the basis of poor communication skills. The first requirement is fluency in English: this is needed not only to be able to deal with foreign customers effectively, but also because the IT workforce is diverse and the only available 'link language is English, many companies consider use of vernacular languages in the

workplace to be inappropriate. But 'communication skills' also includes the ability to converse and interact easily in different social and cultural situations. A common refrain among HR managers is that Indian software engineers are very good technically but are unable to communicate well with clients. The ability not only to understand and communicate with clients about the project, but also to make small talk and socialise with people from different backgrounds, are considered necessary skills for 'client-facing' positions in the outsourcing industry. Such skills are critical not only for marketing people but also for software engineers, who need to interact with clients onsite and during conference calls and teleconferences and be able to understand and solve their problems. The candidate's 'ability to mingle' is assessed during the HR interview, as well as his or her general appearance and demeanour. The close attention that is paid to this stage of the recruitment process suggests that as much importance is given to the personality, communication skills, and social attributes of IT professionals as to their aptitude for computer work, educational background, or technical skills.

4.2.2 Filtering mechanisms in the recruitment process

There are several aspects of the recruitment process followed by IT companies that tend to privilege students from English-speaking, educated, urban and middle class families. Foremost among these is the fact that many IT companies require candidates to have had a consistent average of 70 to 75 per cent marks from 10th standard onwards (and not only in college). This requirement excludes engineering students who may have been allocated seats on government quotas but who were not able to score well in previous examinations because of their educational and social background. Even if a candidate has shown good results at the college level, this requirement would exclude them from campus recruitment. Students who score high marks in school examinations are mostly from middle class families, urban centres, and private English-medium schools, who have acquired the requisite social and cultural capital to do well in school -- unlike most students from poor, lower caste, and rural backgrounds and government schools. Another mechanism of exclusion are the group and HR interviews that assess spoken English, communication and social skills, confidence, and personality – elements of 'cultural capital' that students from urban middle class families are more likely to possess. With the increasing emphasis on soft skills in the industry, candidates from non-metropolitan, non-middle class and lower caste backgrounds are even more likely to be passed over.

In response to the argument that recruitment processes tend to exclude certain social types, IT companies point out that they recruit directly through advertisement and walk-in interviews as well as from campuses, so that candidates from any of the colleges can apply, and that anyone is free to send in their resume for screening, regardless of performance in school or college. However, it is not clear how such resumes are screened, especially for fresh graduates, if not on the basis of examination marks -- which would again exclude those from less privileged backgrounds. One avenue through which those from ordinary engineering colleges or with lower marks may gain entry into the large companies is by finding employment first in smaller companies or taking up temporary contract jobs. Once a software engineer has acquired some work experience, it may be possible for him or her to land a job in the larger companies, regardless of his or her

educational background. One manager claimed that the academic record is not taken into consideration for those with work experience.[36]

Although IT companies often claim that the industry has provided job opportunities to people from a broad cross-section of society, drawing in people from lower middle class, semi-urban, and even rural backgrounds, available evidence suggests to the contrary that the IT workforce is fairly homogeneous in terms of its socio-economic profile (see following section). It is no one's case that the industry deliberately practices discrimination on the basis of regional, community or other such 'ascriptive' identities. But it should be recognised that the requirements of a 'global' offshore or outsourcing business tend to exclude those from non-urban and less privileged backgrounds, who lack the social and cultural capital required to work in a 'global' environment. Industry leaders themselves acknowledge that there is such a filtering process, in that they have repeatedly urged that appropriate 'soft skills' be taught in schools and colleges.

HR managers emphasise that gender, regional, caste, community identity are irrelevant in the recruitment process, that the sole criterion is 'merit', and that the profile of the workforce will therefore reflect the diversity of the country. There are two flaws in this argument: first, empirically the workforce is less diverse than is often claimed; second, it ignores the social and economic factors that produce 'meritorious' candidates in the first place. Of course, it is not the IT industry alone that tends to exclude lower caste and rural candidates, nor is this done deliberately; rather, this is a problem with private sector employment in general, which is why the question of reservations in the private sector is being sharply debated. Although the IT industry maintains that it must be free to hire the 'best' or most meritorious people in order to maintain its competitive edge and continue to provide increasing employment opportunities, recent public statements by industry leaders suggest that they are sensitive about this issue and wish to be seen as taking steps to increase the diversity and inclusiveness of their workforces. Several companies have floated internship schemes and training programmes for rural youth, but the primary thrust of the industry has been to target the primary education system through charitable foundations and partnership programmes with the government.[37] They contend that they are not to blame for an education system that does not produce 'employable' people, and that primary education as well as higher and technical education must be improved drastically if India is to produce sufficient employable workers for the rapidly growing IT industry (including the introduction of English from Standard I or II). This, of course, is a

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[36] The major objection of participants from the IT industry who attended the Dissemination Workshop to discuss the Draft Report was on the issue of homogeneity and diversity of the workforce. They argued that, given the shortage of manpower, the IT industry is recruiting 'from every corner of India' and rapidly extending its base by moving into second tier and smaller towns. This argument is substantiated by our own study, which found that a substantial proportion of employees are from small towns. However, this does not necessarily mean that the workforce is 'diverse' in terms of caste/class background. It is well known that the middle class in India is primarily higher caste in composition, and that there has been a process of social homogenisation of the middle class across urban India, including in the smaller towns, with the spread of educational opportunities.

[37] Recently Infosys announced that it is launching a programme to train SC/ST engineers, in response to a challenge given to industry by the Minister for Social Justice to initiate voluntary action on this front (*Times of India*, Bangalore, June 22, 2006).

long-term strategy, but for the present, it can be argued that rather than providing new employment opportunities for a wider spectrum of youth, employment in the IT industry is merely reproducing and strengthening existing structures of class and caste privilege.[38] If the industry genuinely wants to expand as well as diversify its workforce in the future, it needs to examine the filtering mechanisms that enable some people to 'make it' in IT while leaving others out, and develop practices and programmes to address this issue.

Apart from the question of exclusion and inclusion, the sharp disparities in the education system and the IT industry's methods of recruitment together have created a system of stratification within the IT workforce. A software engineer's position and career prospects in this system are largely determined by his or her educational background. At the top are the graduates from the IITs and other premier institutions, many of whom still go abroad for higher studies and end up working in the U.S., at least for a few years. Those who stay in India or come back from abroad are able to land the best jobs in the MNC ODCs, in research, design or higher management positions. The next layer consists of those from the 'Tier Two' colleges, who are heavily recruited by the MNCs and the large Indian companies, followed by those from the ordinary private and government engineering colleges. At the lowest end are those with degrees from the ordinary engineering colleges or diplomas from private computer training institutes. However, even within the large companies there are different kinds of jobs, and they do hire people with MCAs for testing or even coding jobs, whereas for design they would look for rank holders from the best institutions. As noted above, the large majority of engineering graduates, computer science graduates, and those from computer training institutes are not recruited at all, at least by the major IT companies. Those from less reputed colleges and computer training institutes who do manage to enter the workforce, do so after undergoing a prolonged period of private training and multiple certification courses and programmes.

This stratification system is reinforced by the preferences of both employees and companies. MNCs are able to hire the best students from the top institutes because they offer better salaries, are considered to offer more challenging work, and are associated with higher prestige. The large Indian services companies, on the other hand, although they also attempt to recruit from the IITs and other top institutions, prefer to hire from second and third tier campuses. The HR manager of one of the largest services companies said that even when they hire people from the IITs, they do not do well in the exit exam that is held after the training programme for fresh recruits, because "they don't fit the profile" (i.e., of the kind of employee that would fit into the company). He said: "We need people who are dedicated and meticulous; their [IITians'] outlook is different." In contrast to IIT graduates who seek challenging work and are not submissive to authority,

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[38] Fuller and Narasimhan (2006) make the same argument with regard to IT employment in Chennai. Their study found that IT companies follow recruitment practices that tend to select only the best students from a few engineering colleges, because the majority of engineering graduates lack the required cultural capital, especially 'communication skills'. They point out that the gap is not so much in their knowledge of English as in the unfamiliar cultural style of interaction and communication required by software companies – a style that those from urban, middle class and higher caste families are more likely to have or be able to acquire. Their main argument is that the retention or abolition of reservations in private engineering colleges is unlikely to diminish the advantages that the middle class enjoy with regard to employment in the IT sector, nor will it expand opportunities for those from lower caste, rural and less well-off backgrounds.

they require "guys who can just sit and code and not ask questions". He added that they prefer candidates from Category C colleges who know English and "can work and learn, rather than those from the top colleges", because those from A and B categories will leave in a couple years. "So we plan accordingly, in order to get the types we want from different colleges." This narrative makes it clear that there is a filtering mechanism in place that not only excludes certain social types from the IT industry (however unintentionally), but also (re)produces a social hierarchy within it. Inadequate training and a certain social background appear to create a docile and submissive workforce, and hence can become an advantage for companies. Given the nature of the education system and the easier access that students from middle class/ high caste backgrounds have to the IITs and the better engineering colleges, this means that the higher management positions and more challenging technical jobs within the IT industry are likely to be monopolised by people from more privileged social backgrounds, while greater 'diversity' may be found at the lower end of the job market.[39]

4.3 Social background of IT employees

It follows from the foregoing discussion that the IT workforce is probably less diverse than is often claimed. However, there has not been any large-scale study of the social-economic background of IT professionals that could answer this question. In the absence of reliable data on the regional, caste, class, and community identity of IT workers, we are forced to rely upon smaller and partial studies, such as our own. It needs to be emphasised that our survey of 132 software engineers in Bangalore is much too small to be representative of the larger picture, and we do not make any claims about the social profile of the IT workforce on this basis. Moreover, our sample may be further skewed due to the fact that it was drawn mainly from MNCs and large and medium size Indian companies, while smaller and 'informal sector' firms may have more diverse workforces, as discussed above.[40] Nonetheless, in the absence of larger data sets, these survey findings, combined with those of other studies, may provide some indicators about the social profile of IT employees that support the argument in the preceding section.[41]

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[39] This is illustrated by the fact that *all* of the CEOs of MNC software development centres that we interviewed in Bangalore were IIT graduates. Many of them had worked for a number of years in the U.S. before moving or being posted back to India to head these centres. Several top managers of the large services companies were also from the IITs, as were the founders of several high-end startup companies surveyed and most of those who were in research positions. The IIT – IT connection in the U.S. context is well known (Rajghatta 2001).

[40] Also, we had no control over the selection of respondents within companies; although they were supposed to be randomly selected, the sample could have been biased in order to reflect a certain image of the company.

[41] In the context of the current debate on reservations in the private sector and the extension of reservations for OBCs in educational institutions, this is clearly a sensitive issue. In view of the fact that IT companies in particular have been defensive about this issue, and that several industry leaders have publicly declared that they would like to broaden the reach of the industry and the base of the workforce, it would be appropriate for NASSCOM, other industry bodies, or the government to conduct a comprehensive study on the caste composition and social background (e.g., rural-urban) of the workforce in the private sector. When we tried to collect data on the social background of employees from the companies that participated in this study, they said that they do not have such data, that there are confidentiality issues, or that it would be too tedious to

When family income data are not available, the best indicators of social class are parents' education and occupation. In our survey of software professionals in Bangalore, 80 per cent of respondents' fathers were graduates or above, and only three respondents had fathers with less than SSLC level education. 56 per cent of respondents' mothers were graduates or above. Another recent survey of 102 software engineers employed in three companies in Bangalore yielded similar findings: 77 per cent of respondents' fathers had graduate or post-graduate degrees, and all of the remainder were at least high school graduates. The mothers in this sample were similarly highly educated, most to high school level and half with graduate degrees (Krishna and Brihmadesam 2006:3309-10). The authors of this study argue that education of parents is the most critical "limiting factor" to entry into the software profession – more so than economic background. The exclusionary effect of this is clear: given the small percentage of all Indians who have two highly educated parents, only "…between 4 and 7 per cent of rural Indians will qualify to gain entry" (2006:3310).

With regard to socio-economic status, fully 84 per cent of the fathers in our sample were in occupations that can be identified as solidly middle class: they were managers or executives in public and private sector companies, government officers, professionals such as doctors and university professors, and businessmen. Only 9 per cent had fathers in lower level clerical (white collar) or blue-collar jobs, and 3 per cent were from agricultural families. These figures suggest that most software engineers come from middle class, educated, urban backgrounds. The study by Krishna and Brihmadesam (2006), which collected information on consumption, found a somewhat more diverse socio-economic profile, with about 15 per cent coming from 'lower' economic backgrounds, 40 per cent from 'lower-middle', 28 per cent from 'upper-middle', and 19 per cent from the 'upper' category. But their conclusion also is that the majority of software engineers come from the middle class, although some people from lower and lower-middle class backgrounds have also entered the occupation. This pattern is not surprising, for it is primarily the middle class that possesses not only the economic means but also the social and cultural capital necessary to equip their children to enter this profession. This includes access to appropriate information about career paths and opportunities (Krishna and Brihmadesam 2006).

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collate the data. However, it would be fairly simple to access employee records at least for place of birth, type of schooling, etc, if the industry were interested in conducting such a large-scale survey. Some empirical evidence would provide a better ground for furthering the debate on inclusivity.

Despite the lack of data, it would not be surprising to find a predominance of people from the higher castes in the workforce. As industry representatives have said with regard to gender, the composition of the workforce largely reflects the 'demographics' of engineering graduates. The percentage of OBC, SC and STs graduating from engineering colleges continues to be much lower than their percentage in the population, and that of higher castes correspondingly much higher (Deshpande 2006). While the pool of qualified OBC and SC/ST engineers may for this reason be smaller than that of upper castes, it would still be possible for companies to evolve some kind of preferential hiring policy to ensure the inclusion of more employees from rural, backward caste, and deprived backgrounds.

The data on place of origin also call into question the common claim that software engineers are drawn from rural and semi-rural areas as well as the towns and cities. In our sample, 36 per cent were found to be from (i.e., birthplace) one of the five metros (including Bangalore), 29 per cent from tier two towns such as Mysore and Pune, but only 5 per cent from rural areas. However, an interesting finding is that a substantial proportion -- 31 per cent -- come from smaller towns, including district and taluk headquarters such as Tumkur or Calicut.[42] 45 per cent of MNC respondents were from the metros, compared to 32 per cent those in the Indian services companies. This finding supports the suggestion made above that MNCs are able to attract the cream of engineering graduates, and that students from metros are more likely to make it to the good engineering institutes and later into the best jobs. These figures challenge the idea that the IT industry is opening up new opportunities for people from rural and semi-urban areas. This may be true for the lower end of IT work (such as in small firms catering to the domestic market), which was not well captured by our study, but in the case of the large Indian companies and MNCs -- which offer the most lucrative and prestigious jobs -- the social background of the workforce appears to be fairly homogeneous, albeit internally stratified.[43]

With regard to regional origin, it is not surprising that the majority of respondents – 67 per cent -- were from South India, given the location of the study in Bangalore and the fact that the region produces a large number of engineering graduates and is a centre for the IT industry. Belying the criticism that has been mounted against the IT industry in Bangalore from some political quarters on the issue of employment of local people (Kannadigas), the largest proportion of respondents in our survey were born in Karnataka (35 per cent), followed by Tamil Nadu (17 per cent), Kerala and Andhra Pradesh. Despite the bias in favour of South India, the data also point to fair degree of regional diversity in the IT workforce. Taking mother tongue as a better indicator of regional identity than birthplace, it was found that 27 per cent of respondents were Kannadigas, 24 per cent Tamils, 17 per cent Hindi speakers, and 10 per cent Telugu speakers.

This sample turned out to be quite homogeneous in terms of religion and caste: 88 per cent of respondents were Hindus, while only 5 per cent were Christians and 2 per cent Muslims. 71 per cent belong to the 'savarna' upper castes (about half were Brahmins). If one includes the 15 per cent who are from dominant agricultural castes,[44] fully 86 per cent of respondents come from upper castes and/or economically better-off communities.

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[42] The study by Krishna and Brihmadesam (2006:3309) yielded similar results, but a smaller proportion of respondents were from metro cities, while 32 per cent respondents were from state capitals, 23 per cent from district capitals, and 11 per cent grew up in villages.

[43] Krishna and Brihmadesam (2006:3312) argue that having a rural background operates as a constraint on entry into the software industry because of the poor standard of education (including teaching of English), the relatively lower level of education of parents, and lack of access to information on career paths.

[44] The official classification of caste communities into OBC, Forward Caste, etc, does not always reflect the reality on the ground. In sociological terms, some of the groups classified as OBCs are 'dominant castes' in that they are the primary landowners in their regions, as well as often the most wealthy and politically powerful groups. For instance, the Vokkaligas in Karnataka are classified as OBCs but as relatively wealthy landowning castes can be considered dominant

Other surveys have produced similar findings on the social background of software engineers, suggesting that it is very difficult for those who are not from a particular socio-economic background to have acquired the necessary qualifications for IT employment.[45] There are several reasons for this. First, the educational qualifications required to enter the industry (usually a first class engineering degree from a good college) limit the pool of candidates to those who are sufficiently well off to have studied up to that level, and admission to good engineering colleges is sufficiently difficult that it requires a fairly solid middle class background to achieve this. Most of those who have entered engineering colleges through government quotas are likely to fail in the recruitment process on other counts (discussed above). While one does indeed find a number of software engineers from rural and semi-urban areas who have entered this profession after being educated in one of the many private engineering colleges located especially in the smaller towns of the southern states, closer investigation of their background usually reveals that most are from relatively well-off agricultural families. In Andhra Pradesh and Karnataka especially, the rural rich have been sending their children to professional colleges by paying 'capitation fees' (donations) for over two decades, so that upward socio-economic mobility via professional education (especially engineering and medicine) is quite common in this region. While this process has opened up a route for the entry of people from rural and semi-urban backgrounds – especially the dominant (landowning) agricultural castes -- into the urban middle classes, it still has not become a significant avenue for social and economic mobility for the poor and the lower castes. However, IT may be providing significant opportunities for those from higher caste but lower middle class families (symbolised by the archetype of the 'poor Brahmin' who does well through sheer hard work and educational achievement), and who are also from small towns – i.e., those who have been able to avail of the educational opportunities that are now widely available in urban areas outside of the metros.

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castes. 'Sudra' groups which are dominant agricultural castes, such as Kammas and Reddies in Andhra Pradesh, can be included as 'forward' communities although they are not 'high caste'.

[45] Oommen and Meenakshisundararajan (2005), in their survey of 100 software professionals in Chennai, Bangalore, Hyderabad and Trivandrum, found that 12 per cent were from rural areas, 97 percent had parents who were graduates, and three-fourths of the fathers had post-graduate or professionals degrees. As our study also found, almost all of the fathers had middle class professional or managerial occupations and so were economically sound. Three-fourths of their respondents were found to be from Forward Castes and the rest Backward Castes; none were from SC/ST categories. However, like our sample, most of their respondents worked in the major IT companies such as TCS and Wipro, so the sample is biased towards the 'cream' of the IT workforce.

In the ILO survey of 143 IT professionals in Bangalore and Delhi, 44.1 per cent were found to be from metros, 43.4 per cent from other urban areas, 8.4 from semi-urban, and 4.2 per cent from rural areas (Rothboeck, et.al. 2001:36). This study also concluded that the IT workforce is dominated by the 'urban elite' due to their command over English and other social factors, such as the operation of social networks (2001:64).

Fuller and Narasimhan's (2006) smaller study of software professionals in Chennai also found that they come overwhelmingly from Brahmin or forward caste, middle class, urban backgrounds.

Another important reason for this pattern of exclusion is differential access to private English-medium education: one survey of 100 software professionals in the South found that all the respondents had studied in private schools, and 96 per cent in English medium schools (Oommen and Meenakshisundararajan 2005) -- as had most of the respondents in our survey.[46] Moreover, 72 per cent of the respondents in the study had scored above 80 per cent marks in their higher secondary examinations. This educational background and level of performance is usually achieved only by children from middle class families living in urban areas, which already have a certain educational background, access to good, private English-medium schools, and also place strong emphasis on education. Moreover, most middle class parents invest significant resources in coaching classes and tuitions to help their children succeed in board and entrance examinations. Students from lower caste, rural, and working class families, on the other hand, are more likely to study in government schools and in the vernacular medium, to have less well-educated parents and hence lack a support system at home, and also to lack the resources to develop their 'merit' (high marks in examinations). This background creates a barrier to entry into IT-related professions due to poor examination results and lack of access to English and other forms of cultural capital, except for a few exceptional cases. These processes of exclusion are augmented by the filtering processes that operate during the recruitment of personnel, discussed in the previous section.

The relationship between cultural capital, language, and social background requires further discussion. As noted above, software companies look for employees with good 'communication skills', apart from technical aptitude and the right education. The complaint made by almost all HR managers we spoke to was about the 'poor communication skills' of Indian software engineers, in contrast to their technical expertise. This appears to contradict the argument that IT professionals come primarily from more privileged social backgrounds, for those who had studied in good English-medium schools would be expected to be conversant with the language and also have acquired some of the appropriate social skills. However, this contradiction is resolved if one takes into account the fact that a large proportion of IT professionals come from smaller towns where, although they may have studied in private English-medium schools, they may not be accustomed to speaking in English on a regular basis. Several HR managers made an association between language and social background, and identified those from small towns as being the ones with 'communication problems' because of their heavy 'MTI' [mother tongue influence].[47] This association is also used by HR managers to sort out applicants. One manager said that English language skills are assessed partly in terms of background: those who have grown up in the larger cities and metros are assumed to have a good working knowledge of English, but they are careful when recruiting candidates from 'rural backgrounds'. She said that they enquire about the applicant's family background, observe how s/he speaks, and then find out when they made the transition from vernacular medium to English medium. If this happened only in engineering college but the candidate can speak English well, it is taken as an indication

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[46] However, in the survey conducted by Krishna and Brihmadesam (2006:3308), 27 per cent of respondents were found to have studied in government schools, and 13 per cent had attended high schools in rural areas.

[47] Another reason why many companies require employees to speak only in English at the workplace is to make them more fluent.

of ability to learn, but if he or she they studied in English medium throughout and still does not speak fluently, the opposite is conclusion is drawn. The use of such strategies suggests that a process of social categorisation, based on clues such as linguistic ability, is central to the recruitment process, and again explains the relative social homogeneity of the workforce.

Clearly, it is not knowledge of English *per se* that is problematic, but accent (which can make the employee less comprehensible to foreign clients), style of communication, and ease of social interaction, especially with superiors and onsite. One HR manager pointed to the lack of wider 'exposure' and knowledge of the world among those from "rural engineering colleges, who cannot think beyond what they are taught". Fuller and Narasimhan (2006) make this point in their discussion of the discourse about 'exposure' among IT professionals in Chennai who come from smaller towns.[48] The value that is placed on good communication skills in the wider sense creates another kind of filtering process within companies. For instance, one HR manager admitted that despite the ideology of 'flat structure' (see Chapter 5) there is a hierarchy in the company that is based in part on social origins: "Although we are pretty flat, we only let certain kind of personnel to talk to clients -- those who have good command on English and good communication skills. So, in this way some hierarchy is maintained".

The discussion in this chapter suggests that the IT industry has been particularly successful in India precisely because it has been able to tap the existing social and cultural capital within the urban middle classes – including educational attainments, knowledge of English, and some degree of westernised social orientation. The workforce that has been created for the industry, and that is its primary resource, is drawn from this social segment – a fact that tends to reinforce the existing class structure. The middle class in India is certainly expanding in size and diversity, and is also being transformed by forces of globalisation, and new global industries such as IT are contributing to these processes by providing new kinds of jobs for highly educated workers and pulling at least some people from other social strata into the 'new middle class' (see Chapter 7). Yet ultimately the IT industry cannot be said to have contributed to overcoming the deep social and economic divisions that continue to characterise Indian society, despite its adherence to the ideology of 'merit' that claims that anyone can succeed in this industry by virtue of hard work and native intelligence.

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[48] They also point out that there is a cultural conflict between the more egalitarian and direct (i.e., American) mode of communication that outsourcing companies favour, and that which is valued in 'traditional' Tamil families.

5. THE SOFTWARE LABOUR MARKET: FLEXIBILITY, MOBILITY AND INDIVIDUALISATION

In this chapter we turn from the processes of formation of the IT workforce to the structural features of the software labour market, the nature of the employment relationship in the IT industry, and the mechanisms through which global software labour is mobilised and deployed.

5.1 Labour market flexibility

For the last two to three years, with the boom in the software outsourcing industry, it has been a seller's market for software engineers: almost all companies (except for a few with the most desirable brand values) have faced difficulties in attracting and retaining the 'right' kind of employees. One of the major complaints of HR managers is about the high attrition rates in the industry. Apart from individual career-related reasons for attrition (discussed below), there are several reasons for the pattern of rapid mobility and fluidity seen in the software labour market, which are linked to the structure and culture of the industry. For one, labour market flexibility has been promoted as a central requirement of the 'new economy' in the post-liberalisation era, and if companies demand the freedom to expand or shrink their workforces as the market demands, employees too feel free to pursue their career goals at the expense of their employers. The IT industry has been at the forefront in demanding flexibility in employment practices, which has contributed to the creation of a highly fluid and market-sensitive job market and promoted an individualistic mentality among software engineers.

Second, and somewhat paradoxically, the fluidity in the job market is linked to the sense of job insecurity experienced by software engineers – they know that they are liable to be laid off or transferred at any time, in response to a downturn in the economy, to the loss of a customer, or closure of a project. This is what happened during the downturn of 2001-02, when many software workers in India were laid off and many others came back from the U.S., swelling the pool of engineers looking for jobs. Because the Indian software industry is almost entirely dependent on business from the U.S. and other developed countries and is deeply affected by shifts in the global economic scenario, the job market is highly volatile. NASSCOM and other industry representatives are currently making optimistic predictions about the future growth of the outsourcing industry and the consequent rising demand for software engineers. But given the unpredictability of the global economy, many software engineers believe that they should accumulate the maximum in terms of money and career advancement while they can, because they are unsure of the future.

Another aspect of mobility and fluidity in the IT job market is the high level of geographical mobility. Workers tend to go where the jobs are, rather than settling down in one city and then looking for work there.[49] Employees are liable to be shifted between

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[49] In our survey, one-fourth of the respondents had worked in two places, one-fourth in three or more, while about half had worked in only one place. An exception to this generalisation may be that there is a desire to work in Bangalore among many engineers, because it is considered to be

different centres of a company, and those in service companies may be sent abroad to project sites at frequent intervals, despite the increasing trend towards offshoring. Due to these factors, IT workers tend to be highly itinerant, unable to put down roots in one place, at least during the early years of their careers. The workforce itself being quite young (with a median age of about 27), a large proportion of IT professionals are young unmarried men and women, whose single status enhances the much desired 'flexibility' and mobility of the workforce.[50] One of the striking features of Bangalore's social profile is the large number of young unmarried men (and women), many of who come from elsewhere, employed in the IT industry and living in PG or shared rented accommodation. But as they grow older, get married and move into managerial positions, IT workers (especially women) look for more stability in their jobs.

All these factors contribute to the fluidity of the job market, with software engineers frequently floating between jobs and companies competing with each other to attract personnel. This situation cannot be attributed entirely to the selfish ambitions of software engineers, as HR managers are wont to do, but must be seen as a structural outcome of the way in which the industry is organised. Although managements bemoan the lack of loyalty of engineers, they also tend to regard employees as replaceable commodities: this attitude is revealed in the fact that they are referred to in industry lingo simply as 'resources'.

The organisation of the IT job market is complex and cannot be described in detail here. However, two key features that contribute to the pattern of flexibility and mobility should be mentioned: the role of intermediaries such as manpower consultants, and the use of temporary or contract workers. While most companies recruit directly from colleges and through advertisements and employee referrals, as discussed above, they also depend on manpower consultants or 'headhunters' to fill their requirements. There are two aspects to this – companies recruit permanent staff through consultants, usually employing them first on a contract basis for six months or a year before absorbing them, during which period they are employees of the consultants, and they also engage temporary workers on contract basis.

5.1.1 Temporary and contract workers

There are a large number of manpower consultants in the major centres of the IT industry, ranging from large professional firms with many clients and extensive employee databases, to small operations that specialise in certain types of clients or domains. This ancillary industry developed during the period when software services outsourcing was organised primarily through bodyshopping. Although the bodyshopping phenomenon has reduced considerably with the professionalisation of software services outsourcing

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the centre of the IT industry: "Bangalore is the market. If you are not in Bangalore, you are not in the market."

[50] Based on a 2004 survey, the overall median age of the software professionals was about 29 years, and 70 percent of the work force is in the age group of 26-35 years (NASSCOM, Knowledge Professionals – Factsheet. www.nasscom.org). According to Basant and Rani (2004:5323), the share of young workers is much higher in the IT sector compared to others -- 79 per cent are under thirty, compared to 42 per cent for all industries.

through the large and medium size companies, it still occurs, but more now within the local market. Almost all of the large software companies, Indian as well as MNCs, engage personnel on contract basis through manpower consultants – a system known as 'temporary staffing' or 'deputation services'. Most of the large services companies have as much as 10 to 20 per cent of their workforce on temporary contract at any given time, but even the MNCs hire contract workers, especially for low-end jobs. This system enables companies to respond quickly to shifts in demand, deploying people on projects or laying them off as needed, and it is cheaper than maintaining a large proportion of permanent employees 'on the bench'. Temporary workers are recruited mainly for short-term projects (of six to eight months or so), to work on low-end web design, customisation of applications, and so on.

Temporary contract workers are considered to be something like second class citizens in the companies where they work: they are looked down upon by other employees and also do not feel any sense of loyalty or belonging to the company. 'Temps' are generally those who are not able to get regular employment in the companies of their choice, and may be less well qualified, with BCS degrees and the like. Their pay and other perks are also much less than regular employees, because the consultant takes a large chunk of what is paid to them. But many are willing to work as temps in the large companies in the hope of eventually getting absorbed as regular employees. This type of contract work is also highly insecure: although consultants maintain large databases of IT workers, the individual worker is paid only for the period of the contract and so has no income during the period when he or she is out of work (unlike those who are bodyshopped to companies abroad and are given at least a living allowance when they are between jobs).

In addition to the contractors or temps who are on deputation from consultants, companies also hire temporary workers directly on one-year contracts. During this contract period the employee is liable to be terminated at any time -- even on one day's notice -- hence they have no job security. Also, one mode of recruitment is to hire through consultants on contract basis and then absorb those who are found to be competent. These systems of recruitment and temporary staffing add to the flexibility of the IT labour market: while from the industry point of view, this enhances their own flexibility in the deployment of human resources and hence their profitability, from the employee point of view it is of course a very insecure form of employment. As a contract worker in a large American multinational said, "No one expects to be a veteran with five years in the company"; they are more vulnerable to layoffs than regular employees, so they keep track of they job market and keep their options open.

It is difficult to assess the number of temporary IT workers in Bangalore or in the industry as a whole, but they may constitute 10 to 20 per cent of the total workforce, if not more. One indication of the numbers is that one of the major manpower consultants interviewed in 2004 said that they had at that time 7000 people working on contract in Bangalore alone, most of them for large MNCs. Out of a workforce of about 200,000 in Bangalore, there may be as many as 30,000 to 40,000 contract workers.

5.1.2 Labour market intermediaries

Apart from providing temporary contract workers to companies, labour market intermediaries also enhance the fluidity of the job market (and possibly contribute to the high attrition rate) through the ways in which they source staff. Consultants gather information about the kinds of work being done in different companies and even attempt to get HR data from them, and then target certain employees for recruitment, based on the requirements of their clients. Software engineers, especially those in the large companies and MNCs, regularly receive calls from headhunters with enquiries and offers of jobs. While the industry has from time to time tried to enforce anti-poaching agreements, these have not been very successful, nor are they ethical or legal. The CEO of a medium-size company said that while he would not poach employees directly from his competitors, he knows which companies have the kind of employees he needs, and he hires headhunters to recruit people from them.

5.2 Flexibilisation of employment and work

The flexiblisation of labour has been identified by a number of scholars as a key feature of work and employment in the new global economy,[51] Harvey (1989:147), for instance, places flexibility with respect to labour processes and labour markets at the heart of the regime of 'flexible accumulation' that characterises the new global economy. There has been a reconstruction of labour market with the advent of more flexible work regimes and contracts, and the shrinking of the 'core' of permanent employees and expansion of 'flexible workers' (part time, temporary, sub-contracted work arrangements; Harvey 1989:150). The Indian software industry is no exception to this process, but the forms of flexible labour that have emerged in this context are somewhat different from those found in the post-industrial economies of the West.

Flexibilisation actually refers to several separate processes -- the growth and increasing dominance of flexible forms of employment, such as part-time and contract work, discussed above; flexibility in the work process and in forms of organisation; and flexibility of the workforce. Benner (2002), writing about labour in Silicon Valley, draws an important distinction between flexibility of employment and flexibility of work, arguing that they are not necessarily connected. While several of his observations are relevant to the Indian IT industry, there are important differences in the way in which flexibilisation of both work and employment has developed in the Indian case, and its wider implications.

5.2.1 Flexible employment arrangements

Many researchers have pointed to the increasing dominance of flexible forms of employment (such as temporary, part-time, and outsourced contractual work) in the post-industrial economies of the West, especially in association with the increasing dominance of the service sector and the emergence of the 'new economy'. A number of sociologists have also described the ways in which work and careers have been transformed due to the flexibilisation of labour, eroding job security, creating longer working hours and double

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[51] See Harvey (1989), Beck (2000), and Castells (1996).

shifts, and leading to individualisation in the workplace.[52] In many ways, the Indian IT industry seems to be following this pattern: as discussed above, the labour market is highly fluid; companies follow a 'hire and fire' policy and refuse to be bound by existing labour laws; and there is a large proportion of temporary and contract workers in the workforce. But while the industry is known for its high attrition rates as well as job insecurity, these negative features of employment flexibility are offset by the high salaries and career mobility that have been made possible by rapid growth, and the sector appears to offer better and more secure employment opportunities than most 'old economy' industries.

While employment relations in the Indian IT industry are more flexible than what was typically found in the 'old economy', the multiple forms of contractual employment that are seen in Silicon Valley (for instance, the self-employed but highly paid software consultant) have not appeared here yet. One reason for this difference may be that there has been great demand for software engineers during the last few years, unlike in the U.S. where they are losing jobs due to outsourcing and so must sell their services as independent consultants. Another reason is that the Indian software services business is primarily a 'numbers game': the success of outsourcing companies has been built partly on their ability to put a large number of programmers onto a job as soon as they are needed, so that they are able to execute projects more quickly than some of their global competitors (competing not only on price but also speed). Although software services companies in the U.S. may operate in a similar fashion, the American IT industry depends much more on the skills, knowledge and experience of its employees than on its ability to marshal large numbers of 'resources'. For this reason, in the U.S. highly skilled individual programmers are able to sell their services in the market as independent agents. What the Indian software services industry demands, in contrast to this, are large numbers of generic programmers – software engineers who are able to work on multiple platforms and languages, and so are not highly specialised in any particular one (see following section).

Thus, while the Indian IT industry depends on flexible forms of employment as in the U.S., the key axis of 'flexibility' is somewhat different here: Indian software services companies need to be able to quickly deploy workers on projects, send them onsite or bring them back to India as needed, and shift them among different technologies and platforms. The services companies are 'customer-centric' and compete sharply with one another for contracts (and now also with the large global service providers), so they must be able to execute projects as and when they come, and within tight timelines. This is why the large services companies maintain a proportion of their workforce (up to 20 per cent, although companies rarely admit to this) 'on the bench' – these are employees who are not currently on projects and so are not 'billable', but are available for assignment. At the same time, it is expensive to maintain a large bench, so these companies also have a large proportion temporary contract workers on their rolls. Because workforce flexibility is key to keeping costs down, they zealously guard their right to hire and fire people as needed.

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[52] Benner (2002), Carnoy (2000), Sennett (1998) and others have described these changes in detail (especially in Silicon Valley, considered to be the heart of the new economy), as well as their implications for workers, families, and communities.

Although the Indian IT industry demands 'flexibility' in its workforce – especially the freedom to hire and fire depending on market conditions -- it also deploys strategies to retain employees in the face of high mobility (see following section). Companies attempt to keep their workforces stable by offering ever higher salaries, attractive working environments, and a variety of incentives. For both the Indian software and BPO industries, control over labour as well as access to sufficient labour are crucial: this is reflected in the continual complaints from the industry about the shortage of skilled manpower, the development of strategies to augment the supply of qualified workers, and the numerous industry-sponsored conclaves and discussions on HR issues. Strategies of control over labour include keeping a proportion of workers 'on the bench', use of contractors and temporary workers, various HR policies aimed at stemming attrition, and the recruitment practices described in Chapter 4. But on the issue of flexibility and attrition, Indian IT companies perform a kind of double speak: while they try to adopt 'new economy' practices of labour flexibility, HR managers deplore the fickleness of software engineers and the high attrition rates (see section 5.3). But the flip side of the industry's promotion of 'flexibility' is lack of company loyalty on the part of employees, who seek career mobility by changing jobs frequently.

While there is 'flexibility' in terms of labour market and contracts in the IT industry, especially compared to India's 'old', public sector dominated economy, this has not necessarily had the same social and economic outcomes as in the U.S. IT employees do feel insecure knowing that they could lose their jobs at any time -- during a downturn or for 'non-performance' – but in India IT jobs are still highly desirable because of the high salaries they offer, and they are perceived as providing more economic security in the long run than most organised sector jobs, especially due to the buoyant job market since 2004. Thus, outsourcing to India has produced a degree of flexibility in the labour market and employment relations, but the effects of this flexibility are quite different from those seen in the U.S. While flexibilisation of labour has produced negative economic outcomes for many American workers, the outsourcing of IT jobs to India has created an economic boom in this sector and led to upward mobility for its privileged employees.

5.2.2 Flexibilisation of workers

Another important aspect of flexibilisation pertains to the work itself and individual employees' skill sets. Indian software engineers are known in the global market for their flexibility in terms of technical skills – their ability to adapt to new platforms and learn new technologies quickly. That they are regarded as more flexible and adaptable than their western counterparts, apart from being cheaper, has become one of their main selling points. The large services companies encourage this flexibility by moving programmers among different types of projects, platforms, and domains. As noted above, software outsourcing companies require 'generic programmers' rather than ones who are highly specialised in just one area because they need to be able to execute whatever projects come along.[53] The CEOs of several MNCs mentioned this difference between

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[53] There is a difference here between the large Indian software services companies and the MNCs: while services companies prefer generic programmers, MNCs prefer those who stay with the company for a long time and gain in-depth knowledge of a particular technical area. This is one

their requirements for engineers with in-depth specialised knowledge, and service companies' need for generalists: "In services people move from project to project, and the nature of the project may change each time. Their focus is on project management, which would be the same regardless of the type of project".

A negative outcome of the policy of job rotation is that engineers are unable to develop expertise in any one area and so are not qualified to seek higher end jobs in MNCs or research centres, which require specialised skills. The software services industry produces 'generic programmers' who are able to learn quickly and pick up new skills, but this characteristic of the Indian IT workforce tends to keep workers at the low end of the software production chain (see following section). As one employee said, "IT people are thrown into new working environments on each project and are expected to adapt" -- a feature that distinguishes IT work from that in other sectors and is seen as a major source of job-related stress.

5.3 Individualisation

The flip side of flexibilisation of the workforce is the high attrition rate that is said to plague the IT industry. While the industry desires a workforce that is mobile and flexible, this requirement has also created a culture of individualism in which employees pursue their own goals over those of their employers – who are in any case often temporary. This process of individualisation in the workplace has been widely commented upon in the literature on the new economy. This orientation to work and employment can be seen as part of the larger process of individualisation that is occurring in the workplaces of the new economy. Several social theorists have identified individualisation as a major outcome of the post-industrial economy as well as a significant social force in the 'informational societies', both at work and outside. Individualisation is defined as an orientation in which people centre their planning and actions around themselves based on an ideology of self-interest, rather than around collectivities of various kinds. In the case of the Indian IT industry too, this process is evident in several ways.

One manifestation of individualisation is the absence of collective identity among 'knowledge workers. In the IT industry or the 'knowledge industries' generally, the relationship between management and workers is very different from that in 'old economy' industries, in that the line between 'worker' and 'manager' is fuzzy. There are several reasons for this. First, most employees are highly educated technical workers, so that the educational and social class differences between 'workers' and managers is minimal. Second, due to the demographics of the rapidly growing Indian software industry, the age and experience gap between managers and workers is also minimal because software engineers tend to move into management positions at a relatively young age. Also, because of the team-based organisation of software companies, engineers may be promoted to the position of team leader within two to three years of starting their careers. Third, most IT employees aspire to managerial roles, which means that they tend to identify with management (see following section). All these factors militate against the creation of a sense of collective identity among software professionals, and reduce the

reason why most software engineers prefer to work for MNCs – they find the work more challenging and rewarding in terms of learning.

possibility of conflict along the lines of labour versus management. Software engineers do not see themselves as 'labour' or workers in the classical sense, even though the structural position of 'individual contributors' in the software production process is in many ways no different from that of factory floor workers in manufacturing. This absence of identification as workers, and the fuzziness of the distinction between 'individual contributor' and manager in this industry, together with the upwardly mobile class aspirations of software professionals, explain the general lack of interest in unionisation or collective action of any kind. Software engineers tend to deal with managements as individuals, whether in registering complaints or negotiating salaries, and when they are not satisfied with their jobs they vote with their feet – at least when the job market is good.

One example of the individualised culture of the software industry is the individualisation and lack of transparency in the salary structure. Although most companies claim that they offer salaries to new recruits based on standard benchmarks, in fact there is a great deal of negotiation that takes place, especially in the case of experienced engineers, but at the time of promotion as well. Promotions are based on individual performance appraisals, and salaries also have a performance-linked component (see section 6.2.1), which means that there may be wide variation in compensation among engineers in similar positions. For these reasons, employees are not supposed to reveal their salaries to one another – a situation that promotes competition among them, even while cooperation and teamwork are emphasised as key values.[54]

Another facet of the process of individualisation, which is also linked to the flexibilisation of labour, is the displacement of responsibility for the shaping of careers and the management of risk away from the corporation or the state and onto employees.[55] This means that employees must be constantly upgrading their skills in order to compete in market. This is especially true in the rapidly changing information technology sector, and is as much the case in Bangalore as in Silicon Valley. Many IT professionals expressed the fear that they would be made redundant if they are unable to keep up with changing technologies. But, as noted above, Indian software engineers have also excelled at flexibility in another sense -- at being able to pick up new languages or platforms quickly -- and this ability, together with the expanding job market in India, mean that the fear of obsolescence is not yet as acute here as it is in the West. While IT professionals in the U.S. and Europe face loss of jobs due to downsizing and outsourcing, at present it is a seller's market for software labour in India, and companies compete heavily to attract the best talent. From the point of view of software companies, IT professionals are their most crucial resource as well as the most difficult aspect of the business to manage.

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[54] This is typical of the IT industry in the U.S. as well: Hayes (1989) notes that individual negotiation and lack of transparency of salaries are ubiquitous features of the employment relation in Silicon Valley: "While management discourages a collective awareness of salaries among its professional employees, it clandestinely shares such information with other divisions, and often, with other corporations." Discussing salaries with fellow workers is considered to be unprofessional and is grounds for dismissal at IBM. The justification for this is to avoid rivalry among employees: "The mystery is celebrated in the professional mythology that likens technical workers to self-employed businesspeople – competing entrepreneurs with secrets to keep" (1989:131).

[55] See Beck (2000), Gephart (2002), Perlow (1997), Sennett (1998).

5.3.1 Job-hopping and attrition

The most common complaint of Human Resource (HR) managers across the industry is the high attrition rate (which usually refers to the percentage of employees voluntarily leaving the company each year, although the rates quoted may include 'involuntary attrition' as well). HR managers interviewed during 2004 mentioned attrition rates varying from 7 to 13 per cent in their companies, while other industry sources put the rate at 10 to 15 per cent. However, these figures probably reflect the continuation of a depression in attrition rates that occurred during the downturn of 2001-02. In the earlier boom period of 1999-2000, rates were said to be as high as 25 per cent. The attrition rate has risen substantially again in the last couple years as the industry has moved into another boom phase: companies have been recruiting heavily and there is a sharp demand for well-qualified software engineers. But regardless of the fact that these external market forces seem to play a major role in determining attrition rates, Indian software engineers have earned a reputation among HR managers as being 'fickle', a 'coddled lot' who quit if they are not given what they want (one CEO referred to them as 'migratory birds'). From the corporate point of view, IT professionals have a wide choice of jobs and can demand whatever salaries they like, and headhunters and other companies do not hesitate to poach good employees, 'non-poaching agreements' among a few companies notwithstanding. So one of the main challenges for managements is to find strategies to retain key employees without giving in to what are seen as their excessive demands.[56] While HR managers say that they do not prefer to hire people who have switched jobs many times, because it is an indication that they will not stick with the company, in fact they often do so because of the paucity of good candidates.

To understand the pattern of job-hopping that appears to characterise this industry, it is necessary to situate it within the larger social-economic framework that structures the career choices and aspirations of IT employees and that generates the 'push' and 'pull' factors that lead them to change jobs. These include the job market, the opportunities and career paths available, the culture of the industry, and the larger social milieu of the middle class that imposes certain expectations on software engineers based on norms of success and social status.

The first question to consider here is whether attrition rates are actually as high as IT companies claim, and second, in comparison to what? With regard to the first question, data collected during our survey of software engineers suggests a mixed picture: 39 per cent of respondents had worked only in one company and 33 per cent had worked in two companies -- but this is partly due to the young average age of the sample. The proportion of respondents who had worked in four or more companies was small (16 per cent), contradicting the popular image of software engineers as job-hoppers. Further, 34 per cent had been with the current company for four to six years, and 13 per cent for seven years or more, with an average stay of 3.5 years in the current company. However, the same data cross-tabulated by age in part supports the job-hopping image: only 18 per cent of

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[56] Indicative of this concern is the fact that several HR managers asked us to find out, through our research project, 'what software engineers want'. We hope that we have partially answered this question in this report.

respondents aged 31 and above had worked in a single company; one-third were in their second companies and another one-third had worked in three or four companies.

Thus, while the older industrial pattern of lifetime employment in a single company is clearly not typical of the IT industry, our survey data also does not indicate that employment mobility is as high as the industry's complaints about attrition suggest. However, mobility appears to be higher in the younger age group, among those who have recently joined the industry. Of those who had been working for one to two years, only 37 per cent were still with their first employer, while of those who had been working for three to five years, 58 per cent were still with their first company. This difference may reflect the shift in the job market between 2000 (the peak of the downturn) and 2004, when the survey was carried out. From about 2003-04, the demand for software engineers has escalated and they find it easy to change jobs, whereas employees who started working around 2000 faced a tough job market and so perhaps continue to be less likely to leave their jobs.

With regard to the second question (whether employment mobility is higher in the IT industry than in other sectors), there does seem to be a significant contrast between the 'old' and 'new' economies. The corporate tradition in India has been, until recently, close to the European pattern of life-long employment -- at least in public sector industries -- and even the private sector offered relatively stable employment. But the IT industry has tended to reproduce the American 'hire and fire' culture, perhaps because it has emerged in close relationship with American corporations. As noted above, IT companies zealously guard their right to hire or retrench workers as needed, and the industry has resisted any moves to impose labour regulations on it. In this context, it is somewhat contradictory that companies complain about the high attrition rates and attempt to nurture employee loyalty. In fact, it is the IT industry itself that has ushered in a new culture in which it is considered normal to switch jobs every two or three years, and in which changing companies is often seen as the best way to climb the corporate ladder as well as a sign of personal growth. IT companies in India tend to replicate and promote contemporary American corporate culture, which values labour flexibility and individual achievement over long-standing employment relationships. But an interesting contrast was observed between the American MNCs, which are more accepting of employee mobility, and European (especially German) companies. Coming from the German corporate tradition in which workers have tended to stay in the same company throughout their careers and companies have a sense of responsibility towards their employees, German CEOs in Bangalore find it difficult to understand why Indian engineers change jobs so frequently.

The Indian software services companies, like the German companies, appear to want the best of both worlds: a balance between what is considered to be the 'traditional' Indian business culture of paternalism and employee loyalty, and the flexibility and individualism of the new workplace (as defined by the globalised American model). Managers of Indian companies spoke of their organisations as 'blended', a mix of the Indian and American model. The 'Indian' element consists of being more 'people-oriented' – for instance, these companies claim that they are reluctant to lay off workers during a downturn -- while the American or 'global' element consists of individual

achievement orientation and labour flexibility. (The production of corporate cultures by IT companies is discussed further below.)

These considerations point to a contradiction at the heart of the IT work culture in India: contemporary management practices encourage individualisation and self-motivation of employees, creating a culture that tends to encourage job-hopping, as engineers give priority to their individual career goals over the needs of the company. At the same time, managements seek to induce employee loyalty through a variety of incentives and the creation of a 'strong corporate culture' (Chapter 6). They also attempt to bind employees to them or prevent them from joining competitors through employment contracts, which usually includes a 'non-competition' clause. This clause prohibits the employee, if s/he leaves the company, from joining another company that works in the same area within a certain period of time (usually one or two years). The ostensible reason for the non-compete clause is to prevent leakage of intellectual property to competitors, but such agreements may also have the effect of limiting the pool of jobs for employees who wish to change companies. However, these contracts are rarely enforced.

5.3.2 Job satisfaction

Interview responses indicate that there are a range of both 'push' and 'pull' factors that lead software engineers to change jobs. Among those who had changed jobs, one-fourth said that they were dissatisfied with their jobs, while half were looking for better opportunities, either in terms of salary or career prospects.

Common reasons that were given for job dissatisfaction include 'the job is not interesting', 'work is monotonous', and 'I am stagnating'. A major reason for wanting to move to a new job is to get 'better work'. These responses suggest that a major reason for job dissatisfaction and consequent high attrition is the increasingly process-driven nature of software production as well as the low-end nature of much of the work available. Many software engineers complain about the routine, boring and uncreative nature of their work, and they seek more challenging work either by changing projects within the company or, if that is not possible, by changing companies. When asked to describe their work, responses were mixed: about half said that the work is challenging most of the time, but only 11 per cent described it as interesting. Overall, the most common response was that the work is 'partly challenging and partly routine'. Those in research, consultancy and management jobs were more likely to say that their work is challenging and interesting, compared to those in lower-end jobs such as software development and testing. While many companies attempt to provide avenues to keep work interesting and challenging, the fact is that much of the work that is done in outsourced projects is low-end -- coding, testing, maintenance, and the like -- and engineers are required to work on the projects on hand. In the large software services companies, the most they can hope for is to switch to a different domain or technology, but after the new work is mastered it again becomes routine. According to a woman informant who had recently quit the industry, the attrition rate is high because of boredom:

> The satisfaction in all jobs is the same. The job is interesting only for the first few months, and after that the individual gets bored. The basic reason for most people

shifting jobs is boredom and pay. The reason is that there are very few passionate 'techies' and most are there only to make money.

Many respondents said that software engineers have more job satisfaction when they are learning something new every day, or if they doing technically challenging work. Most maintained that product companies give greater job satisfaction because they do critical, high-end work.

The unchallenging nature of much of the technical work that is outsourced to India also explains why most Indian software professionals aspire to move into management positions as soon as possible (or in many cases, to move out of the IT industry altogether), unlike their peers in the U.S. and Europe, who often are satisfied to remain in technical career paths throughout their lives. There are a few MNC research and development centres and high-end startup companies in Bangalore where original and intellectually satisfying work is being done, and the employees of those centres are very satisfied with their jobs. Moreover, in most companies there is no clear 'technical path' for career development, or this track is open to very few employees, which means that the only way that software engineers can develop their careers is by moving into management. Of those respondents who said that their future career plan is to remain in the IT sector, half said that they want to get into the management stream, while only 16 per cent aspired for higher technical or research positions. Some were planning to do MBA or similar courses in order to further their careers in this direction. One reason why many techies look to managerial careers, according to one informant, is because the Indian companies are service providers rather than users of IT: "Here in India, individuals are looking to grow within the organisation as managers. If you are looking after a big account, it's a big achievement. No one, on the other hand, has a goal of remaining in Java. It's not propelling. No one wants to be super technical".

Although more companies (especially the MNCs) are now receiving more design-related or high-end development work, the majority of Indian software engineers are consigned to jobs such as coding, maintenance, or testing, for which they believe they are over-qualified, and which, together with the high stress and long working hours, lead to frustration and burnout. Augmenting this frustration is the fact that many software engineers said that they entered the IT industry initially not because of an inherent interest in computer programming or information technology but for other reasons, such as 'there was an IT boom at the time or 'because everyone was doing it' (61 per cent). About half said that they like IT work or the IT industry, while 33 per cent cited good career prospects or money as their main reason. As discussed above, IT companies recruit graduates from all streams of engineering, which means that many software engineers are not doing the kind of work that they had originally intended to do, or were interested in. In our survey, 41 per cent had engineering or post-graduate degrees in computer science stream (including MCAs), while 43 per cent were from other streams. Interview responses also suggest that many of those who opt for computer science or IT-related degrees were not really interested in the subject. As a consequence, one might expect many employees to be predisposed to job dissatisfaction even before they have started work. A number of respondents had given up the idea of working in the field of their choice, such as mechanical engineering, because of the much higher salaries offered by the IT industry, and because they were induced by IT companies during college

recruitment. Several respondents had already been working in industries in the fields in which they had been trained before switching to IT for various reasons. When the primary attraction of a profession is not the work itself but the kind of career one can have or the money one can earn, it is not surprising that employees switch jobs frequently in search of higher salaries or better positions, and that there is at the same time a high level of job dissatisfaction.

This high level of dissatisfaction and frustration among IT employees is indicated by responses to several survey questions. To the question of whether their jobs met the expectations they had when they joined the industry, 61 per cent said 'yes' and only 5 per cent said 'no', but 28 per cent said 'yes and no'. Met expectations included: good pay (40 per cent), challenging work (31 per cent), learning new skills (28 per cent), good career prospects (26 per cent), and international exposure (16 per cent). Those who gave negative responses said that their personal lives were being affected negatively (23 per cent), that the work was not satisfying (16 per cent), or that they were not working in their preferred domain area (19 per cent). Although these responses suggest that the majority of employees are satisfied with their jobs, when asked whether they would like to stay in the IT industry or change careers at some point, only 54 per cent said they would like to remain in IT, 5 per cent said no, and 35 per cent that they would like to stay in the industry for some time and then try something entirely different (usually after earning and saving enough money). Of those who want to move out of IT, their ambitions were to join other industries such as media or finance, to teach, take a higher degree, or pursue hobbies such as music or photography. Many IT employees in informal interviews expressed a desire to retire early or to change careers in their forties, due to stress and burnout, dissatisfaction with work, and family/ personal problems. As a reflection of this, one does find a number of forty-something individuals in Bangalore who have left lucrative jobs in the large IT companies (especially those who could avail of employee stock option plans) and are now engaged in activities such as organic farming, photography, or running a restaurant. Because of the high salaries and other perks prevalent in this industry, such mid-life career changes are feasible for IT professionals, unlike most other workers or managers – but what is striking is the fact that so many do not find satisfaction in their current careers. Women expressed a desire to leave the industry more than men.

5.3.3 Career development strategies

Frustration with work may lead some IT employees to change jobs or even to leave the industry altogether, but perhaps a more important motivation for job-hopping is career development. As noted above, in the individualised culture of the software industry, as in the 'new economy' generally, career growth depends on improving one's 'skill sets' and adding value to one's resume through experience, certifications, and the like. Software engineers are acutely aware of the volatility of the industry and the job market, hence they constantly look to improve their marketability and attempt to predict future requirements so that they do not become obsolete. In order to enhance their value in the job market, most software engineers are continually seeking to upgrade their skills and knowledge in order to keep up with rapid changes in technologies, platforms and domains. IT companies usually offer numerous technical training programmes, but it is often up to individual employees to seek the kind of training that they need to enhance their careers.

While companies do invest a certain amount of time and money in employee training, and most require some minimum days of training (both technical and soft skills) per year, there is a limit to how much they are willing to invest in any one employee, given the pattern of attrition. This creates a Catch-22 situation, in which employees begin to feel dissatisfied when their jobs or projects do not allow them to improve their knowledge, while companies are reluctant to invest too much in employees who may not stick to the job. Several engineers complained that they were not sent for training programmes when they requested them (or even when it was requested by managers), due to their heavy workload, and so were unable to complete the mandatory days of training, which in turn affected their performance appraisals.

Given the lack of time to undertake training programmes or prepare for certification courses in programming languages, most software engineers said that they seek to improve their knowledge through more informal means, especially by browsing on the web, reading, or talking to more knowledgeable colleagues.[57] An important source of technical knowledge are the numerous internet lists and discussion groups devoted to computers and software engineering. Many techies belong to e-groups that are focused on their areas of specialisation and use them as sources of new information, and they often turn to senior or more knowledgeable members of these groups when they are facing a technical problem at work. These informal and virtual information networks create communities of software engineers that stretch across the globe, such that software engineers' professional networks of 'colleagues' extend well beyond their current companies. The best known such network is of course the community of Linux or open source programmers, but there are many smaller networks that include mainstream software engineers as well. These networks are not bounded by nationality, although there are also internet groups and lists devoted to specific nationalities (for instance, there is a rather active listserve of Pakistani programmers).

Apart from upgrading their knowledge through training programmes and more informal means, IT employees seek to enhance their skills through new work experiences, either within the same company or by changing jobs. The large services companies tend to rotate employees among different technologies and products, a policy that is linked to the demand for 'generic' or jack-of-all-trades programmers, discussed above. This gives employees a wide exposure, but a frequent complaint is that they have little choice in the kind of work or projects to which they are assigned, and are often consigned to routine debugging or maintenance work, which does not add to their technical experience. Those who are not getting the kind of projects that they think will enhance their skill sets are more likely to change companies. Similarly, many software engineers join services

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[57] This is a key feature of IT work in general: due to the continual and rapid change in technology, the success of computer professionals depends on maintaining range of up-to-date skills, while employers have interest in hiring people with deep skills in particular area. As a result, techies must place 'bets' on which way the industry is going, choosing jobs and taking trainings that position them well in the labour market as they see it a few years hence. "The size and complexity of the computer industry, as well as the microspecialization of computer skills in the marketplace, reinforces a sense of the industry as autonomous and uncontrollable when viewed from any given individual's perspective -- something to be predicted and accommodated rather than collectively chosen. An enormous and highly developed discourse spins around this endless project of prediction" (Agre and Schuler 1997:9).

companies in order to get work experience abroad, and sometimes they continue in a frustrating job only in the anticipation of an onsite posting. Failure to get onsite assignments is another common reason for moving, for it is by going abroad that engineers believe they get the kind of 'exposure' and experience that builds their resumes. As one informant pointed out,

> Everyone is focused on learning new skills because there is a high level of insecurity – everyone knows that at any time, the company might lose a project, or be taken over, and you could be let go any time. Companies want commitment and integrity from their employees, but no company can offer job security. From individual's point of view, they have to work out a strategy to survive in the industry. Young people are looking to add value to themselves, and not only to the company. So what people look for in jobs is not just compensation, but opportunities to build their skills. There is a safety net of knowledge – if you have that, you know that even if you lose your job you can get another.

In the new economy, responsibility for career development and upward mobility falls on the individual rather than the company, hence employees must create their own 'job security' by constantly learning new skills to maintain their employability in a rapidly changing market, even if that means, paradoxically, frequently changing jobs. In this context, it is not surprising that employees are continually looking out for new opportunities: many believe that the only way to move up to a more responsible position, to learn new skills, or get a higher salary is to change jobs. Although HR managers often suggest that IT professionals change jobs primarily for better salaries (according to one manpower consultant, IT professionals expect to get a 10-15 per cent salary hike at each move), only 13 per cent of respondents in our survey mentioned this reason, while 31 per cent said that they were seeking to develop their careers.

For software engineers, the global IT industry as a whole is the market in which they sell their services, and they plan their careers accordingly. For instance, a common narrative revolves around the difference between working in products versus services companies. Product companies are preferred by many IT professionals because they are said to offer scope for more independent, creative work and hence more job satisfaction. Similarly, MNCs are often rated higher than Indian companies as employers, not only because of the nature of the work, but also because "MNCs have certain standards", as one engineer put it. For instance, they provide decent living arrangements for employees who are sent abroad; they also generally pay better and have higher prestige value. So many engineers plan their careers as an upward path that moves from services to products, from small Indian companies to the bigger Indian companies, and from large Indian companies to MNCs, and sometimes from MNCs to high-end startups -- in pursuit of more challenging work, relevant experience, better position, and higher salary. In short, what is viewed as an incomprehensible pattern of 'attrition' by managements, reflecting lack of loyalty and short-sightedness, is actually a highly rational but individualised process of career planning on the part of software professionals.

At the same time, it must be recognised that many software engineers do not have well thought-out long-term career goals. A woman engineer said: "Nobody really plans their careers. When my manager asks me where I want to be in the future, I get confused. It's

only the passionate people who work it out. More than 50 per cent took up IT jobs simply because it's a good way to make money." This pattern is also linked to the volatility of the job market and sense of insecurity that many software engineers experience. Many respondents narrated their unstable job experiences during the downturn of 2000-02; for instance several who had been campus recruited were later turned down by the companies, and remained unemployed for months until they were able to land jobs in small companies. Only when the economy started picking up were they able to shift to larger companies. Even for those who did not experience the downturn and unemployment directly, memory of this period underscores their feeling that IT is an unstable industry in which one's future is never certain. Because they know that they may be laid off at any time, they keep track of the job market and keep their options open. Most techies, especially those who are young and unmarried, are willing to go anywhere for the right job, so their field in their job search is the entire world, not a particular city in India.

Due to this sense of insecurity as well as the continual search for new opportunities, most techies maintain their resumes on several employment websites (such as Monster.com) and/or with employment consultants. Employees of large companies and MNCs continually receive calls from headhunters with job offers, which presumably adds to the fluidity of the job market but also provides some sense of security. Internet discussion groups and email lists that cater to techies are almost wholly concerned with exchange of information about job opportunities. Apart from the employment consultancy industry that has grown up around the software industry, there is a virtual information exchange network among these global 'knowledge workers' that functions as an informal labour market intermediary. While these virtual knowledge networks may link together people who are otherwise strangers to one another, personal social networks also play a crucial role in job-hunting and recruitment, as noted in section 4.2. For many companies, employee referrals are valued sources of new hires, and most IT companies offer substantial bonuses to employees who successfully refer their friends. Software engineers maintain social relationships with their college classmates and sometimes with former colleagues, creating networks that can be tapped for recruitment by companies or by individuals seeking a change.

Increasingly, then, the work-related identity of IT professionals is based on their profession and ability to manoeuvre in the job market, rather than on their relationship with a specific company or employer. As discussed in the following chapter, this has implications for efforts of Indian IT companies to build a sense of identity among employees, and for the effectiveness of corporate culture as a strategy of worker control.

6. WORK CULTURE, ORGANISATION, AND CONTROL IN THE SOFTWARE OUTSOURCING INDUSTRY

The software industry appears to have introduced into India a work culture that is quite different from that found in old economy or 'traditional' Indian companies. Both managers and employees of software companies point to their 'global' work culture and management practices – especially 'flat' and flexible organisational structures and informal relationships at work -- as key features that distinguish them from 'traditional Indian' companies. Closer examination of the organisation of software companies and their work culture, however, reveals a more complex situation: while most companies (especially large and medium size Indian companies and MNCs) do have comparatively more open and flexible organisational structures compared to the hierarchical and bureaucratic organisation of typical family-owned businesses and public sector organisations in India, and they also offer employee-friendly human resource policies and very comfortable working environments, these positive features are often offset by periodic intense work pressure, long working hours, and job insecurity. These negative features are outcomes of deeper structural factors, including the new management practices themselves. Moreover, there is a gap between the official work culture as described by managers and expressed in company policies, and the actual culture of work that develops spontaneously within any industry or workplace. It is necessary to describe both of these facets of work culture and to delineate their inter-relation, in order to come to a deeper understanding of work-related issues in the industry and of the concerns and aspirations of employees.

Before discussing the systems of organisational control and work culture, it is necessary to explain why control over work and workers is a central issue for the software outsourcing industry as well as for sociologists studying organisational culture. As in any service or 'knowledge' industry, 'people' are the primary resource for software companies. As discussed in the previous chapter, recruiting and retaining a sufficient and qualified workforce is a central concern of software companies and their HR departments, due to which new techniques of organisational control and 'resource management' ('resource' refers to software engineers) are being continually tested and introduced. While HR managers frequently complain about their 'fickle' and 'demanding' nature, the main grievance of software engineers concerns HR departments and HR policies. When asked to describe the 'work cultures' of their companies, most employees as well as managers reiterated the dominant line – Iack of hierarchy, informality, a fun place to work -- but a few individual voices pointed to these conflicts and to the gap between theory and practice ("the organisation is flat only for those at the top", as one informant said). So despite the 'flat structures', employee empowerment, and informality that are supposed to characterise these 'new workplaces', there are conflicts and struggles over control. However, these do not usually take an overt form, and the lines of confrontation are not clearly drawn as in labour disputes in traditional industries. As discussed above, the fuzziness of the line between 'worker' and 'management' in this industry, and the fact that software engineers do not identify themselves as 'workers', reduce the chances of such conflicts occurring. However, there are tensions between management *practices* and employees, most of which are related to the systems of control that have been evolved to manage these 'knowledge workers'.

6.1 Control over workers and the work process

When asked to describe the work culture of their companies, managers in all types of software organisations spoke with a common voice: they all referred to a relative lack of hierarchy ('flat structures'), informality, and openness, in contrast to what is seen as the excessively formal, bureaucratic, and hierarchical nature of 'traditional' Indian companies. The fact that almost all HR managers and CEOs interviewed, as well as many employees, spoke at length about the differences between the software industry and other sectors with regard to culture, organisation, and management, gave us an important lead for our research, prompting us to ask what really is new about the culture of this industry. It also signalled for us the need to study the impact of these new management ideas on work and the workforce. In attempting to answer these questions, however, we must distinguish between what is claimed by managements or exists in the form of official policies, and what actually happens. To do this, we have taken into account the results of interviews with managers and employees and other knowledgeable persons connected with the industry, as well as our own direct observations in several workplaces.

6.1.1 'New age' management

Most IT companies operating in India – both Indian and multinational – follow, or attempt to follow, what is now the dominant management model in the West (and increasingly in the rest of the world). The 'new model' corporation – or what was referred to by one HR manager as 'new age' management -- was developed primarily in the U.S. and embodies American cultural values such as egalitarianism, teamwork, individual initiative and responsibility, and democratic forms of decision-making. This model advocates an open and informal work culture, and flat, flexible organisational structures based on broad 'bands' or matrices rather than fixed grades and intricate hierarchies. By minimising hierarchy, bureaucracy, and formal procedures, the 'new' corporate workplace is supposed to empower workers and encourage individual initiative and creativity, thereby stimulating greater productivity as well as employee satisfaction. In this model, employees are managed, and work is coordinated, primarily through indirect and subjective techniques rather than the direct and top-down methods typical of systems of bureaucratic control. The 'new workplace' is considered to be typical of the post-industrial 'information economy', especially of the American IT industry.[58] Silicon Valley became known for an informal, individualistic work culture that is supposed to have fostered the climate of innovation that has been so central to the industry's growth. In the rapidly changing software industry in particular, maximum scope for autonomy and creativity is given to programmers in order to promote product innovation. This is the main source of the 'new age' management techniques and theories that have been adopted by software companies in Bangalore.

The development of 'new age' management techniques has been facilitated and stimulated by the advent of computer mediated communication and information systems (CISs), and the consequent digitalisation, globalisation and computerisation of the

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[58] On the 'new workplace', see for example Thompson and Warhurst (1998), Warhurst and Thompson (1998), Gephart (2002), and Jermier (1998). For a historical overview of shifts in dominant management ideologies in the U.S., see Barley and Kunda (1992) and Jermier (1998).

workplace. Gephart (2002) notes that the movement to flexible production systems, together with the use of CISs, have led to the decentralisation of work systems; the diffusion of power and decision-making within organisations; the proliferation of cultural rather than structural tactics for gaining employee consent; and the widespread use of temporary and contingent labour. Self-control or self-management is the defining feature of the new work systems. Employees are supposed to internalise management goals, actively monitor and control their own behaviour and that of co-workers, and accept the need for self-control (Gephart 2002:335). In the new workplace, the line between managers/management and the managed becomes blurred, and work is driven by an ethic of individualisation in which workers (especially professionals and technical labour) focus on completing individual deliverables (Perlow 1997:34, quoted in Gephart 2002:335) and on doing high visibility work to achieve personal goals. Because speed to market is crucial in the new globalised economy, organisational success is linked to working long hours, producing the extended workplace presence that workers view as positive for career success (Perlow 1997:5, quoted in Gephart 2002:331).

This account of the 'new workplace' in the literature could be applied equally well to the Indian software industry. However, while decentralised and flexible production systems are supposed to empower employees as well as help companies to better achieve their goals, there are contradictions within the model, and between the model and the exigencies of outsourced software production. There are also issues about putting this model into practice in the Indian context, as many HR (human resource) managers attest. This is reflected in the fact that while 79 per cent of our survey respondents described their companies' work culture as open, 'flat', and non-bureaucratic, 44 per cent mentioned opposite features – closed, rigid, and hierarchical. Interestingly, the more years of experience they have, the less likely were respondents to describe their companies as 'open' and 'flat' and the more likely they were to mention the opposite (implied negative) characterisation. This suggests that younger employees are more likely to articulate the dominant corporate ideology when asked about work culture, while older and more experienced employees are less convinced that this official work culture exists in practice. The reasons for these contradictions are discussed below.

6.1.2 Normative or indirect control

A central feature of 'new age' management is that employees, rather than being controlled and directed from above as in bureaucratic systems, are supposed to be empowered and induced to manage themselves through techniques of indirect or 'normative' control (Kunda 1992). The key words here are worker autonomy, self-management, self-motivation, and empowerment. This approach to management contributes to the process of individualisation in the workplace, discussed in Chapter 5. Responsibility for completing work or making decisions is devolved to a large extent onto individual employees, who are motivated to perform because they identify (in theory) with the company and its goals. For instance, software engineers are made to feel personally responsible for finishing their tasks on time even when faced with impossible deadlines, or when organisational obstacles prevent them from doing so. Productivity depends on the internalisation of company goals and work ethics by employees, and discipline is enforced as much by self and by peer pressure as by managers.

Two major techniques of indirect control that have been identified in the literature are team-based organisation and the creation of a strong corporate culture. Organisation into 'teams', and the promotion of an ideology of teamwork, are ubiquitous in software companies. Under this system, software engineers are grouped into teams of five to ten members, each led by a team leader, which are in turn linked together into a larger group, usually under a project manager. Teams are not always formed around specific projects or units of work; rather, members of a team may be involved in several different projects at once, working with engineers from different teams. Because the logic of team-based organisation does not necessarily flow from the organisation of software production itself, one must assume that it has a different function – that of indirect control over the work process and over employees. Although managers and employees alike stress the informality of relationships and management style in the workplace, teamwork introduces a subtle yet strong system of control, for instance by invoking peer pressure in order to enforce deadlines or to induce team members to work extra hours. Because the progress of each individual's work often depends on the completion of work by other team members, they exert pressure on one another to finish tasks on time.[59] Through peer surveillance, one's work is continually being monitored, which adds to stress levels, according to several respondents.

While team-based organisation of work is meant to foster cooperation among engineers, it also tends to promote competition and conflict: for instance, individual team members are assessed on the basis of overall team performance (*vis-à-vis* other teams), which leads them to put pressure on one another to complete the work in time. At the same time, employees are assessed on their individual performance, which drives them to compete with one another for recognition and may lead them to withhold help or crucial information from other team members. There appears to be a contradiction between the ideal of cooperation and teamwork, and the actual individualised and competitive nature of work. For instance, one informant said that there is a tendency for people and teams to hide information from one another, and that they compete for recognition in the pursuit of promotions. This is one reason why software companies pay close attention to forging and managing effective teams through training programmes and other such strategies.

Another key technique of indirect management is the establishment of a strong corporate culture. In modern management practice, the inculcation of a distinctive corporate culture is considered to be crucial for the promotion of employee loyalty and the 'alignment' of individual with company goals. The centrality of corporate culture to the management of software companies (as is the case also in most large companies and multinationals today) is indicated by the very visible modes of transmission and articulation of the official culture in these workplaces, from formal statements of the company's 'mission, vision and values' on websites and wall posters, to induction workshops, training programmes, team meetings, social events, and the like. In theory, these techniques imbue employees with the dominant values and goals of the company so that their motivation to work

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[59] Teamwork and team-based organisation as methods of indirect control have been described and analysed by several scholars. Sewell (1998), for example, argues that contemporary management rhetoric of emancipation and empowerment obscures the deeper reality of work intensification and increased managerial control through a combination of electronic surveillance and teamwork. See also Jermier (1998).

comes entirely from within and they do not require external mechanisms of control. As a result, the employment relationship is no longer purely economic, but involves the shaping of the employee's very sense of self. However, the establishment and transmission of a strong corporate culture is not always easy: the problems that Indian software companies have faced in using this strategy are discussed below.[60]

Critical organisational theorists have analysed the operation of these 'subjective' or 'normative' techniques of control, and have questioned whether the decentralised, 'flatter' structure that has emerged in the new workplace is actually empowering, or instead hides other structures of power and inequality (Gephart 2002:332). For instance, team-based methods of production are promoted as a departure from traditional management relations, and on the surface seem to relax controls. But Ezzamel and Willmott (1998) argue that it constitutes a new oppressive form of control by turning workers into unpaid supervisors.[61] In her study of the Australian software industry, Barrett (2001) found that the focus on the technical aspects of work, personal opportunities, and flexible employee-friendly policies meant that workers were unaware of any idea of exploitation. She identifies the strategy of control adopted by the company she studied as one of "responsible autonomy" -- an attempt "to harness the adaptability of labour power by giving workers leeway and encouraging them to adapt to changing situations in a manner beneficial to the firm" (2001:31). Thus, the use of teamwork and the establishment of a strong corporate culture, can be understood as strategies to keep attrition rates down as well as techniques of subjective or 'normative' control over the workforce.

When asked to describe the social atmosphere at work, the large majority of respondents (85 per cent) in our survey came out with positive terms such as 'cooperative', 'friendly', 'informal', etc, but 27 per cent mentioned negative features such as competitiveness and backbiting. Again, positive descriptions decline with an increase in age and experience. These responses reflect the fact that most IT companies make concerted efforts to create a positive working environment, to bind employees by fostering a sense of commitment, and to promote a spirit of cooperation and teamwork.

6.1.3 Routinisation of software production and techniques of direct control

Although Indian software companies attempt to manage work through the indirect techniques described in the previous section, the exigencies of competing in the global market have led them to introduce more direct methods of control as well. In fact, the work process, especially in software services outsourcing, is becoming more and more closely controlled and monitored, calling to mind the earlier Taylorist methods of factory floor management.

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[60] Organisational control through corporate culture is discussed in more detail in Upadhya (2005a). Also see Ogbor (2001), Kunda (1992), and Wilmott (1993).
[61] The authors link "teamwork experiments to a critical theory of worker subjectivity and to the rise of new accounting practices designed specifically to enhance capital accumulation by more flexibly reallocating resources" (Jermier 1998:249). This remark is especially pertinent to resource and time management systems in the IT industry, discussed below.

There are several reasons for this trend. First, globally there has been a shift during the last two decades or so in the process of software development away from an individualised craft-like production system towards a factory-like production process in which the production process is routinised and rationalised (Barrett 2001; Beirne, et.al. 1998). This shift has been necessitated by the increasing complexity of software products, projects, and programmes, the imperative of continually reducing time to market due to sharp competition, and the consequent need to divide work among many software engineers. The development of structured programming, object-oriented languages that allow modular programming, and software engineering tools, has enabled 'software factories' to emerge and have also increased labour productivity (Parthasarathy 2000:57-58). "[T]he ability to fragment the larger system into discrete components meant that it was not necessary for individuals/teams to know how their component fitted into the system… this saw the birth of the assembly line for software development…" (Barrett 2001:25). In this production system, work is divided into small portions and allocated among engineers within a team, as well as among different teams. In addition, software engineering now follows a modular system, which consists of putting together 'pre-fabricated' pieces of software in a specified manner -- essentially a cut and paste approach. While this shift has been noted elsewhere, it has been taken to a new level by the major Indian services companies, which excel at executing large projects quickly by putting large numbers of engineers to work on them. The standard 'global delivery model' involves the coordination of work among several geographically dispersed sites, taking advantage of time differences to work '24/7'. Needless to say, careful planning and management of projects, coordination of workflows, and strict control over the use of time and resources, are essential to the successful execution of such large projects.

Second, the structural position of the Indian software industry in the global economy is very different from that of Silicon Valley. It is an outsourcing services business that relies on contracts with customers in the U.S. and other developed countries, and for this reason is very customer-oriented, as is any service industry. Projects are customer-driven and work is organised through virtual teams in which people at the customer's end are usually in control, directly or indirectly. Because of the way in which software services contracts are structured, projects are governed by strict timelines and deadlines, and the work of the offshore engineers is constantly monitored and evaluated from the customer site. The customer as well as the software services provider are concerned with keeping costs down, so the time and productivity of employees must be measured and accounted for, and a certain level of productivity maintained. As one informant put it, service companies aim to "maximise utility and minimise cost by any means". This requirement has been exacerbated by the declining wage differential between India and developed countries. The sharp rise in salaries during the 1990s began to erode the profitability of outsourcing companies, which led them to adopt new processes and forms of organisation to enhance productivity (Athreye 2005).

Third, and perhaps most important, is the trend in the Indian software industry towards standardisation of software production based on international quality certifications such as the ISO 9000 and CMM Level 5. Indian software services companies must compete not only with one another for customers, but also with the large global services software companies based in the U.S. and other developed countries (several of which have opened their own ODCs in India). Their main challenge has been to create legitimacy and to

convince customers abroad that they can produce software of the same quality, at lower cost. As a way of signalling quality to potential customers, Indian software companies have gone in heavily for various quality certifications, such as ISO 9001:2000. The most important certification for these companies now is the CMM, which is a set of standards designed only for software production. It has five levels, CMM Level 5 being the highest.[62] As of 2003, 65 Indian software companies had attained CMM Level 5 certification. Although the ostensible aim of getting these certifications is to improve quality, many observers believe that the real reason is marketing (Parthasarathy 2005:211; Heeks 1996:111-12) – which is why the majority of CMM Level 5 companies are Indian.

The adoption of these quality models has had implications not only for India's competitiveness in the global market, but more so for work itself and systems of control over the work process. The main feature of CMM type quality models is that they are extremely 'process oriented'. Quality processes are supposed to introduce discipline into the production of software in order to reduce the many errors ('bugs') that are caused by the individualistic nature of programming. These quality models prescribe rationalised and systematic processes for the organisation of work flows at every stage of the software cycle as well as for management practices; the setting of specific productivity goals for each worker and team on a daily and weekly basis; and detailed monitoring, measuring, reporting, and evaluation of work completed. This creates a regime of endless reporting and evaluation of work activities, and a lot of 'paperwork' (now of course done electronically) in the form of numerous reports to be written, timesheets to be filled, and so on, all of which adds to the pressure on employees' and managers' already limited time. Apart from reducing software production to a highly routinised and mechanical process, these systems put additional pressure on engineers to meet their production and quality goals in order to maintain their individual and team ratings, which are being constantly measured. Although process-orientation is especially typical of the Indian services companies, this is the case even in some of the multinational software development centres, which must also pay attention to cost and efficiency. A contractor in a large American software centre said that the main focus is on cost-effectiveness and that "everyone is obsessed with process, rather than the ethos behind the process".

According to some scholars, software quality processes have introduced new forms of direct or 'panoptical control' and surveillance into the workplace, in apparent contradiction to the official rhetoric of worker initiative and autonomy (Prasad 1998). These systems of surveillance go much beyond those found in traditional bureaucratic systems or in Taylorism, in their ability to instill discipline and consolidate control over the work process. The effectiveness of these techniques of control is further enhanced by the fact that surveillance now takes place primarily through electronic means. – what Zuboff (1986) called the 'information panopticon'.

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[62] The SEI-CMM model was developed by the Software Engineering Institute (SEI) of Carnegie Mellon University, and is now called CMMi. The main objective of quality assurance is to reduce the number of bugs in software; the benchmark for CMM Level 5 is not more than 2.3 defects per 1000 lines of code. Most of the CMM level 5 companies in the world are in India, a fact that shows that it is mainly outsourcing companies located in developing countries that need to prove their quality through such certifications. The major American companies such as IBM and Microsoft do not bother with quality certifications.

A significant outcome of the rationalisation of software production is that programming and other IT work are being reduced to measurable quantities of time, effort, productivity, and output -- mimicking in many ways the old Taylorist system of factory management. While the context and many of the management practices are clearly different from those identified with classical Taylorism, the objectives and orientation are broadly similar: to increase productivity and reduce costs by monitoring the use of time and the performance of tasks, and by devising methods to save time and increase productivity (see next section). A second consequence of process-orientation is that it allows management to tighten its control over the labour process as well as over the implicit knowledge of workers. As Prasad argues, the aim of quality processes is not so much to produce error-free software as "… to turn the solitary activity of software programming into a managed team activity – in other words, to break the individual employee's monopoly of knowledge over the labor process, and to *make the process independent of any particular employee*" (1998:441; italics in original). Crucial to this process is the documenting of code, because lack of documentation in an environment of rapid employee turnover creates problems. Although this does not really affect the quality of the end product, documentation enhances efficiency, reduces timelines, and makes the project independent of any particular programmer.

The development of this factory-like software production system has provoked a fresh debate on the 'deskilling', or 'invisible deskilling', of software engineers (Aneesh 2001b; Prasad 1998). The fact that engineers are often required merely to put together ready-made modules and produce code according to fixed norms reduces the scope for creativity or even much thought. This deskilling is exacerbated in the case of the Indian outsourcing industry because it tends to concentrate on projects at the 'low end' of the software services spectrum, such as maintenance and testing -- tasks that are even more routine and monotonous than modular coding. For instance, the work process in quality assurance is highly mechanical, as testing processes are governed by centralised software tools used for tracking progress and output. All of this has adverse implications for the development of software skills and for software professionals' careers. Moreover, in the outsourced 'software factory' work is divided into separate small components and carried out by different teams, which may be in different locations, which means that individual engineers usually are not aware of the details or objective of the entire project. This fact may explain the comment by foreign clients that Indian engineers are technically good "but are not able to grasp the big picture". This is also one of the common complaints of engineers – that they have to work on small pieces of larger projects of which they have no knowledge, which reduces the scope for gaining domain knowledge. The division of software projects into small pieces, which are then parcelled out among many engineers, is also a strategy on the part of companies to retain control over intellectual property (see section 6.1.8).

Thus, although Indian software companies do employ some of the indirect or 'soft' techniques advocated by 'new age management', such as teamwork and promotion of a strong corporate culture, they have also introduced direct 'panoptical' controls over the work process. The resulting blend of indirect and direct management techniques, a 'hybrid' system of control, is perhaps more insidious than either management system on

its own.[63] For instance, CMM-based surveillance systems work in tandem with team-based organisation, which brings moral pressure to bear on team members who are identified as lagging behind. Given that software project cycles and deadlines are quite inflexible, this system, which in theory grants autonomy to individual employees and teams to plan and carry out their work as they like, is in fact coercive because employees are given little choice but to acquiesce to pressure from team leaders and colleagues.

While most software companies stress the non-hierarchical and informal nature of their work culture and claim that employees are given a lot of freedom to decide how to complete their work and how to allocate their time, software development projects are heavily time-bound, involve the close coordination of a number of people and activities across different locations, and are governed by strict deadlines. The demand for on-time delivery of quality software based on 'process', and the fact that the work process is closely planned, monitored, and evaluated, appears to conflict with the official work culture based on openness, individual initiative, and informality. While on the surface the social atmosphere may encourage informal interactions and camaraderie between managers and engineers and among team members, or even allow individuals some amount of flexibility, for instance in office timings, the increasing process-orientation of work in software companies is making the production process more akin to the Taylorist factory floor model.

The routinisation of work is a major complaint of many software engineers. For one, it reduces the scope for originality and individual initiative, turning computer programming, which for many programmers is a highly individualistic and creative activity, into a kind of assembly line production system. Moreover, they resent the amount of non-productive reporting and documentation that is required by quality processes. Some engineers try to find ways to circumvent or shortcut these requirements, for instance by filling timesheets automatically without reference to time actually spent on various tasks -- creating a fertile area for conflict with managers and quality departments, and undermining the very purpose of following 'process'. In this context, it is not surprising that many respondents in our survey described their work as boring and routine, rather than challenging or interesting (see Chapter 5).

The rise of 'software factories', combined with the customer-driven and competitive nature of the outsourcing business, has additional consequences for employees. As noted earlier, most of the Indian software services companies expect their engineers to be 'generic programmers' -- able to work on different platforms and in various programming languages and to pick up new skills easily so that they can be shifted from one project to another as needed. This is one aspect of the flexibilisation of labour, discussed above. Yet, despite the commitment voiced by companies to flexibility and employee autonomy, employees often do not have a choice of assignment or work. Rather than remaining for long periods within a single project or team, engineers are moved frequently between projects and locations according to the company's requirements. In the large services companies, they may be assigned to projects without regard to their particular 'skill sets'. While this may be a positive strategy that enhances their marketability and 'flexibility' in

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[63] Of course, all modern management systems are a mix of direct and indirect systems of control, but the balance between the two has changed over time (Barley and Kunda 1992).

the services business, it prevents them from gaining in-depth knowledge of any particular platform, technology, or domain. This system also suggests that (from the company point of view) software engineers are regarded as mutually replaceable providers of time and labour, whose contribution or 'performance' is measured only in terms of the amount of time they put in, the number of lines of codes they can write in a day, or how many test cases they can complete. Their value to the company hinges on measurements of their contribution of time and 'effort', rather than their specialised knowledge of a particular programming language, platform, or domain area -- as appears to be the case for programmers in Europe or the U.S. This becomes evident in the operation of 'resource management' and 'time management' systems, discussed below. But the reduction of programmers to 'abstract labour' is effectively masked by the ubiquitous use of terms such as 'knowledge worker' and 'IT professional', which suggest that all IT employees are engaged in highly challenging and creative work that fully utilises their intelligence and expertise.

6.1.4 Global and Indian work cultures

Most medium and large Indian software companies have attempted to implement the 'new age' model of management described above (these practices are less common in smaller companies that have fewer resources to spend on management training and the like). As a result, the official corporate cultures of these companies are strikingly similar to one another in their emphasis on individual empowerment, open structures, and informality. Moreover, the culture and organisation of most transnational corporations increasingly follow a standard model that is coalescing around current management trends and a set of 'global best practices'. At the same time, companies attempt to differentiate themselves from one another through corporate branding. Because all large multinational corporations have already developed distinctive 'corporate cultures' (which, for instance, makes IBM different from HP different from Apple), their challenge is to transplant these cultures into their software development subsidiaries in India, with or without culturally appropriate modifications. For Indian software companies, the task has been to develop distinctive cultures for themselves, which they have attempted to do through a combination of global management practices and what is understood as Indian ethos or work culture.

The production and management of corporate culture has reached a sophisticated level in the corporate world, and most MNCs have definite policies about the extent to which a uniform culture and set of HR policies must be replicated in all their centres around the world, or whether some amount of local variation and autonomy is allowed. Among the MNCs surveyed in Bangalore, some were found to encourage subsidiaries to adapt their practices (especially HR policies) to suit the local culture, while others attempt to create a uniform culture in all their offices across the globe. For instance, an employee of the ODC of a large American company said that his company has the same culture in all its branch offices: "There is a standardisation of cultures within each company. Although local culture seeps in, it merges with the company's culture." In contrast to this, the CEO of the Indian subsidiary of another American company said, "You can't just wish away the Indian-ness", so there are differences in some of their management practices between the U.S. and India offices. The example he gave was the 'hire and fire culture' in the

U.S., in contrast to the fact that in India they are "… reluctant to let people go; Indian companies are more 'people-oriented'".

But even the MNCs that allow for local cultural difference must implement a range of unfamiliar practices and policies in their Indian ODCs. Many CEOs and HR managers of MNC software centres spoke about the difficulties they faced in establishing the culture of the parent company here, primarily because of what are seen as clashes with the local culture. HR managers are faced with the problem of translating (sometimes literally) the official corporate culture into a language that Indian employees can understand, and inducing the behavioural changes required to adapt to that culture. For instance, a common problem is to promote the kind of informality that is expected in American companies (such as calling the boss by his first name, being able to interact socially as equals with managers, and feeling free to approach them with problems) among employees who are used to more formal behaviour such as addressing their superiors as sir/ madam. An issue that many companies consider to be serious is to teach employees to be more self-driven and proactive, rather than always depending on instructions from managers (Indian employees are stereotyped as requiring continual supervision, motivation, and 'micro-management). These companies use induction programmes, social events, and soft skills training sessions as techniques for imparting these behaviourial values and absorbing employees into their cultures.[64]

While MNC software centres struggle to implant their corporate cultures into their Indian subsidiaries, the challenge for Indian companies has been to create distinctive corporate cultures and brand identities of their own, in order to foster a sense of belonging among employees – this is seen for instance in the evolution of identities such as 'Infoscions' and 'Wiproites'. When asked to describe their cultures, spokespersons for Indian companies usually talk about mixing what are considered to be positive aspects of Indian work culture with the global model described above. When asked to list the Indian elements of this 'blended culture', managers usually refer to the greater security provided to employees (especially compared with American MNCs): they claim that Indian business culture is more protective of employees and more 'people oriented', for instance, their companies are reluctant to lay off workers during a downturn. They also point to the Indian habit of socialising in the office and building up social relationships at work that carry over outside the office. But from the point of view of employees, the 'Indian' element in some of these organisations is the fact that they are hierarchical and bureaucratic, despite claims to being democratic and decentralised organisations.

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[64] The differences in corporate culture among MNCs, large/medium Indian companies, and small startups, are depicted in the NIAS-IDPAD film series 'Coding Culture'. The process of induction into a corporate culture (in this case, of Sun Microsystems) is illustrated in the film entitled 'Fun @ Sun'. However, it is important to stress that each MNC has a distinctive culture, not only on the basis of nationality (although there are certain characteristics that distinguish German companies, say, from American), but also because they have evolved their own corporate cultures, deliberately and otherwise. For instance, not all American companies adhere to the ideals of the 'new workplace'; some of them are known to be highly bureaucratic and hierarchical, while others are very flexible and encourage informality and 'fun' at work.

6.1.5 'Flatness', hierarchy, and control

While most software companies have attempted to introduce global corporate culture into their workplaces, the narratives of many employees point to a reality rather different from the model. In particular, employees of the large Indian software services suggest that hierarchical, formal, or even 'feudal' relationships with managers, and excessive bureaucratic processes, still persist, despite the ideology of informality, flat structures, and openness. As one respondent put it, "the company is flat only for the people at the top". A woman tech lead in a medium-size Indian company, in response to a question about work culture, said: "It is very hierarchical, it is not open. They say it is open but it is not. It is a very conservative place, more Indian".[65] Another informant echoed the same view:

> Everybody should be heard and respected in a flat organisation, but that's not the case here. We are still supposed to call our bosses as sir or madam, although we were told when we joined that we should not address them as such…. There is no transparency at all [referring to decisions taken at the top]. But if there is a mistake somewhere in the process then they look for scapegoats, who invariably are team members, even if the PM is at fault. My former PM once said, 'If my head rolls then the ones below mine roll too!'

Several informants drew a contrast between MNCs and Indian companies, and between products and services companies, in this regard. One said that there is "more empowerment in MNCs", for instance, a delivery manager is given more responsibilities compared to what he would have in an Indian services company. Another highlighted the difference in the way product and service companies manage hierarchies. "In a product company, hierarchy is only based on the number of years in the company and one's expertise, rank is not important otherwise". However, even several of the MNC ODCs are regarded as hierarchical and bureaucratic. An engineer with a large American ODC said:

> Bureaucracy is very much present in MNCs and in the private sector as such, it is only in degrees that it differs from the public sector. On the surface they [the management] are highly polished and indulge in lot of 'sweet talk', but internally they differentiate. As there is social difference based on caste and class so there is difference based on the work you do. Managers who give orders feel superior to the techies who receive them, and it subtly comes out in their behaviour. Instead of working with the people they work above them.

This contradiction between the dominant management ideology and actual practice in Indian services companies may be due to several factors. First, while software companies in Bangalore have attempted to put contemporary management techniques into practice,

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[65] This informant elaborated on the contradiction: "They try to say they are open, but in their minds they are always closed. Always in any Indian industry, they expect that respect – you have to address your boss as sir. I call my boss 'sir', they will feel bad if I call my boss by his first name. They are very conservative, you can tell from the way they dress. And they don't like people dressing in jeans and fashionable dresses. They don't allow us to bring non-veg food, even eggs!" Her narrative draws explicit connections between conservatism, 'Indian-ness', and implicitly, brahminism, which are contrasted with western or cosmopolitan culture that is marked by egalitarian relationships, wearing trendy clothes, and eating non-vegetarian food.

they remain Indian-run organisations that also, deliberately or by default, retain some aspects of 'Indian' work culture. Second, their increasing process-orientation may have reintroduced bureaucratic and top-down management practices that the 'new age' model was supposed to supersede, especially as they increase in size. Third, while Indian companies try to promote the kind of informality that is typical of American MNCs, individuals within these companies often adhere to traditional social norms, for instance in preferring to be formally addressed as sir/ madam. This of course leaves engineers confused as to the correct etiquette to be followed.

While some engineers contest management claims about flat structures and informality, from the management and client point of view, it is the engineers themselves who bring with them attitudes of subservience and passivity – attitudes that need to be corrected through soft skills training. This points to a conflict between the new model of management that has been imported into the IT workplace, and the social habits and orientations of the wider social milieu that are reproduced by both employees and managers. But this is not simply a conflict between 'Indian' and 'global' corporate culture, or between 'Western' and 'Indian' culture, as it is usually characterised by HR managers: it is also linked to the nature of the outsourcing business itself and to the nature of the relationship between the client and the service provider, which itself creates and sustains hierarchical attitudes (see following section). This is suggested by the common complaint made about Indian software engineers by their foreign managers or customers onsite -- that they require continuous guidance, 'handholding', feedback, and mentoring from their managers (that they need to be 'micro-managed') -- unlike European engineers who are characterised as being more proactive, independent, and self-managing.

The characterisation of Indian engineers as needing constant feedback, reinforcement, supervision, and followup was repeated by many managers. That there may be some basis for this stereotype was suggested by the remarks of an engineer, who said that in the beginning they (techies) strive to meet deadlines and to be 'self-managing', but later begin to feel that it is a waste of effort and prefer to get reminders from their managers. The CEO of a German ODC said that the teams in Bangalore are smaller compared to those in their offices in Europe (ten rather than twenty or more members), and that they have more layers in the management hierarchy because the manager has to give more attention to each engineer – even though this reduces efficiency and increases costs. These differences in management practices between Germany and India were attributed to Indian engineers' need for supervision and their inability to take independent decisions, which in turn was attributed to cultural differences and to the educational social background of Indian engineers (the education system and family structure is supposed to create passivity and hierarchical attitudes).

When discussing differences between Indian and European engineers, or Indian and European work culture, managers tend to overlook the nature and demands of the outsourcing industry, which requires close control over work and workers. Reflecting the split between subjective and direct mechanisms of control, software engineers are expected to be self-managing and proactive, but at the same time to follow 'process', complete assigned work on time, perform as team players, and do everything to please the customer. While they are exhorted to be more assertive, from management point of view the 'passivity' of Indian engineers may be a positive trait, in that they are said to be 'good

at following directions' and so are better able to adapt to the standardised quality processes typical of 'software factories'. These contradictory pulls became evident during several soft skills training sessions that we observed. Trainees were given role play exercises in which they were supposed to practice being assertive and 'direct' with their bosses, for instance by refusing to take on a new assignment or to come to the office on the weekend, but the scenarios that they scripted and acted out showed that they had no choice but to stay all night at office when the work demands, or to take on additional work when they were already overloaded. Such observations, as well as responses to employee interviews, suggest that, far from feeling 'empowered' in the 'new workplace', Indian software engineers have little sense of control over their work. But it is noteworthy that while customers find Indian software engineers to be subservient, their HR managers find them to be *too* assertive and demanding when it comes to their own compensation, promotions, and benefits.

The perception of European managers that Indian engineers are passive and need to be micro-managed may lend support to the thesis that Indian software services companies are characterised by hierarchical structures and relationships. Indian techies learn how to behave with managers in their companies before going onsite, and may reproduce these learned behaviour patterns until they have absorbed a different work culture. Further evidence for the reproduction of traditional structures and mechanisms of power in these 'new workplaces' comes from engineers' narratives about their work experiences, which indicate that although they are supposed to be free to plan their own work schedules as long as they meet deadlines, in fact there is continual surveillance and monitoring by managers. Despite 'flexi-time' policies, in most companies software engineers are expected to "be in their seats" during working hours, as one respondent put it, and the manager is "always around, seeing who is there and who is not … You can't just leave the office when there is no work". Such flexibility is usually found only in small, high-end startup companies, whereas in the large Indian companies and MNCs, employees' use of time and movements are directly and indirectly monitored, for reasons discussed above. While such control is usually subtle and subjective rather than coercive (given that software engineers are supposed to be very independent and flighty and managers do not want to risk losing their people), there are indirect forms of monitoring that ultimately feed into performance appraisals, of which employees are acutely aware.

Apart from their use of time, the progress of employee's work is continually monitored. Monitoring consists of benchmarking tasks completed against the project timeline, which is punctuated by a series of deadlines. Project deadlines may be dictated by the customer and be very rigid, although in some projects they may be negotiated and re-negotiated. Engineers usually report to their managers on their progress informally on a daily basis, and formally once a week through a weekly status report. Team meetings are held once a week or more to take stock of progress and to sort out problems. In addition, there are centralised and computer-based project tracking tools into which each engineer inputs data on work completed, use of time, and so on (described below). If the statistics thus generated are below the mark, meetings and discussions with the relevant team members are held to identify the bottlenecks. The organisation of work within teams does have an element of 'flatness' and informality. For example, the division of work among team members is usually done collectively, under the guidance of the team leader, and there is scope for renegotiation of one's workload in case of problems or legitimate delays. But

ultimately, work is driven by the various forms of direct and indirect monitoring and control discussed above. In large software projects, the efficient coordination of work is more crucial than technical or domain knowledge, which is why one informant commented sarcastically: "Project managers get paid well in services companies because they are key people, they drive the project to completion and drive the team members to work. We need slave drivers to do that kind of work".

This discussion suggests that the attempt to inculcate a new work culture in Indian software companies has not been entirely successful, not because the right efforts have not been made, but because there are contradictions between the philosophy of 'new age management' and the reality of a customer-driven outsourcing industry. While the typical IT work culture that developed in the West revolved around egalitarian and informal relationships and team-based organisation due to the nature of software writing itself, translating this culture into the outsourcing context is difficult due to the inherent hierarchy between client and service provider, and between Indian engineers and their onsite managers and customers. Even within MNC ODCs, the manager is usually located at the head office while most of the work is carried out by engineers in Bangalore: the national/cultural difference only reinforces the hierarchy that is built into the structure of these 'virtual teams' (as discussed below). Thus, in the context of outsourcing, hierarchy tends to re-emerge even while a new model of management is advocated (although this tends to be denied). This tendency is reinforced by the employment of direct systems of control and by the focus on customer satisfaction.

6.1.6 Creating 'customer delight'

All of the Indian software services companies covered in the research give top priority to customer satisfaction. As a highly competitive service industry, this is only to be expected. Their mission or 'value' statements, displayed prominently in the workplace in the form of slogans and posters, invariably include statements about 'customer-centricity', 'customer delight', and the like. Induction and other training programmes highlight the importance of pleasing the customer.

While all services companies stress customer satisfaction, in the case of the software services industry, the need to attract and retain customers in the face of global competition means that this translates into certain concrete practices. In outsourced projects, even minor details may be dictated by the customer: although some companies now execute end-to-end or turnkey projects, more commonly the project is managed or overseen directly from the customer site. For instance, one engineer noted that the customers with whom he was interacting with wanted "constant communication, even if it is only one-liners saying that no progress has taken place". As an example of the communication gap that often occurs between the client side and the Indian engineers, he said: "While we may ask for something to be done as soon as possible, they usually want us to set specific dates for different tasks". This points to the extent of monitoring that takes place from the customer side. Office timings, deployment of personnel, and other such matters are tailored to client specifications. We were told that an engineer may even be fired if the client is not pleased with his or her work, and several informants mentioned incidents in which engineers were sent back from onsite because the customer was dissatisfied with their personal traits. Also, a particular employee may be forced to go

onsite because the client has asked for him or her, even is s/he does not want to. In some cases, training programmes are tailored to customer needs, for instance to impart particular linguistic abilities or cultural knowledge relevant to the client, apart from technical requirements. With regard to cultural adaptation, a senior manager of a large services company said that it is the Indians who should learn and adapt to American culture: "Yes, we should bend more often because we are the service providers". Many techies spoke about the 'demanding' nature of customers, and client demands were cited by many as a source of stress (as well as of project cost over-runs).

It was also observed that service organisations attempt to project a particular image to customers that may not reflect the reality within, for instance by giving employees "fancy designations" to impress the client. "There's a difference between the way organisations really function internally and how they are demonstrated to others", said one informant. He further noted that the workforce is constantly "restructured" to suit client needs, although for internal matters the structure remains the same.

In addition, the differences noted by many informants between MNCs and Indian companies, and between products and services companies, largely stem from the relationship with customers. Products companies are primarily MNCs whose 'customers' are their own parent companies, and it is primarily the managers who have to interact with the 'clients'. But in services companies, many or most of the software engineers have some kind of direct interaction with customers, which means that they must be trained and oriented towards customer satisfaction. The fact that employees of services companies are moulded and exhorted to develop the appropriate mentality and customer service orientation may serve to reinforce what is already a subservient and passive mindset, especially when dealing with figures of authority (discussed above). The thesis that these 'cultural' traits may actually stem from this service orientation is corroborated by the fact that most respondents characterised the work culture in 'projects' companies as more formal and hierarchical compared to 'products' companies.

6.1.7 People as 'resources'

> *'IT companies are factories – people go in and code goes out'*
> – An informant

As noted above, control over 'resources' and control over time are key issues in the management of large outsourced projects. All medium and large companies have developed complex systems to manage these functions, based on CMM processes or on other such models. These include the 'resource management system' ('resource' referring to human resources), 'time management system', quality control, and so on – all of which consist of computerised monitoring and control systems that enable management to make optimal use of their 'resources' and to manage the work flow effectively.

An example of this method of control is the time management system (TMS) that is employed by a medium-size software services company. This system is based on CMM Level 5 quality control processes, which have been further developed by the company. Under the system, each engineer has to log the time spent on each activity each day – such as coding, attending meetings, etc –on a timesheet in the TMS tool (a computer

programme). Entries are validated by the project manager. This account is used for billing the client as well as for several internal purposes. For instance, 'effort variance' is calculated from the timesheet, which is the variation between actual time taken for work and the time that was estimated in the project bid. If there is a time overrun, managers and quality control executives have to analyse the reasons. These data and the subsequent analysis are valuable to the company because it becomes the basis for making future estimates when bidding for projects.

The time management system is linked to a larger quality control system that is mandated by the CMM model. The process orientation that has been introduced by such quality certifications has been discussed in section 6.1.3. A quality control executive defined 'process' as a "systematic way of doing things". She explained that for every task there is an estimated time frame, on the basis of which work is assigned; and after the team member executes the assigned tasks s/he reports the time taken. The data collected are collated in status reports, which are reviewed by the quality department and used in future project planning, assignment of work and resources, and so on. In order to arrive at standards against which to measure productivity, the size and complexity of a software project is measured by various 'metrics' such as number of lines of code or 'function points', and on that basis the time that is needed to complete the project is estimated. Similarly, to measure quality in testing, an estimate of how many test cases can be completed in a given amount of time is made, work is assigned accordingly, and then 'effort variance' is computed against this standard. The TMS tool is also used to compute productivity, which is defined as percentage utilisation of resources. Each engineer is supposed to spend eight hours per day on a project, and the TMS tool reveals whether these 'resources' are being overworked or under-utilised. In the latter case, they may be assigned to other projects for some hours per week, to ensure that they are 'fully utilised'. Productivity is calculated by dividing actual hours worked by the standard eight hours, and is measured for each 'resource' as well as for each team and project. Apart from its significance for the management of projects, this quality data most crucially feeds into the appraisal process (discussed below), in which the key 'metric' for individuals is productivity.

Needless to say, there are inevitable gaps between the data collected and the actual hours worked. We found during observations in one company that the quality assurance executive assigned to a particular project had to hold several meetings with the managers and engineers to investigate why they were not filling up their timesheets correctly. She had found that everyone was recording eight hours per day, whereas they were actually working much longer hours. The reason for this was either that engineers found it too troublesome to keep track of their time correctly (and so put in eight hours automatically), or they thought that if they fill in the actual hours of work (10-12 or more) their productivity measures would go down. Struggles over timesheets and 'metrics' such as productivity are one area in which one might identify subtle forms of resistance on the part of employees.

These management practices have been described in some detail in order to point to the larger philosophy behind quality management and its connection to the rationalisation of

the work process, discussed above.[66] In essence, it is based on the idea that all aspects of work can be quantified and measured, and that by doing so can be better controlled. As the slogan displayed during a quality assurance workshop said, 'What you cannot measure, you cannot manage'. For instance, there are a number of parameters that are used to measure 'quality', all of which are quantifiable, such as effort variance, schedule variance, size variance, and so on. A quality executive described these procedures as a highly rationalised system for setting and meeting targets. Quantitative measures are always better than qualitative, she said, because the objectives are set in numbers. There are various benchmarks fixed by the company for itself, as well as industry benchmarks, and these are used to measure the company's performance against industry standards, yielding an index of 'corporate quality'. As she put it, "Numbers do a lot of magic".

The effort, time, and productivity of software engineers are measured, monitored, and controlled through these complex quality management systems, while the engineers or 'resources' are controlled through 'resource management' systems. In medium and large services companies with large workforces, this is a key function, because the ability to deploy the right number of engineers on projects as needed is crucial to completing projects on time. Resource management (RM) systems are designed to allocate 'resources' among different projects and tasks so as to make optimal use of their time and skills. They depend on the systems of monitoring and quantification of time and productivity described above. A central feature of resource management systems is the 'bench', which refers to employees who are not currently on projects and hence are not 'billable', but are available for assignment. When an employee is released from an assignment he goes on the 'bench' until he gets the next assignment. RM departments keep track of who is available and help managers to assign engineers depending on their skill sets and the requirements of various projects. While 'sitting on the bench', employees may be sent for training or given other non-billable work. The RM department has an employee database on which resumes are maintained and updated. In order to keep project managers informed about the availability of resources, a 'bench report' is published periodically. The RM system also controls who is sent onsite – hence the RM manager is a key person for software engineers to cultivate.

Most companies maintain a 'bench' consisting of anywhere from 5 to 20 per cent of the workforce, although official figures on the size of the bench are hard to get. Some of the large companies are reluctant to admit that they have a bench at all, because maintaining 'non-billable' workers is expensive and this reflects on their profitability. (One company refers to the bench as 'intermediate to allocation'.) But maintaining a large bench is essential for service companies, which need to have resources available to put on projects as soon as a contract is signed, since recruitment and training take a long time.

This analysis of resource management systems in software companies suggests that software engineers are viewed mainly as 'resources' to be marshalled, retained, downsized, or deployed as required. As an HR manager put it, 'Knowledge workers are considered to be scarce resources'.

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[66] Time management constitutes only a small part of the whole quality assurance process, which if followed in its entirety entails 38 different procedures and 212 forms to be filled up. This large amount of paperwork is one reason why 'process' is resented by most engineers.

6.1.8 Control over knowledge

As a 'knowledge industry', the software outsourcing business depends heavily on its ability to accumulate, organise and deploy knowledge. While knowledge of particular programming platforms and languages is available in the public domain, and companies and individuals can access that knowledge through formal and informal channels, companies also accumulate a body of tacit knowledge about projects, procedures, and clients that exists primarily in the heads of employees. This is why a crucial area of management for software companies is 'knowledge management', a system through which this tacit knowledge is made explicit and available to others in the company. Knowledge management is also linked to quality processes, as it is covered under CMM Level 5. Most companies have intranet-based systems through which knowledge gained from projects is supposed to be documented and shared. For instance, a company that has handled several banking projects will document the 'learnings' from those projects on their intranet, so that other employees can access that information. A manager of a medium-size company explained that knowledge management is crucial for the success of any company because it is a "repository for the expertise and competencies of the company". Even information on bids and previous projects reports are available on company intranets.

Pooling and sharing of knowledge is given high priority in most services companies, and they have positions such as 'Chief Knowledge Officer' to handle this function. A manager of a large services company explained that each team has to submit a report at the end of the project they are working on, in which they are supposed to explain what new technology or practice was used, and these reports go into the Knowledge Management System. He explained that knowledge management is not just sharing of knowledge but is a means of keeping abreast of technical and technological developments, so that employees can keep in touch with what has happened in the industry since the time they were initially trained. Sharing of knowledge by domain experts is particularly important.

Most companies promote knowledge sharing through some kind of reward or incentive system; for instance, one company credits employees with 'knowledge currency units'. Employees are told that knowledge sharing should not be a matter of competition, but "the more you share, the greater your recognition and the more you gain from it". Many companies link knowledge sharing directly to appraisals: "If you are seen as having contributed to knowledge management, chances of being considered for promotion are higher." In another company that boasted of an award-winning knowledge management system, employees are recognised for contributing to it, or even for using the system, through incentives such as gifts. The computer system keeps track of who has logged into the system and for what purpose, and those who use it the most are rewarded with gifts. However, competition can become a barrier to knowledge sharing: several respondents felts that there is more sharing of knowledge (on technology) within product-based companies, compared to services, because employees in services companies may feel 'insecure' about sharing information with others.

While software companies attempt to appropriate and control knowledge that is generated in the production process and stored in the heads of engineers, control over knowledge may become a site of struggle among employees, between employees and management, and even with customers. For instance, several respondents spoke about struggles over knowledge among members of a virtual team, or between Indian engineers and their American or European counterparts, for instance when a project was being transferred to India. Several MNC employees complained that their foreign counterparts were reluctant to share information with them when they went on 'transfer of technology' assignments, due to resentment about outsourcing. Similarly, within teams located in India, control over information can be a means of competition among engineers for ratings. At the same time, sharing of information or knowledge is crucial to the effective functioning of teams and projects, especially in the context of high attrition rates where accumulated knowledge leaves the company along with the employee.

The question of control over knowledge is most visible in the realm of intellectual property rights (IPRs). This is a complex legal question that cannot be discussed here, but it should be noted that the question of intellectual property is relevant both to Indian outsourcing companies as well as employees. For instance, when an Indian company is working on product development for a customer or for its parent company (in the case of MNCs), the intellectual property (in the form of a patent) produced usually belongs to the latter. Similarly, employees work on developing IPs that ultimately belong to the company, although a few companies do share IP ownership with employees. Because control over intellectual property is crucial in a 'knowledge industry' such as IT, the major concern of outsourcing companies (except for a few high-end products companies) is not to gain control over IPs but to convince customers that Indian law provides sufficient protection for IPs developed or used in India. Restrictions on the use of clients' intellectual property are specified in the outsourcing contract.

A second concern for companies that are creating their own IPs is that employees may carry knowledge to a competitor. To guard against this, employees are made to sign Non-Disclosure Agreements (NDAs), and their contracts include 'non-compete' clauses. While in the U.S. such contracts can prevent employees from joining direct competitors, under Indian law these are not really enforceable, and companies rely more on their moral force to ensure that employees do not carry crucial knowledge to their competitors.[67]

Efforts made by companies to control knowledge generated by employees, control over knowledge by clients through contracts supported by intellectual property laws, and the struggles over knowledge that take place at the ground level within software projects, all point to the centrality of knowledge as a factor of production in the new information economy. In the context of outsourcing, in which Indian software companies rely on contracts with companies in the advanced industrial countries for their business, there is an inherent hierarchy of knowledge: while much technical knowledge is in the public domain and is easily accessible, new knowledge or IPs that carry the possibility of profit is tightly controlled. Although companies can never fully ensure against the leakage of

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[67] This statement is based on discussion with industry representatives and lawyers at a consultation held at NIAS on Employment Policy in the IT and ITES Industries, December 3, 2004.

such knowledge, measures to control knowledge flows result in restrictions on employee mobility (such as in non-compete clauses). Moreover, intellectual property developed by Indian software engineers usually ends up as the property of the client or parent company, reinforcing this hierarchy of knowledge.

6.2 Organisational structure and people management

To counter the high levels of attrition and stress, IT companies have put in place a variety of employee-friendly policies. The physical environment in most software companies is equal to that found in any American or European office, salaries are much higher than in other sectors, and employees are offered a variety of attractive incentives, from employee stock options to subsidised housing loans. A range of HR (Human Resources) practices designed to create employee loyalty include social events such as team picnics and dinners in five-star hotels, subsidised gym memberships, recreational facilities in the office, yoga and aerobics classes, and so on. As one informant put it, HR departments go to great lengths to "keep the atmosphere happy". 'Employee-friendly' HR policies are part of a larger strategy of creating a strong corporate culture, and are aimed at attracting, retaining and motivating employees. Some companies have created such a strong 'brand value' in terms of employee relations that they are considered to be the most desirable employers, even if they offer lower salaries than other companies. These 'soft' HR policies provide some balance to the systems of direct control described in the previous section.

In addition, some software companies in Bangalore have acquired, or are attempting to get, PCMM certification, which is the equivalent to CMM in the area of people management. PCMM certification presumably means that they are following very enlightened HR policies and practices. The number of companies in India that have opted for PCMM is much less than those who are CMM Level 5 certified, because human resource management, while important, is not as crucial from the point of view of marketing. Moreover, like CMM processes, PCMM involves excessive procedures and paperwork that many companies would like to avoid. Nonetheless, some aspects of the PCMM model for people management have been adopted by several companies, because it is considered to be a systematic human resource system that also enhances the brand value of the company, for marketing both to customers and to potential employees.

PCMM is based on a 'competency-based' framework, a standard approach in human resource management, and covers 22 Key Performance Areas (KPAs). Like CMM, PCMM has five levels: PCMM Levels 2 and 3 focus on HR policies and practices, while Levels 4 and 5 are concerned more with organisational issues. To achieve each level, increasingly comprehensive and exacting practices and systems must be put in place. For instance, in the area of training, Level 2 involves basic training programmes, while at higher levels it would mandate 'enhancing competencies', mentoring of employees, and so on. Level 4 is concerned with measuring people functions in order to assess improvement, while at Level 5 the company is supposed to show continuous improvement. While general guidelines are provided by the PCMM model, the specific parameters for each company's evaluation are worked out keeping in mind the local business and work environment. That is, rather than importing fixed parameters from the U.S., they are decided by the company, but once the standard is set it is expected that it

will be maintained and measured according to a certain system. Even requirements such as providing a comfortable working environment are pegged to local conditions, and the metric to assess this is employee satisfaction rather than an absolute standard. This means that two PCMM Level 5 companies could be very different in terms of their labour standards.

While software companies clearly go to great lengths to evolve and implement attractive HR policies, given the high attrition rates it is not clear to what extent these policies are effective in retaining employees. While many of them are appreciated by employees, our research suggests that they are superficial 'bandaid' solutions to what are deeper sources of discontent caused, in many cases, by HR policies themselves. In fact, while HR managers often complain about the demanding and fickle character of software engineers, engineers also voice complaints about HR departments, which they see as autocratic, distant, and unable or unwilling to address their real concerns. The sources of job dissatisfaction and employee discontent are discussed in Chapter 5, and some aspects of organisational control in section 6.1 This section highlights some of the key features of HR policies and employment relations, especially those that appear to create dissatisfaction.[68]

6.2.1 Managers and 'individual contributors'

Within the 'flat organisational structures that are supposed to typify software companies, the major division in the technical workforce is between what are known as 'individual contributors' – primarily entry-level junior and senior software engineers with three to four years of experience or less, and everyone else, who are in managerial positions of some kind. The distinction is drawn between those who do not manage others and those who do. Because of the rapid growth of the industry and the dearth of qualified people, promotions can happen rapidly in this industry, and it is not unusual for an engineer to become a team leader or tech lead within three years of starting his or her career, at which point s/he would have five to ten engineers reporting to him or her. The next step up usually is project or programme manager or a similar middle management position, which may be achieved with eight to ten years of experience. In large companies, there is usually an intermediate position (between team lead and project manager) with designations such as 'programme analyst' or 'project lead'. The next grade or band would include group heads, senior architects, senior consultants, delivery managers, etc, followed by one or two levels of top management including department heads, vice-presidents in charge of particular functions, and the like. The number of grades or 'bands' and the specific designations vary from company to company – in general the larger the company the more elaborate the hierarchy – but there is a common pattern to the

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[68] It is not the intention of this report to highlight only 'negative' aspects of the IT work culture and management of IT companies. However, the positive features are well known, and the companies we worked with specifically requested us to share our findings on some of these questions (as one CEO put it, "I want to know what software engineers want!") -- hence the slant towards problems and sources of dissatisfaction.

organisational structure that starts with junior software engineers at the bottom and moves up through team leaders/ programme managers/ group heads/ top management.[69]

The large and medium companies have as many as ten to twelve bands or grades, which may be internally sub-divided, while small companies have fewer levels. MNCs tend to have fewer bands or grades compared to Indian companies, but the structure and types of designations are similar. Several HR managers of MNC ODCs commented that Indian employees are more status conscious ("in India designation is an important social metric"), hence they provide more designations and levels than what is usual in the offices located in the West. This is also a retention strategy: having more grades enables them to move people up quickly, so that they feel their careers are moving. The importance of rankings and grades, even in supposedly 'flat' IT organisations, may indicate the retention of the social ranking that characterised other industries and reflected the extension of the Indian social system into industry (Ramaswamy 1996).

Within this structure, there are at least two separate streams or career paths – project/ programme management and technical, and in some companies there are additional streams such as consultancy and 'client interface'. Those in the management stream are of course responsible for managing the individuals and teams under them, while those in the technical and consultancy streams are not directly involved in people management, but follow a different career path and are able to move up in terms of seniority and designation, taking on more responsibilities for the technical side of the work. Thus, in the technical stream, an architect would be roughly equivalent (in status, years of experience, and compensation) to a project manager in the management stream. Job titles or designations are linked to 'roles' but only roughly broadly to position within the hierarchy – hence there is a plethora of designations within each band, such as technical specialist, program analyst, associate consultant, etc, that refer to position as well as stream. This is in contrast to the generic designations found in 'old economy' companies, such as supervisor, assistant manager, manager, general manager, and so on.

Although all companies have some kind of hierarchy or structure of this type, it is much more fluid than this description suggests. This is due to the system of 'performance-based' appraisals and promotions (see next section), and to the individualised salary structure with its performance-linked component. The 'bands' are linked to level of responsibility but not necessarily to salary, as would be the case with the 'grade' system followed by public sector companies and many industries in the past, and promotions are not time-bound. Each individual's performance is evaluated at least yearly, and on the basis of this appraisal he or she may or may not receive an increment and/or a promotion to a higher designation or position, or to the next band. A good performer may receive increments that would bring his or her salary above that of others in the same position, but may not necessarily receive a promotion into the next band, which would carry more responsibilities. Thus, within each band there is a diversity of people, designations, and roles, as well as a spread of salaries, although there would be some broad equivalence within the band in terms of position.

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[69] This description is very rough and is based on the organisational structure of several of the companies surveyed. Since each company has its own system and terminology, it is difficult to produce a general account that would be valid for all companies.

Good management is considered by HR managers and CEOs of software companies to be a major issue: because of the youth of the industry and its workforce and lack of experienced people, engineers are moved into management positions with inadequate experience and training. The rapid pace of change in technology also takes its toll: many respondents expressed resentment against their managers, who they seen as less competent and knowledgeable than themselves. As one manager explained it, team leaders and project managers face difficulties because the team members who are actually working on the code know more than they do about it, and they feel uncomfortable because "… they are also techies and are used to understanding everything". But as managers they can no longer be in touch with the nitty-gritty of the project, instead their job is to coordinate the work of the team, which they find frustrating. On the other side, the techie feels superior because s/he knows more about the code s/he is working on than her/his manager does, and so resents being told by the latter what to do. For instance, one respondent attributed the common problem of 'over-committing and under-delivering' to the technical incompetence or lack of knowledge on the part of team leaders and project managers, who set unrealistic deadlines and schedules. While several informants were very critical of their managers, most of them were techies themselves just a few years before (there are very few non-technical managers in this industry).

This conflict between managers and software engineers points to sites of slippage within the organisational structure where differential control over knowledge can be used in strategies of resistance (cf. O Riain 2000a). The higher one goes in the organisation, the less one knows about the actual work that is taking place at ground zero. Managers are dependent on individual developers to get the work done, but it is difficult for them to control *how* it is done. This is precisely why companies adopt quality processes and other direct systems of control. Yet, with 'knowledge work' or 'mental labour', there is a point beyond which managers are not able to exert direct control over the work process, and this in turn is why subjective or normative techniques of control are so important (see previous section). The important sociological point here is that the production system and organisational structure together allow a fair amount of scope for overt and covert negotiation between engineers and managers, over workloads, deadlines, allocation of time, and the like. As one informant explained, at every level there is negotiation over the deadline: "I negotiate with my boss over the deadline, and he in turn negotiates with the next guy; this happens at the company level also, when they have to give time estimates to the parent or customer. It's just like haggling over vegetables in the market". But in spite of this space for negotiation, both engineers and managers are often faced with unrealistic deadlines that they have no choice but to meet (section 6.2.3).

6.2.2 Performance appraisal and promotions

From the discussion in the previous section, It is clear that medium and large software companies have hierarchical structures of some kind, and that career mobility involves movement up through the various levels or 'bands', which is accompanied by enhancement in compensation and responsibilities. This process is controlled through a 'performance management system', which is a key component of the 'people management' (HR) function in every company. As noted above, promotions and increments are based on individual performance ratings, and for this reason the

performance appraisals that are carried out every six months or one year are significant rituals for software engineers and managers. Appraisals are used to review pay and terms and conditions of contracts, and this in turn is made possible by the fact that contracts are individualised (Barrett 2001). The fact that promotions are 'performance-based' and do not take place in a fixed, time-bound manner is considered to be one of the distinguishing features of the IT work culture, in contrast to 'old economy' companies that have elaborate systems of grades and clear promotional paths based on years of experience. Almost all software companies have a 'variable pay' system in which salaries include a performance-linked component, which is usually around 10 to 13 per cent of the total salary.[70] Some companies also have performance-linked bonuses. Salaries are individually negotiated upon recruitment (except for those fresh out of college), and they remain an individual matter as the employee moves up through the company. These individualised industrial relations are in sharp contrast to the traditional system in which salary is linked to grade and designation, and compensation is collectively negotiated by unions with management.

Performance-linked promotions and salary hikes not only reinforce the individualised culture of the IT industry, but are also linked to the high level of mobility of labour and the need for a flexible workforce. The system allows companies to provide incentives for good performance as well as disincentives for those who are under-performing.[71] The performance management system is a mechanism through which managements can select 'key performers' for fast track promotion, while subtly encouraging (through stagnation) poor performers to leave the company without having to lay them off. Because employment is insecure, performance ratings provide a vital clue to employees about their future. But they look for other signs of their career prospects as well – for instance, being selected for key assignments or for onsite work is considered to be a positive sign, while being put on the bench is a negative one. When their ratings and other signals suggest that they will not move up quickly in the company, they start looking for other jobs.

The specifics of performance management vary from company to company, but usually the appraisal process follows the same broad outlines. In most companies it takes the form of 'self-appraisal', in which the employee is required to report on his or her own performance during the relevant period, measured against goals that had been set during the previous appraisal cycle. This self-appraisal is reviewed by the immediate manager(s) and sometimes by HR personnel as well, and together (in theory) they arrive at a performance rating. This may be a number or letter grade on a scale of five points or more, or simply terms such as 'excellent', 'good', 'average' and 'poor'. In some cases, the appraisal is done by the manager who then informs the employee of his or her rating,

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[70] More than 85 per cent of the organisations surveyed in 2004 by NASSCOM reported having a variable pay programme. The average fixed:variable pay ratio across levels in both the IT and ITES industries was around 90:10 at that time, but according to recent news reports the average variable component in the IT sector has gone up to 13.7 per cent. Stock-based plans are also common but are typically used only at senior management levels (NASSCOM, Knowledge Professionals – Factsheet, www.nasscom.org).

[71] This system is of course not confined to the Indian software industry, but is typical of the IT industry in general and probably of many other sectors as well. See Barrett (2001) and Rothboeck, et.al. (2001:43).

but employees are (in theory) free to discuss and contest their ratings. The HR department, in consultation with senior managers, then uses the performance ratings to determine increments and promotions. In many companies there is a '360 degree' feedback system, in which employees rate those above them as well as those below. Customer evaluations of performance may also be taken into consideration. Contemporary evaluation methods are 'competency-based': competencies are defined in terms of 'Key Requirement Areas' (KRAs) and 'Key Process Areas' (KPAs), which in turn are determined based on the company's goals. Each employee is given specific targets to be met for each KRA and KPA that is relevant to his or her position. This approach is required in the PCMM model, but even most companies that do not have a PCMM rating follow a system of this kind.

An issue that was raised by several respondents is the system of performance rating on a curve that is followed by several companies. Rating on a curve means that some individuals in a team have to get poor ratings, despite their actual performance: of ten team members performing at roughly equivalent levels, two or three will fall at the bottom and hence will not get an increment. Employees regard this system as highly demotivating: it operates as a disincentive for them because their rating does not reflect their actual performance. This suggests that the function of grading on a curve is to create competition and drive productivity rather than to provide employees with objective feedback on their performance. Another point of contention is that in several of the large services companies, ratings are linked to one's contribution or 'deliverables', and those who are in testing or maintenance jobs are likely to get lower ratings than those who are in development because their objective 'deliverables' are lower, even though employees have no control over what kind of work they are given. Further, some respondents implied that the system of assigning ratings in general is unfair because it depends heavily on the assessment of the project leader or manager, which may be arbitrary or too subjective, and there is scope for manipulation and favouritism. Several complained about the lack of transparency in the appraisal system, although in several companies the feedback given by employees was that the system is quite fair and transparent.

Performance appraisal is used to identify poor performers as well as good ones. Some companies have a policy of 'churning out' the bottom 5 or 10 per cent of employees automatically each year. This is regarded by employees as particularly unfair when grading is done on a curve. While not every company follows such a policy, it is understood that consistently poor ratings will lead to dismissal. Those who are under-performing are usually given a chance to improve, using 'performance improvement plans' (PIP) and the like. But if his or her rating continues to be poor even after being given inputs and a chance for improvement, the employee will be asked to leave (this is known as 'involuntary attrition'). Because of the appraisal system, employees usually have a hint of what is in store for them before it comes to this point, and voluntarily quit the company.

While the system of performance-linked promotions and increments is supposed to enhance performance and productivity by fostering competition among employees, several informants spoke about this competitiveness in a negative rather than a positive sense. For instance, they are driven to work longer and harder in order to keep up with, or surpass, their colleagues in terms of salary and grade. There is also competition for onsite

assignments, not only because they are lucrative and enhance one's c.v., but also because they are seen as a sign of recognition. Those who have been on overseas assignments are considered to be 'in focus' and in line for promotion.

Competition is also fostered by the desire to be 'visible' to management. 'Visibility' was mentioned by several respondents as a key factor in performance appraisals and promotions ("you need to market yourself"). Lack of visibility ("it is difficult to get noticed") was cited as one of the drawbacks of working in a large company, where "crossing the first step takes four years": this is one reason why employees of the large service companies look for jobs in MNCs after gaining a few years of experience. Engineers employ various strategies to enhance their 'visiblility' with managers, for instance by continually updating and then displaying their knowledge ("we check for the latest terms so bosses know we are keeping up"). According to a woman engineer, men usually employ strategies to gain visibility more than women. This focus on visibility suggests that good appraisals and promotions hinge to a significant extent on getting the attention of the boss, rather than only on 'performance' as assessed through objective procedures.

The competitiveness that is encouraged by this system reinforces the process of individualisation and may work against the ideology of teamwork, cooperation, and sociability in the workplace. Several informants stated that excessive competition due to performance-linked incentives also leads to over-work and stress. In at least one company studied, employees have the option of taking up more work and getting higher compensation through these incentives, which leads to long working hours and high stress levels. Moreover, the performance appraisal system appears to produce a culture in which desire for recognition and feedback from superiors conflicts with the requirement that engineers be 'autonomous' and self-motivating.

The flip side of the perceived need of engineers to gain visibility is the statement that was made by many managers that software engineers continually "seek recognition". While appraisals are the major avenue for giving recognition to employees, most companies cater to this need through other means as well, such as by giving awards, prizes, and gifts for good work or unusual contributions. For instance, one of the large services companies has 'Star of the Month' awards, in which team members have to elect the person who they think has contributed the most to the team effort during that month. This award is not linked to a cash or gift incentive, but is important because of the visibility that it accords - - the employee gets a certificate and the 'bigger bosses' are informed about his or her achievement through email. In the same company, if an employee makes a critical contribution a mail may be sent to the higher managers: "It is a happy thing for a programmer to receive congratulatory mail from the DM [delivery manager]". Apart from these team nominations, there are a number of awards given at the company level, accompanied by cash prizes.

As noted above, promotions take place more quickly in the software industry than in most 'old economy' companies: a junior software engineer may be promoted to senior software engineer within a year or two, and then to a team lead or tech lead position within another two to three years. Our survey data reflect this mobility: 60 per cent of respondents had been in their current positions for two years or less, 20 per cent for two to three years, and

only 20 per cent had been in the same position for three years or more. The average was 1.62 year in the current position. 68 per cent of respondents had received promotions, and of the 28 per cent who had not yet received promotions, three-fourths had been working for two years or less.

Because of this rapid pace of promotion, software engineers may reach management positions at a relatively young age. In our sample, more than half of those aged 31-35 were in the position of project/ product manager or middle management. If one includes tech lead and team lead positions as management, the proportion of this age group who are managers comes to 68 per cent. In the 26-30 group, only 41 per cent were still in junior/senior software engineer positions, while 35 per cent were team/tech leads, 15 per cent project managers, and 9 per cent were in middle and top management.

6.2.3 Time and stress

Time is one of the major issues about which many software engineers and managers spoke, and it was also a key theme in informants' narratives about the differences between western and Indian work culture. Many of their narratives highlighted the lack of time to do the things they want to do, the need for better time management, the pressure on time created by project deadlines, the long working hours of Indians compared to Europeans, and so on. In part this focus on time is because long working hours are indeed typical of the Indian software industry, and managing time is one of the major problems faced by most managers and software engineers. But there is more to it than this: it appears that the concept of time itself is altered by the nature of work in the IT industry, and that employees must struggle to come to terms with new notions of time and new ways of using, spending, allocating, and saving time, at work and outside. At the same time, control over the time of employees is as crucial to software companies as is control over the work process; indeed, in an outsourcing industry that bills clients on the basis of hours or days of work, they are inseparable. It would not be an exaggeration to state that extracting the maximum amount of time (and 'effort') out of software engineers is key to the profitability of services companies. As discussed in section 6.1.3, most medium and large companies have complex time management systems to keep track of how employees spend their time; this is necessary not only for billing clients but also for making future project estimates and to adhere to quality processes such as the calculation of productivity. One respondent referred to this as a system of 'time slavery'.

Most employees of software companies work for at least ten hours a day on average, usually coming to office at 9.00 or 10.00 in the morning and staying till 7.00 or 8.00 in the evening. But often they work much longer hours or even stay overnight in the office (known as a 'night out') or work on weekends, when faced with a project deadline. Working hours vary across phases of the project cycle. In our survey, the majority of respondents (61 per cent) said that they work nine to ten hours per day on average, while only 24 per cent work eight hours or less. Employees of software services companies work longer working hours than do those of software products companies, and there is also a striking difference between Indian companies and MNCs in this regard: the average *maximum* working hours reported by employees of MNCs was 12.3, compared to 13.8 for employees of large Indian companies. 39 per cent of MNC employees reported working

an average of eight hours or less per day, compared to only 12 per cent of those working for large Indian companies.

There are several reasons for this pattern of extended working hours, which apply more to the services companies than to MNC ODCs and products companies. The first set of factors stem from the way in which outsourced projects are structured. When companies bid for projects, estimates are usually made in terms of mandays, based on an eight-hour day. However, the number of mandays required is often underestimated for various reasons, and as a result engineers are required to work much longer hours in order to meet their deadlines, which are rarely flexible. A number of informants asserted that Indian companies are poor at project estimation, a problem that is commonly referred to as 'over-committing and under-delivering'. The CEO of a small services company implied that pressure on time stems from deadlines that are set by clients and ineffectually negotiated by the Indian side: "The managers get leaner and leaner [with their project estimates] …. they squeeze in work of 150 hours within 100 hours and get paid for 100 hours". Because project estimation is notoriously difficult to get right, managers usually keep a 'buffer' when estimating timelines, but in spite of this most projects end up with a shortage of time.

Second, the project cycle itself usually involves up and down phases: regardless of how well the project has been planned, there are always last minute crises when deadlines are looming and work has not been completed, or when unexpected problems crop up that need to be solved. During such periods, everyone on the team is expected to stay late and work as long as required, and motivating team members to put in those hours is one of the important tasks of team leaders and project managers.[72]

Third, supervisors may plan particular tasks or meetings for late in the day, so that engineers have no choice but to stay late. Pressure from managers was cited as a major reason for long hours: "They'll give out work at 5:30 in the evening and expect you to have it done by the next morning, which isn't fair".

Fourth, a major reason for extended working hours is the time difference between India and the client site (most are located in the U.S.) and the need to conduct conference calls across time zones, which usually happen late in the evening (but also sometimes early in the morning). Outsourced projects require a fair amount of 'overlap time' in order to function effectively. Maintenance projects in particular may require employees to keep late hours every day, and some even work on shifts. This depends on the client: if there are teams at work on a project from several different time zones (such as in the U.S., India, and Europe) they can cover all 24 hours by cycling the work among the teams. But some companies cover 18 to 24 hours from India, which means long working hours and night shifts for some workers.

Although employees in theory are allowed to come to office later in the morning to compensate for the fact that they stay late in the evening, they usually come in by 9.00 or 10.00 and still have to remain in office till the conference calls are over, till 8.00 or 9.00 p.m. Extended working hours are facilitated by the common policy of 'flexi-time' in most

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[72] This process is illustrated in the NIAS-IDPAD film 'The M-Way: Time + People = Money'.

software companies: while in theory flexi-time gives employees the freedom to choose their working hours, in practice it means that they have to work as long as necessary to finish the tasks at hand. Although most companies have some sort of flexi-time policy, they also usually have 'core hours' during which everyone has to be in the office – a policy that further contributes to the long working hours. Flexi-time means: "You can do things at your own pace as long as you meet your deadlines." In practice, flexi-time actually creates longer hours because people are expected to be in office during certain core hours, because meetings may be called for early morning or late evening, and because of the need for client interface at certain times of the day. In other words, employees are not really free to choose their working hours in any meaningful sense. Here again visibility is a key factor: one cannot miss team meetings because managers will notice, and, as one informant put it: "What's the point of working till late if you aren't *seen* working? Anyway, if you do follow flexi-time, you are branded as someone who doesn't care for the rest of the team". As one manager argued, the 'hire and fire culture' in the software industry reinforces the pressure to work long hours.

Apart from these structural reasons, there are factors related to the culture of the software industry that reinforce the pattern of long hours. One peer pressure – those who leave early may be perceived as non-performers, or as not pulling their weight in the team. Competition for recognition and to show that one is working harder than one's colleagues plays a large part in this: even when there is no real work pressure, some engineers tend to stay late in the office to show the boss that they are working hard. Several respondents noted that most engineers will not leave office before their managers do: this creates a culture in which staying late in the office is taken as an indication of dedication and hard work, even when all those hours may not be filled with actual work. Finally, many software engineers are young unmarried men who come from outside Bangalore and share rented accommodation with a few other bachelors, and since they have no incentive to go home they prefer to stay back late in the office where they find a social life or spend time surfing the internet. As the director of a small firm put it, for the younger set of software engineers (whom he called 'blue collar IT workers'), "working hard means being seen in the office till 2 a.m."

Because of the time problem, many companies offer courses in time management as part of their 'soft skills' training programmes. Effective use of time is of course essential to the management of software projects, and although they spend long hours in the office, software engineers are often seen by managers as inefficient and unproductive because they waste time in the office chatting with colleagues, taking breaks, and so on. Time management consultants try to teach employees how to organise and use their time better and to work more efficiently, so that presumably they would not have to stay late in the office to complete their work. But this approach ignores the fact that late hours are often due to the other factors mentioned above, such as late evening conference calls or the desire to show the boss that one is working. There is something of a Catch-22 situation in this, for when employees know that they will not be able to leave office before 8.00 or 9.00 p.m., they feel free to spend time on non-work activities during office hours.

Moreover, what is regarded by time management experts as 'wasting time' is often valuable to employees in terms of building social relationships. Unlike European workplaces, where work is rigidly organised in a given timeframe and employees rarely

spend time on non-work social interaction, Indian offices are known for their collegial social atmosphere. Participating in the social life of the workplace not only provides some release from stress and allows software engineers, who may otherwise lack a fulfilling personal life, to form social relationships – it can also be crucial for building one's career. For instance, informal interaction and networking at the workplace are often the conduits for the circulation of crucial information about the company and the industry, which can help employees strategise in their career planning. Strong social relationships also promote knowledge sharing: one study found that Indian engineers are much more likely than Americans to engage in 'helping behaviour' in the office by sharing their technical expertise and helping colleagues solve problems, even when this means taking time away from their own work (Perlow and Weeks 2002).

Apart from long hours, IT work tends to be high-pressure, at least at certain points in the project cycle. The workflow is regulated by the tyranny of deadlines and project timelines, and software engineers are always struggling to meet unrealistic deadlines and 'firefighting' last minute crises.[73] This pattern of work is largely responsible for the high levels of stress that are typical in this industry: in our survey, one quarter of respondents said that they find the work stressful, while half said that it is stressful 'at times'. The main reasons cited for stress were deadlines and work pressure (70 per cent), followed by long working hours (37 per cent). Project deadlines create stress also because "… you aren't paid [by the client] if you overshoot the time line", but deadlines are driven by the client. If extra work comes in from the client side, employees often have no choice but to work longer hours and on weekends to meet the requirement.

The informal narratives of software professionals highlighted a number of other reasons for stress. One was the way in which virtual teams function:

> Yes, most of these guys are stressed out. There is a man abroad and there is a team lead here. These guys should always be awake to each other. These guys are taking the brunt of virtual team working. Also, the entire team has to deliver goods on schedule. Unlike in the manufacturing sector, the number of units produced is not definite. You can always do a little bit more.

Pressure from clients also plays a major role: several respondents noted that stress is higher in services companies because customers are 'demanding', whereas in product companies only managers are exposed to the clients. Further, as discussed above, competition and peer pressure add to stress: "Stress is due to people wanting to over-achieve and to competition. This is not just for money. Long hours and stress are all due to this drive for over-achievement."

Most HR managers acknowledge that long working hours and deadline pressures lead to high levels of stress and contribute to attrition rates, and a few companies have taken

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[73] The pace of work in high-tech companies of Silicon Valley is well described by Shih (2004), who argues that the notion of time itself has been altered by the new economy, from the 'clock time' that governs the industrial workplace, to 'project time' that constructs a cyclical rhythm of work. Because work is organised through projects, it is infinitely extendable, cutting into personal and family time and causing a "displacement and desynchronization of other spheres of time in individuals' lives" (2004:230).

measures to limit working hours. However, it is clear that this pattern of overwork also benefits companies, whose profit margins are linked to the maximum utilisation of their human resources, and which must compete with one another for clients and projects by submitting lower bids based on underestimated man-days, which in turn force engineers to work for more hours each day. But managements are able to justify this pattern of overwork by reference to the individual aspirations of employees: they claim that software engineers are strongly motivated to perform, that there is an intrinsic reward for good performance, and that because they are 'self-driven' it is not possible to impose fixed working hours on them. They also argue that engineers are well compensated for their hard work, an argument with which many software engineers seem to agree: as one respondent put it, "We are not being paid for eight hours of work a day". This attitude reflects the individualised culture of the 'new workplace', with its 'entrepreneurial' employees who accept individual responsibility for completing work, even if it means working very long hours.[74]

Another explanation often invoked for long working hours is 'Indian culture': many respondents pointed to the difference in working hours between India and western countries, but interpreted it in terms of cultural differences. For instance, a common remark was that their American or European counterparts are better organised than they are, are better at managing their time, and value work-life balance. "In the States no one works beyond 6 p.m. Here we only know how to work and work." While many respondents recognised the negative side of this pattern, for many it is a source of pride and a positive attribute of Indian work culture. A top manager of a large services company commented that long hours are "part of our psyche". This aspect of 'Indian work culture' tends to be reproduced even when employees are working at the client site or in the parent company. The local European manager of one of the Indian services company, located in Amsterdam, said that this was for him the most striking and difficult aspect of the company's work culture, since he was used to the European culture of working for fixed and limited hours. This cultural justification for long hours needs to be critically challenged, for it is the social condition and status of the employees rather than a shared culture *per se* that accounts for this difference. As relatively new players in the global IT industry, there is pressure to prove one's individual and collective capability.

Although in theory Indian software engineers are governed by local labour laws when they work abroad, in fact they often have to keep long hours in order to complete their projects (see Upadhya 2006). While many explained this in terms of Indian-European cultural differences, others were highly critical:

> Mostly those who work on support go abroad and slog. They have to work both on Indian and American standard times. This means they have to work any time and be prepared to show up any time. They are *forced* to work overtime.

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[74] This pattern is not confined to the Indian software industry: in the new economy generally, speed to market is crucial, organisational success is contingent on working long hours, and workers view spending the largest part of their waking hours at the workplace as necessary for career success (Gephart 2002; Hayes 1989; Perlow 1999; Shih 2004).

As another engineer pointed out with regard to the difference between German and Indian working hours, "They also want to achieve, like Indians, but their working hours are limited by labour laws; if they are made to work longer the union will take it up. It's not just a cultural thing – law frames culture".

Company responses to the issue of overwork and stress range from recognition and action to denial. Some managers throw the blame for long hours back on to employees, saying that if an engineer is working long hours continuously, "either there is something wrong with him or something wrong with the project management". Many engineers agreed that some amount of overtime is inevitable in projects, especially near deadlines, but they also said that it should not be a regular feature. Most companies, rather than attempting to address the root causes of stress, run stress management and time management programmes or offer other band-aid solutions. IT companies recognise the health effects of long hours and high levels of stress, and have formulated various programmes to address this issue. Many companies offer activities such as table tennis or basketball, or run yoga or karate classes as stress busters. They sponsor clubs formed by employees to pursue activities such as trekking, and give an allowance to teams for recreational activities and team outings. There are monthly parties, weekly movies, various outings, lunches, picnics, and so on. Several companies have gyms in their buildings or subsidise gym memberships for employees. But to participate in such activities and workshops employees need time, which is their most scarce resource.

6.2 4 Other HR policies and practices

Another issue that concerns employees are the contracts that they have to sign. Apart from the usual three months' notice period (which can be waived by forgoing the equivalent in salary), the 'service agreements' of most companies contain a monetary clause that is included to recover the cost of training in case the employee quits within one year (or in some companies, two to three years). In effect these are like bonds, which are illegal in India. Although it appears that such clauses are not usually enforced, they may exert moral pressure on employees to stay with the company for the stipulated period. Also, when employees are sent onsite they may be made to sign a bond or surety stipulating that they will not quit the company during that period or join the client company, and that on completion of the assignment they will continue to work for the company in India for at least six months. If they break this contract they are liable to pay a hefty fine amounting to what they earned while at the client site, or up to three years' salary. According to our information, some companies do attempt to enforce these provisions, including the use of strong-arm tactics. The non-competition clause in employment contracts, which prevents the employee from joining a competitor when he or she leaves, has been discussed above. While this too is not really enforceable, it may act as a constraint on individual freedom.

6.2.5 Gender neutrality and women's reality

Proponents of the new economy and ICT-based development argue that the nature of employment in the new industries require different kinds of skills than did the old brick and mortar industrial economy, particularly 'soft skills', and that this favours the entry of women into the workforce. IT is regarded as being a new avenue of employment that is

particularly woman-friendly, and because it is 'knowledge work' there is no scope for discrimination on the basis of gender. The flexibility of timings and work processes (including the possibility of home-based teleworking) are also supposed to encourage women to enter this sector. However, while there is a larger proportion of women working in IT compared to many other sectors, and the industry has opened up an avenue for the employment of female engineering graduates who might otherwise not been able to find jobs in traditional industries, there are still several gender-related issues that need to be highlighted.[75] However, while information technology-related professions appear to provide good opportunities for women, there are also processes of exclusion operating within the IT industry itself, despite its efforts to institute women-friendly policies.

Although the proportion of women in the software industry has been growing steadily over time, and a limited number of women IT entrepreneurs and managers also have a presence, they are still under-represented, constituting about 24 per cent of the IT workforce, according to a 2004 NASSCOM survey.[76] This figure tallies with the data that we collected from individual companies, whose gender ratios ranged from 15 to 30 per cent, with most reporting about 20 per cent women among software engineers. (32 per cent of our survey respondents were women, but they were over-represented in the sample because we requested companies to provide a minimum number of women in each job category for interview.) The major determinant of the adverse gender ratio, according to the industry, is the availability of female graduate engineers. HR managers maintain that the proportion of women in the workforce reflects the proportion of women among qualified graduates, and argue that as more and more women are taking engineering degrees the gender ratio in the pool of potential IT hires is likely to increase. While NASSCOM has predicted that the ratio of men to women would be 65:35 by 2007, this is not likely to happen. Basant and Rani (2004:5323) have analysed the available data and argue that the trend of growth of women workers in this sector is "not very encouraging".[77]

There is also evidence of gendering within the IT workforce. This is reflected in the fact that women tend to be over-represented in the lower level jobs such as programming and testing, and under-represented in higher level and managerial jobs such as architecture, consulting and project management. The ILO study found significant "clustering" of women professionals at the lower end of the job hierarchy – especially a higher concentration of men in high-end firms and more women in low-end and ITES firms -- "leading to feminisation of certain service activities". (Rothboeck, et.al. 2001:67). Although one does find many women tech leads, architects, and even senior managers in the industry, the proportion of women steadily declines the higher up the ladder one goes (2001:37). The skill profiles of a large proportion of women workers are not appropriate for high-end jobs, and social restrictions on women's geographical mobility may reduce their participation, especially to onsite assignments (Basant and Rani 2004:5323). In our

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[75] Much of the discussion in the section is drawn from Upadhya (n.d.[b]).

[76] NASSCOM, Knowledge Professionals - Fact Sheet. www.nasscom.org.

[77] They argue that only the growth of the ITES sector has increased women's participation in the industry. According to NASSCOM, the gender ratio is reversed in the ITES-BPO sector where the ratio of men to women is 31:69. However, clubbing data on workforce participation from the IT and ITES sectors obscures rather than clarifies this issue.

survey, women were over-represented in the category of junior/senior software engineer, but this is probably because our women respondents were on average younger and had less years of work experience compared to male respondents. However, while the proportion of men and women was about the same in software development, women were concentrated more in testing/quality assurance jobs (33 per cent of women respondents were in testing compared to 17 per cent of males), and were somewhat under-represented in design, architecture, and consultancy lines.

While these data do not suggest that there is deliberate gender discrimination in the IT industry or that the pattern of gendering is very severe (as is the case in many other sectors), we do need to look for an explanation for the imbalances noted. Spokespersons for software companies universally claimed that their hiring and promotion practices are gender neutral, and that the low proportion of women simply reflects the proportion of women graduating from engineering colleges. Some companies have been trying to improve their gender ratios by formulating 'woman-friendly' policies, such as giving options for part-time work or working from home, provision of crèche, and so on. Several have initiated special programmes or organisations aimed at mentoring women and addressing their specific issues. Despite these efforts, women still appear to face barriers in the software industry that tend to inhibit their participation and career advancement.

There are several obstacles to career growth for women, most of which appear to be related to their domestic responsibilities, but which are also linked to the work culture of the software industry. First, due to social and family reasons, many women are unwilling or unable to put in as many hours as their male counterparts. Both the ILO survey (Rothboeck 2001:45) and our own study found that women work less hours than men: only 19 per cent of males reported working six to eight hours on average, compared to 29 per cent of females, and a greater proportion of men than women reported high maximum working hours (17 or more). There are several reasons for this: unmarried women are less likely to be able to stay in the office till late night, unless there is a pressing need, because they may face objections from their parents or social disapproval. Women rarely take part in the kind of informal socialising at the workplace that induces young unmarried men to stay late in the office, and in fact their male colleagues might resent their presence in the office after hours. Also, women need to reach home safely (although companies usually arrange for drops in the night). Married women face additional constraints due to their domestic responsibilities (from which married men usually escape) that require them to leave office at a reasonable hour.

Because of these constraints, when there is work pressure or an urgent deadline to be met, women are often faulted by their male colleagues for being unavailable or not pulling their weight in the team. The perceived unwillingness of women to put in the required work in such a high pressure job produces resentment and a tendency to marginalise women. This also puts women at a disadvantage at the time of appraisal or assignment of work, because they are seen as being less dedicated. Men in all-male teams have been known to protest when there is talk of recruiting a female engineer, which they believe would not only lower the performance rating of the team but would also spoil the working atmosphere of male camaraderie and informality (in which off-colour jokes, for instance, are permitted). In addition, the system of control through peer pressure within the team can be turned against women, who in any case are in a minority, putting subtle pressure

on them when they do not come up to the expectations of other team members. For instance, the allotment of work within the team is done by the team leader through a process of negotiation with the engineers: women may be given less responsible tasks because they are perceived as unable or unwilling to handle more difficult or time consuming jobs. HR managers believe that women are likely to quit after they get married or have children. Although they deny that there is any discrimination, one informant said that there are fewer women in the industry because women are not seen as a "long-term investment", so recruiters prefer males.

Another impediment to career growth for women is the requirement for frequent travel abroad on short- or long-term assignments. While unmarried women usually accept onsite assignments eagerly, and there are many women software engineers working abroad along with their male colleagues, married women prefer not to take up these assignments. An engineer cannot be forced by the company to go onsite, but it does affect one's career growth to consistently refuse such assignments. Among our survey respondents, women had been abroad less frequently than men, with an average of 2.7 and 5.3 trips, respectively.[78] The widespread impression that women are reluctant to take up onsite assignments, while apparently corroborated by our data, may be a self-fulfilling prophecy, in that it may also result in women getting selected less often.

These factors lead more women to opt more often for jobs in quality assurance, maintenance, or similar 'low-end' functions, because these jobs tend to have regular hours with little chance of being sent abroad. These jobs are usually paid less and offer fewer channels for growth, yet women often prefer them. This pattern of self-selection tends to push women towards the bottom of the ladder in terms of status and earning power, producing a pattern of gendering of work in the IT industry that replicates that found in other sectors. Due to the same constraints, women engineers tend to stay in the same company for longer periods than men – their mobility is usually constrained by the husband's career and other domestic issues. Our survey found that male respondents had worked in an average of 2.3 companies, compared to 1.7 for females, and only 11 per cent of women had worked in three or more jobs, compared to 35 per cent of men. Given that job-hopping is a primary means of career advancement in the IT industry, this pattern suggests that women are less upwardly mobility.

Childbearing and childcare pose major problems for women in the IT industry. Most companies give three month's maternity leave with the option of an additional three months' unpaid leave, as required by law, and some offer women the option of returning to work after maternity leave on a part-time or consultancy basis, or may allow them to work from home, for a year or more. Some companies even allow women to take leave without pay for a year. However, such measures provide only temporary respite to the problem of juggling childrearing with work in a high-pressure job. Even though some companies provide crèches, we found that most women do not avail of them but prefer to make their own arrangements for childcare at home or at a private crèche – often because of the long distances they have to travel to work. Finding an adequate support system for children is a major issue: apart from long working hours, many workers spend at least two hours commuting between home and office, which means leaving children under the care

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[78] Again, this could be due to the lower average age of women respondents.

of relatives or in crèches for ten to twelve hours a day. Presumably, if there is a perception that a woman has too many home responsibilities, this may weigh against her. Even at the hiring stage, there is some evidence that married women with children are discriminated against: an HR manager at a multinational software centre said that during the job interview they ask married women how they will manage their domestic responsibilities, whether there is a support system at home, and so on. Similarly, we came to know of at least one company that systematically laid off pregnant women during a downturn. Interruptions in women's careers due to childbearing have particularly adverse effects on their growth, given the rapid changes in technology and the need to keep abreast of new developments. Women often find it difficult to make up for the loss of experience and learning during their maternity leave. For these reasons, many women leave their jobs when they have children.

Yet another factor that affects women's careers is the husband's career. According to HR managers, the main reason that men leave their jobs is because they have better offers, whereas women usually leave when they get married, when they have children, or because of the husband moving to another company or location. When both husband and wife work in the IT industry, the husband's job usually has priority in case of transfer or overseas assignment, which means that the wife must forego opportunities or else they have to live apart.

Apart from these issues related to women's family responsibilities, there are aspects of the IT work culture that tend to put obstacles in the way of their career growth. Workplaces reflect the norms and structures of the larger society, which cannot be entirely erased by enlightened management practices, training programmes, and the like. Despite the fact that male and female engineers apparently work easily together in teams, social interaction in software companies, as in other workplaces, is still gendered. This tends to work against the interests of women, who are unable to fit into male-dominated social groups. For instance, an important feature of the work culture of the IT industry (or of any industry) is the operation of informal knowledge networks and social networks, and participating in these networks is a key factor in one's success. But most women are not a part of such networks, because they are built and strengthened largely after office hours over a beer or a cup of coffee. Women may be excluded from informal networks not only because of their own inability to participate, but also because male colleagues may be uncomfortable interacting with women on par with other men. Moreover, the new work culture emphasises informal, non-hierarchical management systems based on networks and teams, which depend on the development of interpersonal relationships and 'team spirit'. But cross-gender interactions tend to be more formal, which affects the ability of women to develop these kinds of relationships.

These factors may also operate to hinder the effective functioning of women managers. Despite several obstacles to career mobility mentioned above, a number of women have moved into management positions in software companies and are leading teams, projects or groups consisting of both male and female engineers. While most men deny that they have difficulty reporting to a woman boss, gender does sometimes become an issue, as several women managers reported. By maintaining the official line of 'gender neutrality', managements fail to acknowledge that gender continues to be a primary determining

factor in social relationships and so may become an obstacle to the smooth functioning of teams and managers, in the absence of countervailing policies.

Although some HR managers acknowledged these structural, social, and cultural constraints on women's careers in IT, the official policy of IT companies is 'gender neutrality'. By arguing that they do not distinguish between men and women in selection or promotions, they are able to throw responsibility for stagnation or failure back onto the individual employee. For instance, women may be faulted for lacking in ambition or 'toughness', or blamed for making personal choices in favour of family over career. By casting responsibility on to the individual or society at large, and by pointing to its enlightened and woman-friendly HR policies, the company is able to disclaim any responsibility for creating a more conducive working atmosphere for women.

6.3 Managing culture in the global workplace

Since the Indian software outsourcing industry caters to the global market for software services, *culture* has become a central issue in the management of projects and virtual teams. Cultural differences between client and service provider, and between Indian software engineers and their foreign counterparts, are regarded as a major cause of problems in the execution of projects – especially communication problems. In this global corporate context, national cultures have been discursively constructed in a certain way, filtered through standard theories of 'cross-cultural management', and a set of practices and narratives, including soft skills training, has emerged to manage cultural difference in the workplace.

6.3.1 Virtual teams and cross-cultural management

In the Indian software outsourcing business, engineers and managers must be in close and frequent communication with their counterparts and customers at the client site or other locations of the parent company. Software development projects are often carried out by 'virtual teams' consisting of people in different locations, which are usually multicultural in composition. Even where there are no formal virtual teams, outsourced projects, whether within MNCs or Indian software companies working for clients abroad, require close interaction and coordination among engineers and managers of different nationalities across different locations. This geographically dispersed form of organisation, mediated through sophisticated electronics and telecommunications, has produced a distinctive set of issues in the workplace with which Indian software companies must grapple. The trend in the industry towards carrying out a greater proportion of work offshore rather than onsite has only exacerbated the problems of managing such projects, as communication and coordination among different sites and culturally diverse employees becomes all the more crucial. Many of these issues are attributed to communication gaps arising from cultural differences between Indian software engineers and their American/European customers or counterparts.

In order to grapple with these problems, managers draw on 'global management' or 'cross-cultural management' theory, especially the work of experts such as Hofstede (1980) and Trompenaars (Hampden-Turner and Trompenaars 1997). Interest among management theorists in cross-cultural understanding and communication has grown

along with the increasing dominance of transnational corporations as economic actors and the development of global supply chains, which have brought people from different countries into close economic interaction. In the large body of literature based on Hofstede's 'cultural values framework', national cultures are categorised along various 'dimensions of culture' such as individualism–collectivism, 'power distance', and risk avoidance.[79] The analysis is then used to develop strategies to enable better communication and understanding across the cultures concerned, and to train workers to be more culturally sensitive to one another (see following section). Such cultural profiles of different categories of workers are also invoked by managements and clients to explain why they are not behaving or performing as expected. The ubiquity of this framework became apparent in interviews with managers and engineers in Bangalore as well in Europe: both European and Indian respondents articulated a common set of ideas about Indians (especially Indian software engineers) and Indian work culture, which are contrasted with European and American engineers and work culture. These stereotypes reflect to a large extent the internalisation of ideas about cultural differences that are disseminated during cross-cultural training programmes.

As already noted, one of the main complaints made about Indian techies by foreign clients is about their excessive deference and unwillingness to take independent decisions, their need for 'micro-management', and especially that 'they always say yes' even when they are unable to do the work requested. The inability of Indian engineers to 'say no' is usually understood as stemming from an excessive desire to please the manager or client, and fear of their displeasure if they admit that they cannot complete their work. Managers attribute this to the 'hierarchical' mindset of Indians ('power distance'), in contrast to the more egalitarian culture of the West, where managers treat their subordinates as equals and employees are more assertive and direct. Another outcome of 'power distance' is the fact that Indian engineers are said to constantly require feedback, guidance, and mentoring from their superiors ('they need to be micro-managed'), in contrast to engineers in Europe who are able to work independently. The German CEO of an ODC in Bangalore said that Indian engineers, in contrast to Germans, need a 'support culture'. He argued that Indians are always being told what to do by their elders, and even within companies employees need to be told what to do and are hesitant to take independent decisions. This is one reason why in India the 'span of control' (the number of workers controlled by a manager) is much smaller than in Germany. Similarly, the Indian (but returned NRI) CEO of an American ODC said that because Indian engineers need more feedback and mentoring compares to their American employees, he follows a policy of "management high touch".

These cultural differences are seen as a major cause of communication problems in virtual teams, and they are also invoked (by European and Indian managers alike) to account for differences in working habits. This is one of the main issues that is addressed in 'soft skills' training programmes (see following section): for instance, engineers are instructed to be honest and direct in their communications (especially with the client site) and not to commit to work that they cannot complete. But the demand that they be proactive, assertive, and forthright ignores the reality of the outsourcing situation, in

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[79] 'Individualism–collectivism' and 'power distance' are the variables most often used to talk about Indian-Western differences.

which engineers are under pressure to adhere to unrealistic deadlines, to keep up their performance ratings, and to keep the customer and the boss happy.

Perhaps because they have been primed by cultural sensitivity training programmes and the like, this discourse about cultural difference has been internalised by many Indian software engineers, in spite of the significant continuities in corporate culture between India, Europe, and elsewhere, especially in the IT industry and within MNCs. For instance, Europeans are perceived as being very time-conscious, well-organised, and good at planning, in contrast to Indians who are perceived and represented as being inefficient, badly organised, and careless. These traits constitute what is seen as the greater 'professionalism' of Europeans, such that the difference in working hours between India and Europe is often explained or justified by reference to lack of 'professionalism' in India. These differences in working norms and patterns are understood as 'cultural' in origin: for instance, the long working hours and infrequent vacations that typify the Indian software industry are contrasted with the European emphasis on fixed and limited working hours, long vacations, strict separation between work and personal life, and work-life balance, and these differences are attributed to different value systems or personality traits based on culture.

Because Indian software engineers internalise the notion that European/ western work culture is superior, many consciously attempt to replicate these work habits, such as better planning and time management. They see these personal adjustments in their behaviour patterns and attitudes as a positive step in personality development, rather than as a negative movement entailing loss of identity or culture. Many respondents mentioned that they have become more 'organised' and time conscious as a result of working in Europe, and that they have learned to be more assertive and direct in their communication style. While abroad, Indian software engineers feel pressurised to change their behaviour in the workplace, their style of interaction, and even their personalities, to conform to the expectations of clients -- a demand that creates contradictions with their simultaneous desire to retain an Indian identity. But they are also caught between the need to adapt to the local work culture, and the demands of their own companies -- especially the Indian services companies whose work culture, derived from the outsourcing model, conflicts with working norms in European countries.

While Indian engineers are subject to several negative stereotypes, they also have earned a reputation in the global market as good workers, or what one respondent termed as 'sloggers' – referring to their willingness to work long hours and to take on any amount and kind of work without protest. This reputation makes it easy to exploit them when they are working onsite. Several informants told stories about how they had to work long hours, master new technologies without any support, and complete tasks in very short timeframes -- all things that European engineers would never agree to do. Indian employees also feel pressured to work harder than their local counterparts in order to gain recognition. The 'slogger' reputation is linked to the characterisation of Indians as subservient: "Here there is a tendency to please by doing work as fast as possible, so people slog."

Thus, cultural stereotyping in the global workplace is not a superficial phenomenon, but performs a certain function in the regulation of work. These images serve to slot Indian

software engineers into certain roles and positions: they are considered to be passive and inefficient, but also to work hard and with great dedication and competence; they are technically very adept and 'good at following directions' (in contrast to the more 'creative' and self-driven European engineers). As a result, they are regarded by their European managers and customers as little more than 'techno-coolies' who have the technical skills needed for basic computer programming and systems maintenance work but lack the social and cultural capital ('soft skills') required for more demanding roles.

The construction of cultural difference not only provides a justification for overwork, it also places a limit on the ability of Indian software engineers working abroad to move beyond the level of technical worker into management – in sharp contrast to the typical career path in India (cf. Varma and Rogers 2004).[80] One of the reasons why most Indian software engineers prefer to work in (or out of) India rather than abroad is because there is faster career mobility here. As one informant put it, those who have been working in the U.S. even for seven years may still be doing coding, whereas in India they would expect to be at least in a tech lead position. This difference may also operate to keep some from coming back: we met a number of Indian engineers who had been working in Europe for several years and who wanted to return to India, but were unable to find suitable positions because they lacked adequate management experience.

The tendency of managers of outsourced projects management to focus on cultural difference means that most problems that occur are assumed to be 'cultural' in origin, deflecting attention away from the structural, organisational, or other such factors that might be equally relevant. For instance, in the case of Indian engineers working at client sites in Europe, the cultural/national difference is congruent with the client/service provider relationship, which is inherently hierarchical. The characterisation of Indians as having a 'feudal' and 'hierarchical' mindset, and of being too passive, subservient, and 'unable to say no', ignores the structural context in which they work. As contractors who have to cater to the client's needs and demands, they can hardly afford to 'argue with the boss' as European employees are wont to do. Also, onsite contractors have to negotiate between the stipulations of their Indian employers and the demands of the European customers. Even employees of MNC subsidiaries in India who are posted temporarily in Europe are not exactly equivalent to their European counterparts in terms of their position: coming from Indian development centres, they are often regarded by their European colleagues as somewhat inferior and dependent (if not with hostility). In these circumstances -- which are compounded by other factors such as unfamiliarity with the local context and social norms -- it would not be surprising if Indian engineers behave onsite in a passive and diffident manner.

One example from our Netherlands fieldwork will illustrate how problems in coordination or management of virtual teams that are structural or organisational in nature tend to be attributed to cultural difference. We interviewed a Dutch manager employed by a large American software products company, who was in charge of putting together a virtual team composed of Dutch and Indian employees located in Amsterdam and Bangalore. Like so many others in his position, he attributed the problems he was facing

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[80] For more details on the experiences of Indian software engineers working in Europe, see Upadhya (2006).

in managing this team to the usual set of Indian cultural characteristics – poor communication skills, need for micro-management, hierarchical mindset, and so on. But he was unable to recognise that the hierarchical structure of the virtual team itself was producing conflicts and even resentment on the part of the Indian engineers against their Dutch colleagues, which was manifested in behaviours such as refusing to share critical information or not carrying out work in the manner specified. The manager interpreted these behaviours as an outcome of miscommunication, whereas they were due more to the hostility that the Indians on the team harboured towards him and their Dutch colleagues, which became apparent later when he organised a face-to-face meeting of the entire team.

More broadly, the problems that software companies face in managing outsourced projects or virtual teams may arise simply from the struggles over time, deadlines, and allotment of work that take place within any software development team, as discussed above.[81] There is a continual process of negotiation over these issues between engineers and managers, and among engineers within a team. When the team is a virtual or multi-sited one and the manager is physically separated from most of the team members, these problems are exacerbated because the engineers have more leeway to strategise about the amount and kind of work they accept. In this struggle, rather than confronting the manager directly, they may use indirect tactics to buy time or to avoid certain tasks, such as repeatedly asking for instructions or not completing work unless reminded. This behaviour pattern is then labelled by managers as stemming from Indian cultural difference. In such situations, the posited cultural difference between the MNC parent company and its Indian software centre, or between the foreign client and the Indian service provider, provides an acceptable explanation for such problems. Rather than exploring the structural realities of the organisation of work in software outsourcing projects, managers attempt to resolve these problems by inducing behavioural and attitudinal changes in their employees, especially through soft skills training.

While it is usually the Indians who are expected to make cultural adjustments to fit into the global/ European workplace, the trend towards offshoring of more IT work, especially within MNCs, is to some extent changing the balance of power between Indians and Europeans, for instance between the head office and its Indian subsidiary. As more and more Indians are hired and more work is transferred to India, including high-end design work, European engineers are feeling threatened and the Indians are gaining confidence. This is reflected in greater assertiveness on the Indian side as well as opposition to the idea of 'adapting' to European culture, while on the European side there is growing resistance to outsourcing.

6.3.2 Creating global professionals: soft skills training

At some point in their careers, most Indian software engineers must interact with foreign customers, colleagues or managers, either in person (when they are onsite or sent abroad for other assignments), or virtually, through conference calls, emails, and other such electronic media. Effective communication across different geographies and cultures

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[81] A very similar situation has been described for Irish programmers working in virtual teams for U.S. clients (O Riain 2000), which suggests that there is nothing specifically 'Indian' about the cultural characteristics attributed to Indian engineers.

increasingly is regarded as key to the success of software outsourcing projects, as well as a major weakness of the Indian IT industry. According to HR managers, Indian software companies often receive complaints from customers and parent companies about the 'poor communication skills' of Indian engineers, by which they do not necessarily mean unfamiliarity with English but rather lack of the appropriate social skills and cultural knowledge needed to interact effectively with customers and colleagues abroad.[82] As a result, HR managers across the industry emphasise the importance of 'soft skills' training for software engineers – especially communication and 'inter-cultural' skills – and many companies make such training mandatory.[83] These programmes are aimed not only at enhancing their business communication skills (how to conduct a conference call, write an email, make a presentation), but also at moulding their personalities towards what is considered to be the global corporate model, and inculcating behaviour patterns and cultural styles appropriate to the global workplace. Apart from communication skills, soft skills training offered by software companies include a range of programmes such as time management, teambuilding, leadership and management training, personal effectiveness, assertiveness training, and 'cultural sensitivity' workshops.

From the sociological point of view, the 'cultural sensitivity' or 'cross-cultural awareness' training programmes (which are offered as a solution to the problems of 'cross-cultural' management discussed in the previous section) are the most interesting and significant of the soft skills programmes, because of their potential effects on employees' sense of self and subjectivities. In the early years of the industry, cultural training programmes were aimed at socially acclimatising engineers to the countries where they were sent for onsite jobs, and included advice on American or European social etiquette, table manners, food habits, and so on. One company has what they call a 'finishing school' to teach 'corporate etiquette' and the do's and don'ts in different countries. However, most of these programmes have now become more sophisticated and broader in scope, and are aimed not only at engineers going abroad but also at improving communication within virtual teams. The premise of such training is that there is a cultural gap between the offshore and onsite locations that needs to be bridged to ensure the smooth functioning of multi-cultural teams. Often cultural and communication skills training are combined in the same workshop, because communication problems in multi-sited projects are usually attributed to the cultural difference between Indian software engineers and people at the client site or head office.

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[82] The CEO of a small company, in response to our request to interview a sample of employees, said: "They are dumb and can't talk well. I wonder how my people can offer you any insights".

[83] Benner (2002) argues that while there has been an increase in flexible employment relations in the U.S., leading to individualisation of employment relations, work itself has become more 'socialised'. By this he means that work increasingly involves social interaction and communication in the workplace and across space and time. For instance, the 'new workplace' emphasises teamwork, project-based work, and the need for cooperation among employees. He points out that an increasing percentage of the workforce in the U.S. is engaged in occupations that require communication with people not in their own firm and beyond the workplace, such as constant interaction with customers (2002:252). This is true of the customer-oriented IT and ITES industries in India as well. Hence, he suggests, there is a contradiction between the growing *individualisation* of employment and the increasing '*socialisation*' of work, especially in high-tech economies such as Silicon Valley.

Many cultural training programmes, rather than being built on the experiences of Indian outsourcing companies, draw on the existing theories of cross-cultural management discussed above. While this type of cultural analysis has been widely used by managements of multinationals to integrate employees from diverse backgrounds into a single organisational culture, in the Indian software industry it is used somewhat differently. Cultural training programmes run by companies in Bangalore do impart recognition and appreciation of cultural difference, but their fundamental aim is to mould employees to fit into the dominant culture of the 'global' workplace (i.e., the American or European workplace). In these training programmes, engineers are taught that they need to adapt their behavioural patterns and communication styles to what is regarded as the global corporate model, which is essentially based on the American cultural type. Using comparative cultural frameworks such as Hofstede's, trainers draw sharp and over-simplified contrasts between Indian and Western culture to make trainees understand what changes are expected of them. For instance, the American 'pluralistic' cultural type is characterised by individualism, achievement orientation, and materialism, in contrast to the 'extended family culture' found in India based on family ties and authoritarian power structures. These differences are then used to justify the behavioural changes that are expected of employees, such as to be more assertive and direct when dealing with Americans, to accept cultural differences without passing judgment, and especially not to say 'yes' when they mean 'no' (all features of the American communication style). Several training programmes that we observed were clearly aimed at getting Indian software engineers to adapt to global corporate culture, but also to make the process non-threatening by convincing them that changing their behaviour at work does not necessitate giving up their own culture or 'core values'. However, many employees resist this kind of training – they find it to be a waste of time or even offensive, and only some engineers reported that they found such training useful or insightful, apart from the few tips on etiquette or peculiar habits of foreigners that they learned.[84]

Cross-cultural training is aimed less at imparting the cultural capital needed by Indian software workers to succeed in the global workplace, than at outfitting them with just enough social skills to work effectively and to function in multicultural and virtual teams. It is significant that 'communication skills' are regarded as the most crucial area for improvement – good communication is needed not only to convey information to managers, other team members, and customers, but also to understand and accept directions. But some companies also offer such programmes for their European or American customers, in order to familiarise them with Indian culture so that they work more easily with Indian software engineers.[85]

Apart from cultural and communication programmes, some soft skills training programmes are aimed at moulding the personalities of trainees to better fit into the 'new workplace' and to create self-motivated and self-managing subjects, employing standard psychological techniques such as assertiveness training and transactional analysis (see Sathaye 2005). In response to customer feedback that Indian engineers are not proactive

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[84] Soft skills training workshops are depicted in the NIAS-IDPAD film, 'Fun @ Sun: Making of a Global Workplace'.

[85] But a Dutch manager of an American MNC who works with an Indian team said that most of what he learned about Indians in the cultural training programme he found not to be true.

or sufficiently assertive, trainers attempt to teach them to be self-directed and to take independent decisions. But as discussed above, there is a contradiction between the values imparted through such psychological training and the reality of their work situation, where they in fact have little scope to control the workflow or to decide how to carry out tasks. Moreover, while the new management model is supposed to empower employees by providing them more flexibility and autonomy, these training techniques themselves can be seen as disempowering, in that they require employees to acknowledge a *lack* in themselves that they need to correct by transforming their very personalities.

Similarly, time management and personal effectiveness programmes and the like are oriented to creating a new kind of working subject, one who is able to 'take charge' of his or own life by planning, setting goals, and being more organised and self-confident. For instance, one informant recounted how he was given training by his company in the form of video sessions of Zig Ziglar and other such success coaches, which he found very useful: "I still remember the motivational video of Zig Ziglar. I've even gone beyond the company trainings and continued with the people who gave us the soft skills training". He was equally enthusiastic about a 'Performance and Result Management' workshop that he attended, where he learned about goal-setting behaviour: "Most of our long-term goals are only wish lists, but it makes a difference to write them down and plan out daily activities that get me closer to our goals." He felt that it is important to set long-term goals and work towards them as a way of organising and planning one's life. However, he and his friends said that working in the volatile IT industry, "… it is difficult to set long-term goals since we can't predict what will even happen two or three months later".

The several ways in which culture has become a tool of management in these new workplaces, and the emphasis that is placed on the personal, social, and cultural transformation of software engineers as they are moulded into global IT professionals, can be expected to have implications outside the workplace as well, for their sense of self, their subjectivities, and their social and family lives. Transformations in the lifestyles, cultural orientation, and forms of sociality of IT professionals are discussed in the following chapter.

7. SOCIAL AND CULTURAL TRANSFORMATIONS: LIFESTYLE, SOCIALITY, AND IDENTITY

A major question that this research project sought to address was the wider social consequences of globalisation, examined through the lens of the IT industry. One premise with which we began was that working in a global industry -- which involves travel outside of India, frequent interaction with foreign clients, and exposure to different working norms -- would lead to significant shifts in lifestyles, forms of sociality, family structure, gender relations, and social identities. While the research findings do point to important social and cultural transformations among IT professionals, they are not all in the direction expected. For instance, working in a global industry seems to have given rise to a certain kind of cosmopolitanism, while at the same time reinforcing 'traditional' identities and cultural values. Similarly, the social lives of IT professionals (compared to their parents' generation) have become fragmented due to lack of time and the high level of mobility, but they nonetheless cling to older middle class social values and attempt to reproduce what they regard as the traditional Indian family structure. These divergent trends are not necessarily contradictory, however, but are an inevitable outcome of the complexities of the process of globalisation, which embeds itself in the local, producing both transformations in, as well as re-entrenchment of, cultural forms.

A caveat is in order: many of the observations about the lifestyle and cultural orientation of IT professionals probably apply equally to other sections of the upwardly mobile middle classes and other professional groups, because many (such as changes in consumption patterns) are broad trends that have swept across urban India in the wake of liberalisation. Although they are not necessarily specific to IT professionals, the study of this group is a means through which to analyse more closely these broader transformations. However, there are certain features of work in the IT industry (such as onsite work) that are distinctive and may sharpen or highlight some of these trends. Moreover, the IT industry has been a major force behind the transformation in middle class culture in India. Specifically, it has given rise to a new transnational or cosmopolitan section of the middle classes with a very different cultural orientation from the 'old' middle classes of the Nehruvian era, one that is at the same time 'global' and Indian.
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7.1 Consumption patterns and lifestyles

One of the most significant socio-economic features of the category of software professionals are the very high salaries they earn, compared to others in equivalent occupations and of similar age and educational background. The current high demand for software engineers and the entry of more and more companies into Bangalore are pushing salaries ever higher. The earning power of the IT workforce is at least partly responsible for the striking cultural shifts that have been observed in the city over the last several years, especially in consumption patterns. While many of these changes can be attributed more generally to post-liberalisation economic trends, the IT industry specifically has had a significant impact on Bangalore -- not only because of the appearance of many new upscale office complexes and campuses housing software companies, but also due to the lifestyles and spending habits of the nearly three lakh IT workers living in the city. The

emergence of distinctive consumption patterns and lifestyles can be understood as part of the process of class formation within this economically mobile group.

As has been pointed out by several scholars, the 'new middle class' of post-liberalisation India has been constructed through public discourses and circulating media images as a 'consuming class' (Deshpande 2003:134-9).[86] Regardless of whether individuals conform to the new consumer lifestyle that has been promoted by the media and the market, the middle class must confront these ideological and material forces. The case of software engineers provides a good example of the complexity of this process of economic and cultural transformation. Given their earning power, one would expect software engineers to conform to the new consumerist lifestyle that has come to define the Indian urban middle classes in the post-liberalisation era. Indeed, most of those interviewed possess many of the consumer goods that have become emblematic of this new middle class lifestyle – a two wheeler or car, cell phone, elaborate music and home entertainment systems, and so on. They tend to spend more money than their non-IT friends and their own relatives, and to shop in the new malls, department stores, and brand stores that have sprung up around Bangalore, rather than in neighbourhood markets. Many wear expensive branded clothing and shoes and do not hesitate to eat out in expensive restaurants. Half of the survey respondents mentioned clothing and consumer goods as a major item of expenditure in their monthly budgets. Most important, many have been able to purchase their own spacious flats (especially in the new luxury housing complexes that have come up all over Bangalore) at a relatively young age. But consumption patterns become meaningful social data only when we understand what they mean to the consumers. In this case, even while many software professionals outwardly appear to have adopted the new consumerist lifestyle, their narratives about consumption, materialism, and sociality tell a different story, for they contain a subtle or direct critique of the new consumer culture and cosmopolitan lifestyle. This is articulated through an opposition that is drawn between money and material comfort, and social and spiritual well-being, that runs through their nostalgic narratives about what has been lost in the process of economic development and globalisation.[87]

The post-independence middle class had its roots in the Nehruvian developmental regime, which, through the rapid expansion of the higher education system, created a large contingent of professional, managerial, and technical experts as well as a bureaucratic class to run the state apparatus and public sector enterprises (Deshpande 2003:144-5). The 'Nehruvian middle class', consisting of salaried employees of public and private enterprises and institutions and technical and professional elites, were imbued with the ideologies of nationalism and state-led development, but the demands of autarchic economic development meant that they had to be content with somewhat austere material lifestyles, which were justified by the ideal of 'high thinking, simple living'. With globalisation and the opening up of the economy, the ascendance of what Mazzarella calls the "ideology of globalising consumerism", promoted through media such as television and advertising, brought about significant shifts in the public culture of the urban middle classes and in the political discourse about consumption -- representing a transition from a "developmentalist to consumerist vision of the nation" (Mazzarella 2003:71). In the

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[86] Also see Fernandes (2000), Mankekar (1999), and Mazzarella (2003).
[87] Much of this argument is drawn from Upadhya (2005b), where it is developed in more detail.

new dominant discourse, consumption began to stand in for development, as visible signs of wealth became the new symbols of national progress, replacing the Nehruvian and Gandhian ideals of national economic progress and austerity (Fernandes 2000:614). The new commodity images and narratives that were being retailed through television and advertising served to remove the guilt traditionally attached to consumerism and change attitudes towards spending money (Mazzarella 2003:75).

Despite obvious changes in consumption patterns and visible transformations in lifestyles, many of the 'new middle class' have not fully bought into the ideology of consumerism, nor is the linkage between middle class identity and consumption straightforward or transparent. The data on IT professionals illustrates this complexity. Their high incomes place them easily within the upper segments of the middle class by any definition, and they command large disposable incomes at a relatively young age, enabling them to engage in high levels of consumption. More important, the economic standing of IT professionals sets them sharply apart from the 'old' middle class, to which most of their parents belonged. Indeed, many informants mentioned their higher incomes as one of the most crucial differences between themselves and their parents. The inter-generational change in standard of living is a major theme of their narratives, as in the following statements:

> My parents had to struggle for every small thing. For example, if they had to buy a couch they would have to plan for four years, whereas I can just go out and buy it. I remember that when they got a fridge it was planned for two years, and then they kept the same one for 25 years. So the biggest difference is due to income.

> Yes, I think I lead a better life than my parents. My father's last drawing salary was less than what I had as my first salary. All the comforts they struggled to get are available for us in one or two years. They could be electronic gadgets and other physical comforts.

Many informants spoke about the fact that their parents would rarely eat in a restaurant or buy brand name clothing, and that they had to save their whole lives to buy a house, whereas they (software professionals) think nothing of eating in five-star hotels or buying expensive designer wear. The difference that was most frequently noted was the fact that they already own, or were planning to purchase, flats or plots of land, whereas their parents could afford to do so only close to retirement age.

Thus, many IT professionals define their newfound social and economic status in terms of their ability and willingness to consume more than their parents could, which suggests that they have adopted the "new cultural standard associated with a hegemonic urban middle-class lifestyle" (Fernandes 2000:619). This consumption style is a marker of difference between themselves and the previous generation, and between the old middle class and the new. Lavish expenditure is especially typical of 'techies' who have returned from abroad flush with cash, who tend to spend money in order to advertise their 'foreign-returned' status. (The same people are very frugal when they live abroad, in order to save money to bring back to India.)

Despite their apparently consumption-oriented lifestyles, software professionals tend to be rather conservative with regard to financial planning and goals, and they tend to use their money to pursue 'traditional' middle class goals in addition to spending on consumer goods. Expenditure data collected during the survey corroborate this thesis: the largest proportion of respondents mentioned 'savings' as a major item of expenditure in the monthly budget, after household expenditure. This conservatism is also reflected in investment in property: in our sample, 42 per cent already owned a flat, house, or plot of land, while another 21 per cent were planning to buy one of these.[88] The ability to achieve this conventional middle class goal early in life, which their fathers could do only after working for many years, is for them an important marker of generational difference and progress. But while the ability to invest in property and save money at a young age marks this generation off from the previous one, it is significant that the goals themselves have not changed (own your own house, plan for economic security, and invest in whatever is required for the family's security and upward mobility, such as children's education). Thus, the lifestyles of most software professionals differ from those of their parents in that they can afford larger and better furnished houses, cars, and a variety of consumer goods, but their orientation to consumption and life planning remains much the same. This is seen, for instance, in the fact that many software professionals disparage the 'frivolous' lifestyles and consumption habits of BPO workers, who they accuse of wasting money in pubs and on expensive lifestyle products such as the latest cell phone. They represent themselves, in contrast to the 'BPO crowd', as responsible consumers who plan for the future, save and invest money wisely, buy their own houses as soon as possible, and take responsibility for the financial security of their families.[89] This pattern reflects the social conservatism observed more generally among IT professionals: within this segment at least, the culture of the 'new' middle class is in many ways continuous with that of the 'old'. This is especially so with regard to what are seen as traditional middle class values of family and sociality (see below).

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[88] This trend of investing in real estate has been promoted during the last few years by low interest rates and easy availability of housing loans; but still it is indicative of the persistence of 'traditional' middle class financial and social values. In our sample, surprisingly, only 16 per cent mentioned loan repayment as a major item of expenditure, which suggests that they have earned sufficient money to purchase flats outright.

[89] Interestingly, even 26-year-old software engineers and 30-year-old managers regard 20-year-old call centre workers as a different generation: they are the 'cable TV generation', who grew up being exposed to the new consumer culture available on satellite TV, and whom they see as individualistic and excessively fashion conscious. The BPO crowd is said to have imbibed new norms of sexuality and American culture, they earn easily and spend freely, and "they do not know the value of the basic struggle for life", as one informant put it.

Although the official discourse on the IT industry lumps software and ITES under a single 'IT' label, this poses a threat to the self-identity of software engineers as highly trained global professionals. They resent being categorised with BPO workers, who in their opinion are little more than clerical staff or telephone operators. The CEO of a multinational ODC was even resentful of having a call centre located in the same building as theirs, because he felt that the kind of workers who were seen coming and going at all hours was spoiling their image.

The rapid expansion of the IT industry together with larger cultural transformations brought about by globalisation have compressed generations and created these 'generation gaps' between 20- and 25-year-olds, and 25- and 30-year olds. In this scenario, IT employees who are over 35 -- most of whom are in responsible managerial roles -- are already the 'older generation' and considered to be out of touch with business, technology, and cultural trends.

While this inter-generational change in standard of living is a major theme of many informants' narratives about their experiences and their families, and most respondents cited their earning power as one of the positive aspects of working in IT, their feelings about their sudden improvement in economic status are conflicted. Rather than simply absorbing the ideology of consumption as a symbol of India's (and their own) progress, their appreciation of their more comfortable lifestyle is in most cases leavened by a sense of loss and nostalgia for an earlier family- and community-based life that they believe has been destroyed by the demands of their work and the complexities of modern life. The most common complaint is, "now I have money but no time to enjoy it". While the majority of informants reported that their standard of living has improved, many do not believe that they lead better lives than their parents. They say that their parents had the time and space to lead more fulfilling lives, keeping up relations with family and friends, pursuing outside interests, and generally enjoying a more relaxed existence. Because IT professionals work long hours and move frequently, they say, they are often unable to fulfil family commitments (the most common response to this question was 'no time for family'), nurture significant social relationships, or pursue artistic or spiritual interests. Many of their narratives express this opposition between the material gain and the social loss that result from their profession and lifestyle. 78 per cent of respondents said that their lifestyles and attitudes are different from those of their parents; of these, the majority said they have greater financial independence, while one-third spoke about long working hours, 'more mechanical life', and lack of social life. Women IT professionals are especially critical of the social consequences of their work, in that they have little time or energy to devote to the family or friends. Similarly, the main complaint of parents and spouses (mainly wives) of IT professionals is that their children/ husbands have no time for them or to keep up kinship relations by attending family functions, visiting relatives, and so on.

Thus, many IT professionals believe that the price of their newfound wealth is the inability to maintain social and family relationships or even to have a meaningful existence outside of work. This sense of loss is compounded by a more general discomfort with the consumerist lifestyle that is promoted by advertising and the media (and that many of them have adopted), which is very different from the 'old' middle class attitude towards consumption – self-denial of personal pleasures and materiality out of devotion to nation and family. The critique of the new consumerism was voiced especially by older informants (age 35 and above), who have witnessed the rapid rise in salaries in the IT industry (and in some other sectors as well) and the change in consumption patterns. One informant, complaining about the materialism of young techies, quoted a Kannada adage: "*mangana kaili maanikya kotta haage*" ("it is like placing something precious in the hands of a monkey", implying that they do not know what to do with their money). Most informants' responses indicate that they still value family and social relationships – for instance, many reported that they spend most of their leisure time quietly with their families -- but they complained that there is never enough time for this because they often have to work late into the evening and on weekends as well. What are regarded as 'traditional' middle class values of family and sociality exist in a state of tension with the new middle class lifestyle that has been enabled by the IT industry.

7.2 Patterns of sociality and social fragmentation

Many IT professionals appear to be experiencing a process of social fragmentation due to their busy working lives and frequent travel and change of jobs. When asked how working in IT has affected their lifestyle, almost half mentioned their increased spending power and consumption, but almost the same proportion mentioned lack of free time, deterioration in family and social life, and so on. An important feature of work in the 'new economy' is the blurring of the line between work time and private time, office and home: this is due to the nature of work itself, which sometimes requires telephone calls at odd hours; the extension of working hours; and the fact that everyone is 'wired' through their laptops and cell phones. Because time is at a premium, living arrangements and lifestyles are geared to maximising the use of time for work and minimising that needed for domestic responsibilities. What often suffers is time available for socialising, family, and leisure activities.

Emerging residential patterns in cities such as Bangalore with large populations of upwardly mobile professionals reflect and reinforce the process of social fragmentation and disembedding articulated by our respondents. Most software engineers and other young professionals prefer to buy flats in the large, upscale, self-contained apartment complexes that have come up around the city specifically to cater to this class. They find living in such enclaves convenient because basic needs such as security, maintenance, recreational facilities, and domestic help are provided or readily available. Within these 'gated communities', an army of maids, cooks, drivers, and nannies looks after family needs and domestic work, freeing professional couples from domestic chores so that they can concentrate on their careers. Because of the large number of flats and the enclosed open spaces and playgrounds provided, children have ready-made circles of friends and a place to play, so that parents do not have to spend time taking them to and from various after-school classes and activities. In addition, the standard layout of the flats in these complexes is producing a new model of residential and neighbourhood life that is very different from the pattern of small independent bungalows found in Bangalore's 'revenue layouts' favoured by the older generation of the middle and lower middle classes. These modern apartment complexes, and the lifestyles they promote, are helping to create a homogenised class-based lifestyle, while fragmenting older kinship- or caste-based neighbourhoods.

Professional couples depend on hired help or on their own parents for childcare, and what little entertainment and socialising for which they have time is organised through commoditised and professional channels. For IT professionals (and other 'yuppies'), time is their most precious and scarce resource, so they do not like to waste it on the mundane chores of everyday life. A variety of service providers have appeared in Bangalore to cater to this market – services that pay your electricity and phone bills, deliver movie tickets at home, cater food, provide domestic help, carry out plumbing and other repair work, and even organise entertainment on the weekends. Needless to add, the social life of this group is also carried out in large part through the efficient medium of the internet, as they chat with friends, stay in touch with relatives, and search for friendship, dates and prospective marriage partners through the net.

The careful marshalling of time is a necessary skill to succeed in this industry while also maintaining one's personal and social life and health. A striking example was our observation of a young IT executive in his home one evening. He reached home at around 8.30 p.m., and had a conference call to attend at 9.00. In this small space of time, he squeezed in 15-20 minutes in the gym (located in his apartment complex), running back in his workout clothes in time to take the call. He said that 15-20 minutes a day is all he can manage for exercise. Other techies we spoke to carefully guarded their time that is marked out for sports, exercise, or recreation – for instance, a weekly cricket or badminton game with friends – and would refuse to grant an interview or do other work during those hours. A highly structured life in which work and various activities are carefully allocated time, and life is governed by the clock, is a major outcome of high-pressure jobs in the new economy -- as has been observed by a number of sociologists in the West (Hochschild 1997).

These features of their social and working lives tend to reinforce the creation of a stratum of 'upwardly mobile professionals' who are culturally homogeneous (despite diversity in regional and social background) and somewhat socially integrated. Because Bangalore is a major centre for the IT industry, many IT professionals have friends and former classmates living and working in the city, who then become their major source of social life, apart from family. 58 per cent of respondents in our survey said that their social circle in Bangalore consists of friends from college, while 46 per cent mentioned office colleagues and half said family/ relatives. Networks of former classmates and former and current colleagues provide an important social outlet and support system for young unmarried software engineers, many of whom have come to Bangalore alone. 47 per cent of entry-level engineers interviewed were living with roommates, alone, or as paying guests.

Apart from family and relatives, there is a tendency to socialise only within pre-existing social networks and, to some extent, with colleagues from work. This growing social insularity is reinforced by living patterns, lifestyle choices, and lack of free time for non-work activities. To get a sense of IT professionals' involvement in the wider society, we asked them about membership in social or religious organisations: a large proportion said that they belong to some kind of voluntary organisation (38 per cent), and 33 per cent belong to professional organisations. Many IT professionals are involved in some kind of voluntary 'social work', and many expressed a desire to 'give something back' to society through such activities. Voluntary activities are also promoted and encouraged by a number of IT companies, which run outreach programmes of various kinds or link up with NGOs for this purpose. Thus, even though they may be leading lives that are more fragmented than their parents' generation, many are not lacking a sense of social responsibility and commitment.

7.3   Intergenerational changes and reconstitution of the family

Despite tremendous changes in lifestyle and socio-economic status, software engineers interviewed were almost unanimous in asserting that these changes have not altered their 'essential values and culture'. Central to defining Indian culture and its core values is the idea of 'family values'. Reproducing a strong tradition within Indian middle class culture, these young professionals profess devotion to the family, including caring for the older

generation, and stress the importance of maintaining their culture and values through the medium of the family. For these highly mobile and transnational subjects, the family is valued not only as an embodiment of Indian tradition but also as the primary means through which tradition can be retained and transmitted. It is significant that the desire to inculcate Indian identity in their children is a primary reason why almost all the Indians we met in Europe plan to return to India at some point, for they believed that by not being exposed to Indian culture and embedded in the broader kinship network, they would lose this tradition. The other major reason for wanting to return also had to do with family -- to be near one's parents, friends, and relatives, and to look after parents in their old age.

As noted above, many engineers experience a conflict between the material benefits that their profession has brought and their ability to enjoy the rewards of a fulfilling personal and family life. For some, higher incomes have enabled them to contribute to the family budget and hence fulfil their duties towards parents and other family members, but many – especially those living for long periods abroad -- expressed regret at not being able to devote the kind of time and attention to their families (especially to parents) that is expected of them. While many software engineers articulate high ideals about the family, negotiating the complexities of their lives within and outside of their actual families often entails violating the ideals and norms that they espouse. They talk about 'family values' but at the same time acknowledge (with regret) that their own lifestyles often preclude living out those values. While the solidity and endurance of 'the Indian family' is contrasted in their narratives with the individualism of western culture, the nature of software professionals' lives and work produces the very pattern of individualisation and fragmentation that they decry.

Within the family as well, relationships tend to become instrumental, as for instance when elderly parents are invited to live with working couples primarily to look after their children (of course under the guise of the adult children wanting to take care of their parents). This has emerged as a pattern within the transnationalised Indian middle class, where it is common for aged parents to circulate among their several married children living in India, the U.S., and elsewhere, often in order to take over childcare duties from other sets of parents. As a result, grandparents experience a second round of parenting. These reconstituted 'joint families' do not represent adherence to the traditional joint family so much as a convenient solution to the domestic problems of working couples (cf. Lamb 2002). For techies living abroad as well, India is seen as the place where there is a social support system through family, which is especially important for IT workers due to their long working hours and frequent travel. Far from liberating employees or leading to greater 'individuation' at a personal level, IT appears to be shoring up family structures as employees depend heavily on these networks for social support.

That the joint family is being reconstituted to perform new functions and with new structural features, is indicated by the fact that within some of the three-generation households we observed, there has been an inversion of the inter-generational authority structure. There is a tendency for the younger generation challenges the beliefs and values of their parents in matters such as childrearing and food habits. This inversion is reinforced by the fact that the children usually earn more than their parents ever did: although dependence of aged parents on their children is a cultural expectation, in previous generations this did not undermine their authority. The significant inter-

generational changes that occur in families after children have entered the IT profession may lead to conflicts over cultural or religious practices, spending habits, childrearing practices, lifestyle, and so on. One also finds conflicts between IT and non-IT siblings living in the same household, due to differences in income.

Another sociologically significant feature of IT professionals' lives is the amount of time they have to spend at work. This not only transforms the workplace into a place that becomes at times more socially meaningful than home, as noted above it also reduces their ability to perform the social obligations that are expected of them, such as maintaining relations with family and community. While the parents of IT professionals are usually happy about the earning power of their children, they almost universally decry the fact that they have little time for anything other than work, especially for the family. When asked what their parents and relatives think about their jobs, 76 per cent said that their my parents feel proud, that IT work has a 'high status', or that they are happy about the income. But 45 per cent mentioned negative attributes, such as: 'they complain that they never see me'; 'they worry about job security'; 'they think IT work is too stressful'; 'they think I am working too hard and ruining my health', and so on. The fact that IT professionals move frequently only exacerbates this problem, but they do seek ways of maintaining relations from a distance.

Frequent travel and long working hours also put strains on marriages and on the nuclear family. Childcare is a major issue for many IT couples, who employ various strategies to manage their domestic situation, from heavy dependence on servants and crèches, to inviting one or the other set of parents to live with them. Some couples even leave their children with grandparents in India when they are working abroad. Because of these difficulties, many women postpone having children until they feel they are more 'settled', and many others leave employment after they have children, unable to cope with the pressure. Thus, there is a major contradiction between the imperative introduced by the new corporate culture to succeed in one's career by devoting long hours to work, and the maintenance of family relationships as a central cultural value.

7.4 Marriage and gender relations

One might expect to find a shift away from traditional norms related to gender and marriage among employees of an industry where there are large numbers of women, where men and women work together closely for long hours, and where they are exposed to (and even inducted into) Western and cosmopolitan cultures. But our study points instead to a pattern of social conservatism among software engineers with regard to family and marriage. Of those who are married, 62 per cent had arranged marriages, 28 per cent were self-arranged ('love marriages'), while a small proportion fell into the ambiguous category of being arranged through marriage bureaus, internet chat, and the like. Of those who are not yet married, 59 per cent said that they would prefer to have their marriages arranged by their families, while only 25 per cent prefer love marriages. However, we cannot assume that this pattern simply represents traditionalism: there are practical reasons for preferring families to arrange marriages, such as the difficulty of finding the right kind of spouse on their own, and little time available to socialise and meet potential partners. Among those who prefer to search for partners on their own, marriage and dating websites have become popular, but still of the unmarried

respondents, only 18 per cent were dating at the time of the interview. For many software professionals, the question is not a practical one as much as a social and emotional one: they believe that their parents are best placed to find partners for them, and an arranged marriage signifies adherence to 'family values'. Of course, few if any would submit to an arranged marriage sight unseen – the final approval of the choice lies with the potential spouses, who may also meet several times before deciding to marry. Hence several respondents described their marriages as 'arranged love' or in similar terms, meaning that they were introduced to their spouses by relatives but made their own decision to marry.

Marriage outside of one's caste, region of origin, or religion may be an indicator of social change – although in the absence of larger comparative data it is difficult to draw conclusions from our data. Taking mother tongue as indicator of regional identity (rather than place of birth, since those from families that have moved around in India would be misidentified), the data show a fairly high percentage of inter-marriage among some categories, while in others – especially South Indians – there remains a strong preference for intra-regional marriage. Among Hindi-speaking respondents, 88 per cent married people who also speak Hindi. A similar pattern is found among Tamil speakers (88 per cent), Kannada speakers (83 per cent), but less strongly among Malayalam speakers (75 per cent) and Telugu speakers (71 per cent). The preference for endogamy is even stronger when it comes to religion: there was not a single inter-religion marriage in this sample.

While one would expect to at least find a weakening of caste endogamy within such a cosmopolitan and mobile professional group, this is not the case at all. Data were collected on specific caste identities and then classified into several categories. With regard to the broad caste categories, almost all the South Indian Brahmins married other South Indian Brahmins, while for North Indian Brahmins in-marriage was 100 per cent. Only one Brahmin in the sample was married to a non-Brahmin. For Vaisyas (merchant communities) endogamy was 100 per cent, as was the case for dominant agricultural castes and all the other categories ('Kshatriyas', OBCs and SCs). As mentioned above, all the Muslims and Christians also married within their communities.

With regard to specific caste communities or sub-castes as well, almost all respondents had had endogamous marriages. The only cases of inter-community marriage involved Madhva Brahmins and Smartha Brahmins, but in those cases also, the marriages were with persons of other Brahmin subcastes and so cannot really be considered inter-caste marriages. There was just one case in which a Brahmin married someone from a forward agricultural community (Naidu). What is striking about this pattern of caste endogamy is that it has been maintained despite the fact that 38 per cent of respondents did not have arranged marriages. This means that even when they enter 'self-arranged' or 'love marriages', caste, religion, and regional origin play an important part in the selection of a spouse.

One possibly new pattern that is emerging is that of occupational or professional endogamy. While one would expect to find a degree of economic equality between spouses, they could be from a range of middle class professions and occupations. But in this sample, of those who are married fully 45 per cent are married to people who are also in the IT profession. The next largest category for spouses' occupation is 'housewife' (33

per cent), while the remaining are married to individuals who are private and public sector executives or in other typical middle class occupations. Older male informants and those in more senior positions were more likely to be married to housewives, while in the younger group, more are married to other IT professionals. This could reflect either a generational change in terms of marriage preferences and gender relations within the family, or the fact that women tend to drop out of the industry after marriage (so that even some of those in the 'housewife' category could have been working earlier).

Although many software engineers have been married the 'traditional' way, there is evidence, especially from respondents interviewed in Europe, of changes in gender relations within the family. When asked how the experience of living abroad has changed them, many women spoke about how their relationship with their spouses had changed and said that they had become more 'independent'. Living abroad, away from the extended family, has given many women a new sense of freedom, and their observation of gender relations in Europe has led to a rethinking of Indian norms. Several younger couples we met in Europe displayed or advocated 'Western' style gender roles and relationships, in terms of sharing of household work, democratic style of decision-making, equal responsibility for both partners, and companionship. But in other cases there has been little change in the 'traditional' gender equation, and wives of techies often must contend with the conventional expectations of their husbands and in-laws about their roles in the household. However, while many see gender equality and freedom for women as positive aspects of European society that should be emulated in India, their observation of the more flexible personal relationships that are typical in Europe have worked to reinforce their faith in traditional Indian marriage as a more stable and secure system.

The differing expectations that men and women have of one another are reflected in responses to the question in our Bangalore survey about what qualities they would like in a spouse. Women preferred men who are 'well educated', 'open-minded', 'understanding', and 'intelligent'. Men mentioned 'well educated', that 'their parents should like her' (none of the women said this), 'traditional' (none of the women said this either), good-looking (or this), and understanding. Many men said that they would not like to marry women working in IT, and even those who preferred working women wanted wives who would give priority to the home and family. They argue that given their own long working hours, one spouse must take up primary responsibility for children and house. Women, on the other hand, wanted husbands who will be 'understanding' of them and their careers. A number of women stated that they do not plan to get married: they are well aware of the conflicts that result from working in IT and would not like to make the sacrifices usually demanded of them by husbands and in-laws. The fact that a number of female IT professionals have given up their jobs to look after their families suggests that, although they may appear to be 'empowered', they continue to live within (and accept?) patriarchal family structures (cf. Fuller and Narasimhan 2005). For other wives in other professions as well, being married to an IT professional may necessitate sacrificing their own career in order to adjust to the hectic lives and long working hours of their husbands. Although popular media reports often highlight (or exaggerate) the strain on marriages that is caused by the long working hours in the industry, the stories of many of our informants confirm this image. As the wife of one software professional complained:

My husband is so busy that I'm completely fed up with his work routine. He leaves for office at 7:30 am and returns usually by 10:30. Only breakfast is at home, the rest of the meals are usually outside. On weekdays we hardly get time to talk to each other. By the time he comes from office I'm asleep since I also have to get up early ... Socialising together happens only on weekends when we visit our relatives or they come down to our place to spend time with us. When he is at home he catches up with sleep. His only motivation in life is his work: 'V.P. CEO banna hai' [he wants to become a VP or CEO].

7.5 Construction of self in the new economy

Working in the IT industry involves a range of experiences that alter IT professionals' sense of self and social identity. Apart from their new affluence and changes in lifestyles and the family discussed above, there are several significant features of their work that feed into the construction of 'new economy' subjects.

First, there is a sharp cultural contrast, in many cases, between home life and life at work. Although many techies come from urban middle class families, the culture of this class (often seen as 'westernised') is still very different from that of the IT industry, which has self-consciously embraced 'global' corporate culture. For those who come from small towns and/or from traditional upper caste families, the contrast is all the more sharp. This contrast can be managed, as has been done by middle class Indians in the past, by drawing a sharp line between the two spheres, a process known as 'compartmentalisation'. But this strategy is becoming less available as the world of work penetrates increasingly into the personal lives of employees in terms of time as well as space. As work takes over their lives, IT professionals are unable to make this separation, or to find the time or energy to sustain the significant social relationships that would allow them to do so. This means that the part of their identities that are linked to family and community is not being reinforced, and as a consequence may become less viable. At the same time, given the fluidity of the job market and their typical career paths, personal and social sources of identity are not being replaced by identification with the company – as happened for instance in the West and in Japan in the earlier period of corporate capitalism (creating the 'company man'). This leaves employees bereft of sufficient stable social relationships (apart from the immediate family, a relationship that also suffers in many cases) and sources of identity – hence the frequent complaint about the limitations of their family and social lives, compared to their parents' generation.

A second source of instability is the fact that many IT professionals find their work unenjoyable and meaningless, but nonetheless continue in the industry because of the money and career prospects that it offers. According to a psychologist who counsels employees of one of the big software services companies, many of them come to her with problems that are linked to the fact that the work is monotonous as well as stressful, and gives them little feeling of accomplishment. Because burnout happens faster in IT compared to other industries, according to this counsellor, there are a number of young people in the industry who are unmotivated, have no energy, and are totally depressed about their lives. She has observed that *time* is the major issue for software engineers: they have no time for anything besides work, due to which they have poor social lives and are not able to pursue hobbies or other activities. They are completely absorbed by work

and not able to think about the outside world at all, which creates stress and may lead to depression or other psychological problems. She said that it often takes a major life event, such as the death of a family member, to "shake them up", and at these moments they begin questioning their lives.

Women in particular appear to be subject to depression and stress, because of the difficulties they face in trying to handle both work and domestic roles. They often feel guilty about going home late or missing important events in their children's lives. Many depend on their in-laws or own parents to look after their children and handle the domestic front, which makes them feel all the more guilty that they are not helping out more. The late hours are especially stressful for women, especially if they are living in joint families, because even if they work late they are expected to do domestic work once they get home. Even when both husband and wife are working in the software industry, women are expected to look after the house as well -- although one does find more husbands helping out at home among younger professionals. These factors create stress not only on women but also on marriages and within the family.

A third factor is the ethic of individualism that is ubiquitous in the software industry, which further promotes a sense of isolation and prevents software professionals from developing significant social relationships at work (apart from the casual social networks that develop in any workplace). It is significant that in the company programme that was developed by the psychologist mentioned above to address the problems of employees, the emphasis is on *individual* responsibility for health and well-being, and the focus of therapy is to enhance the individual's responsibility for himself. This approach completely neglects the larger working culture and conditions that create or add to the stress, depression, or other psychological problems for which employees seek counselling.

As discussed above, workers in the new economy are made to be individually responsible for managing their careers and negotiating risk. This orientation is promoted and supported by a wide variety of soft skills training, personality development, and self-actualisation programmes that IT professionals undergo, either through their companies or on their own initiative. In these programmes, psychological theories and techniques (often drawn from popular psychology trends in the West) are used to teach individuals to be more confident, assertive, self-managing, and so on. Significantly, 'time management' workshops, which are very popular among time-stressed techies, actually teach life planning – how to set long- and short-term goals, how to create timelines and plans to achieve those goals, and how to plot each year's, month's and day's activities in accordance with these plans. Through such workshops, IT professionals are taught self-management skills, how to plan their work in the individualised workplace, as well as how to plan and construct "lives of their own" around goal-posts, in an increasingly fluid social environment (Beck and Beck-Gernsheim 2002; see section 6.3.2). In the context of a volatile global industry and unstable job market, it is clear that one's career cannot be 'planned' in a linear fashion. Instead, participants are asked to set out their life goals (retire by age forty-five, own a home by age thirty-five, etc) – and then plan how they are going to make and save enough money, or allocate enough time, to achieve those goals. But what is really required of IT professionals is to be sufficiently flexible and mobile to be able to take advantage of shifts in the job market; i.e., they need to continually re-

invent themselves, make themselves adaptable, and this is where psychological techniques are useful (cf. Sathaye 2005). The construction of the self through commoditised processes and psychological technologies is a central feature of the process of individualisation that has been noted in the new economy of the West (Brown 2003).

Because of all these factors, there is a tendency among IT people to seek 'self-actualisation' through becoming involved in voluntary work (discussed above), spiritual pursuits, or other such activities. While there are some IT professionals who have left the industry mid-career and taken up entirely new careers, such as opening a coffee shop, teaching in a management school, or joining an NGO, there are more who have such plans but are never able to find the right time to do so because of various constraints, such as need to look after children's education or save more money. As a result, they remain frustrated, wanting to leave the industry but unable to make the move:

> Everyone wants to get out of the industry. People keep having coffee table discussions about farming, teaching and stuff, but once you get a taste of this life you don't get out. You get into the rat race; take a car, bike and apartment loan and then you can't get out even if you want to. Everybody asks questions like 'what am I doing?', 'Is this what I want to do?', but nobody takes any action about it.

As a result, one finds many forty-plus employees who become involved in various kinds of social work as a way of partially fulfilling their ambition to do something 'meaningful'. Several companies have recognised and addressed this need by sponsoring programmes that allow employees to contribute to social causes or charitable programmes and so experience a sense of fulfilment in their lives, which is lacking in their work. There is also a tendency to seek relief through spiritual quest, especially in the younger age group. Software engineers populate the new spiritual and religious movements and organisations such as Art of Living, which offer solace and quick and easy methods for de-stressing, in tune with the demands of their jobs. From involvement in such organisations, or by taking meditation or yoga classes, they seek not only relief from stress but also a source of identity as their social worlds become fragmented and conflicted.

7.6 Transnationalism and identity

Another major influence in the restructuring of social identity in this group is the experience of living and working outside of India. Many respondents mentioned that one of the most significant effects of working in IT is that living abroad for short or long periods has given them greater 'exposure' -- that is, experience with new people, places, and ways of thinking -- which has influenced their attitudes and beliefs. They say that they have become more 'open', liberal, accepting of other ways of life, and more 'aware' (especially compared to their parents), but they also assert that their 'core values' have not changed.[90] Of course, it is not only software professionals and others who travel abroad who have this kind of 'exposure' and 'global' orientation: as several scholars have pointed out, the creation of a 'new middle class identity' in the post-liberalisation era has

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[90] This discourse is discussed in detail in Upadhya (2005b).

been closely tied to globalisation, not only because of the wider availability and accessibility of new items of consumption (material and non-material), but also due to the emergence of a transnational discursive space occupied mainly by the highly visible NRI community located in the U.S. and other Western countries. The 'new middle class' – especially the upper (managerial-professional) segment that has benefited most from globalisation – is "… interpellated by globalisation in the same … way that, a generation or two ago, it identified itself with development …(Deshpande 2003:150). But the software outsourcing industry in particular, because of the nature of work and of the industry itself, has reinforced this interpellation of middle class identity by globalisation.

While Indian software engineers talk about their greater 'exposure' and 'openness' as a result of living abroad, this experience also tends to reinforce their sense of *Indian* identity, especially through the juxtaposition of 'Indian' and 'European' or western culture (see Upadhya 2006). Although one would expect to find cultural changes in the direction of 'westernisation' among IT professionals, instead the opposite is true in many cases – they tend to cling to their roots and to reaffirm or reinvent elements of Indian culture as a means of retaining their sense of identity. In fact, the reinvention of Indian culture by Indians living abroad is a process that goes hand in hand with globalisation, as has been observed among NRIs in general. This process is reinforced by the strong sense of exclusion felt by many software engineers when they go abroad to work. There are differences in the experience of isolation linked to social background: those from small towns or lower middle class (but also usually high caste, especially Brahmin) backgrounds engage less easily with European society and are often strongly traditional, consciously clinging to their religious and cultural practices in a bid to stave off loneliness and disorientation in a foreign land. Those from more cosmopolitan, middle class or upper middle backgrounds, and large cities feel less alienated, but they also seek to relearn or reconstruct items of their culture that they believe they have lost as a result of their lifestyles. This reconstitution of Indian identity draws not only on 'traditional' practices such as rituals, festivals and food habits, but also on the new globalised Indian culture that are constructed through popular media such as Bollywood films, cricket, and the like. But regardless of their specific understanding of Indian culture, almost all those interviewed in Europe expressed a strong sense of Indian identity, which was reaffirmed by drawing contrasts with European culture. Living abroad induces a certain level of reflexivity that reaffirms for many Indians the superiority of their own culture, with its conservative 'family values', community orientation, and deep roots in religion, in contrast to what they see as the excessively libertine, individualistic, and 'culture-less' European society.[91]

While this process of reproducing Indian culture outside of India is found among NRIs in general, a major difference between the earlier generation of Indians who went to the U.S. in the 1970s and 1980s, and this generation of more mobile transnational Indians produced by the software outsourcing industry, is that few of the latter have any desire to live permanently outside of India. They regard working abroad as a necessary and not always pleasant step towards achieving their other economic and social goals. While geographical mobility is an accepted feature of their work, most software professionals –

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[91] The experiences of exclusion and identity formation among Indian software engineers in Europe are discussed in detail in Upadhya (2006).

even those who have lived abroad for ten years of more -- regard India as their home and intend to return. There are several reasons for this. First, they prefer to live in their own social milieu, and feel the pull of family ties and obligations. Second, they speak about the fact that they want to live in their own country, that they feel more comfortable in India. Third, now they believe that the nature of the work is often better in India than abroad, where many Indian software engineers are confined to technical jobs with little chance to move up into managerial roles:

> Many people get into IT because of the attraction of going abroad, but when they get there often find that they are not doing interesting work. If I'm in U.S. but doing 'donkey work' what's the point? So now many feel there are better opportunities to do good work here.

Finally, the desire to return is also linked to the cultural re-assertion of Indian identity that has occurred over the last one or two decades, reinforced by the success of the software industry, which has generated a greater level of confidence and assertiveness about India in the global economy. Many software engineers (like some of India's elites and other middle class Indians) strongly believe that India is on the rise as an economic power while the West is on the decline. Most are supporters of the liberalisation/ globalisation agenda, the benefits of which are evident in the booming software industry, and they take a nationalistic pride in being part of this transformation. The identity of software engineers as Indians in the wider world is largely pegged to their role in making this industry successful, and to their growing reputation for technical expertise in this area. This has also given them a new level of confidence. Several older informants commented on the more confident and assertive attitudes and orientation of younger techies: "I see change in the younger generation of IT professionals. They are more assertive. They know what exactly they want from work and life." For some software professionals, this is not just a job or a new kind of business, but an activity that will put India on the world map, turn it into an economic power, and marshal respect for India and Indians. As another informant put it, "The youth now take more pride in their work … There is a 'feel good factor' in the industry now, things are looking up – India has moved beyond cost arbitrage …". This transformation is regarded as not merely economic or political but also cultural; as one informant put it, liberalisation has led to a "liberation of the mind", an opening up and freeing of the economy, knowledge, work, and entrepreneurship. IT professionals thus see themselves as part of a new generation of Indians who are 'globalised', more 'open' and 'aware' than their parents' generation, and who are leading the transformation that is taking place in contemporary India.[92] What appears to be happening is the reconstitution of nationalism within the discourse of globalisation, at least among the social groups which have reaped the benefits of liberalisation. While the earlier generation of NRIs had a somewhat negative, anti-nationalist image in popular imagination and the media, and had to struggle to prove their love for the country, the

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[92] Interestingly, one informant saw the younger generation as *less* aware, in the sense of lacking in knowledge about general economic and political issues: "Most people don't know things about labour and economy. If you really look at it, I mean, we're actually working for a different country. It's the lure of the fast buck." She said that the culture has changed, individuals have a more globalised outlook and become citizens of the world. "They are less patriotic, but more aware of global changes, because a lot of the knowledge has come into our country as a result of the availability of cheap labour."

current generation of global professionals is lauded for its contributions to the country and is in the lead in espousing a new form of global nationalism, or nationalist globalism.

Yet this new generation of 'global Indians' is caught in a web of contradictions involving questions of identity, nationality, and culture. As a technical workforce that is central to the operation of the global information economy, the lives of Indian IT workers are highly globalised. While they are well travelled ('exposed'), comfortable in international work settings, and masters of the latest technologies, many are nonetheless still embedded in 'traditional' social and cultural milieus. Even highly cosmopolitan or 'westernised' Indians feel a sense of conflict between their identity as global IT professionals and the desire to retain their Indian identity. These dilemmas are of course not unique to Indian software engineers, but their situation sharply encapsulates the cultural contradictions that are emerging in India because of globalisation. While working in the software outsourcing industry appears to have heightened their sense of Indian identity, it is a hybrid 'global Indian' identity that seeks to retain the essence of Indian culture while being tuned to functioning in the global economy.

Several informants highlighted the conflicts that are created by working in a global industry. As the CEO of a medium-size Bangalore company put it:

> These guys have to cope with greater psychological stress, because they have to reconcile their differing identities [before going onsite and after their return]. They want to continue with their old habits, but at the same time they want to be associated with all that's latest and new in the society.

But others stress the malleability and flexibility of Indian culture and of Indians, who are said to be able to adapt to any living conditions or contexts without losing their core selves. The CEO of an American ODC said:

> I'm a Tam Brahm [Tamil Brahmin] myself. When I lived in the U.S. I had no problems adjusting at all. Tam Brahms in the U.S. adjust, they do everything and socialise with everyone, but at home they stick to certain traditions … They preserve their culture by teaching their children Tamil, performing ceremonies, etc.

This informant suggested that working in IT necessitates this kind of adaptability: "There are no geographical boundaries in software … You are more global when you travel, since you are in the IT industry. So, you learn to adapt and change faster". Techies are able to re-adapt to their "home culture" when they return, he suggested, and although there is a split between how one behaves at work and at home, this does not lead to conflicts (the classic 'compartmentalisation' strategy).

The emergence of a homogeneous transnational 'global Indian' culture to some extent works to resolve these dilemmas and conflicts about cultural identity, but in the international workplace Indian engineers are still subject to countervailing pressures, in that they are culturally (and usually negatively) identified as 'Indian' but expected to conform to the dominant global work culture. The transnational nature of their work and workplaces sharpens the dilemma of Indian identity through the juxtaposition of Indian

with other cultures. Moreover, while they attempt to integrate themselves into new global economy, at the personal level they cling increasingly to 'Indian culture and values' as a way of maintaining their sense of self. Yet, given the transnational, fragmented and disconnected nature of their lives, this 'Indian culture' is not something that is directly accessible to many, but is increasingly filtered through, and redefined by, wider discourses and structures of meaning that circulate within the global cultural economy.

8. WORKERS AND WORK IN THE BPO INDUSTRY

 The nascent but rapidly expanding business process outsourcing (BPO) industry in India has created a new and unique kind of workforce, one that is educated and comes primarily from urban middle class backgrounds, but which is engaged in routine, low-skilled and at the same time highly stressful work. In order to attract sufficient qualified, English-speaking, young employees, BPO companies provide unusually comfortable and attractive working environments, high salaries, and other amenities. However, the nature of the work, the fact that the work process is rigidly and closely controlled, and the need to work on night shifts, have created high levels of job dissatisfaction and attrition. Attempts by BPO companies to control employee turnover, for instance by providing a range of monetary incentives and creating a 'fun' social atmosphere in the workplace, have resulted in the emergence of what can be labelled a 'call centre subculture' -- a process that is reinforced by the fact that the workforce overwhelmingly consists of urban youth (primarily fresh graduates). This subculture extends beyond the workplace and shapes the lifestyles and subjectivities of workers to an extent not seen among IT professionals. In the BPO industry, we find the forces of globalisation entering into a particular social segment in India in specific ways that are quite different from what has occurred in the software industry. This chapter highlights the peculiarities of work in this sector and of the BPO workforce, and their broader social and cultural implications.

8.1 Political economy of BPO and India's 'knowledge' workforce

IT enabled services (ITES) and business process outsourcing (BPO) constitute a significant new sector of the global informational economy. Building on its success in software services outsourcing, India has entered this market in a big way, and ITES-BPO is now growing faster than the software sector, at an estimated rate of 37 per cent per annum in 2005-06. ITES exports reached $4.6 billion in 2004-05, an increase of 48 per cent over the previous year, while total net employment is estimated to have grown by 100,000 in the same year, bringing it to 316,000. Employment for 2005-06 was projected at four lakhs.[93] The NASSCOM-McKinsey Report 2005 predicts even more dramatic growth in the future: it suggests that the offshore IT-BPO segment has the capability to generate US$ 60 billion in export revenues in the next five years, which would translate into a GDP growth of 1 percent over the same period. The report also projects levels of 2.3 million direct employment and "indirect and induced employment" for another approximately 6.5 million workers.[94] Because of this rapid growth, ITES-BPO has been targeted by the state as a major avenue for employment creation in India.

The success of India's BPO industry has been attributed to the increasing popularity of outsourcing of services in the developed countries; the plentiful supply of English-speaking college graduates and undergraduates to provide a relatively low-cost but highly educated labour force; adequate telecom infrastructure; and substantial government support in the form of various subsidies and incentives. According to NASSCOM, outsourcing of back office services to India can yield a cost savings of 40 to 50 per cent for companies in the developed countries. The state and industry both have been

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[93] NASSCOM, Indian ITES-BPO Industry – Factsheet. www.nassom.org.
[94] NASSCOM-McKinsey Study 2005; http://www.nasscom.org/newsline/issue50/In_focus.asp.

marketing India as a prime BPO destination on the basis of the availability of a large pool of cheap educated labour. As NASSCOM notes: "India has the largest English-speaking talent pool in the world – over 440,000 engineering degree and diploma holders, approximately 2.3 million other (arts, commerce and science) graduates and 300,000 post-graduates are added each year".[95]

However, shortage of skilled workers has been identified as a major constraint on the future growth of the industry. According to a NASSCOM report, only about 25 per cent of technical graduates and 10-15 per cent of general college graduates are suitable for employment in the offshore IT and BPO industries.[96] In order to hold on to its current share of 46 per cent of the global BPO market, India would need a workforce of 2.3 million by 2010, and a substantial shortfall is predicted. For this reason, both the industry and the state have evolved policies and programmes, such as training and certification programmes, to augment and upgrade the skills of this 'knowledge workforce'. For instance, the state of Karnataka has recently launched a testing and certification process for prospective employees. NASSCOM too has formulated various initiatives to "… catalyse the expansion of India's English speaking manpower pool and ensure that the country's ITES-BPO talent resources are equipped with industry relevant skill-sets". One step has been the development of the Assessment of Competence (NAC) program for potential employees in the BPO industry, which is an "industry standard assessment and certification program that aims to ensure the transformation of a 'trainable' workforce into an 'employable workforce'.[97] These collaborative efforts by industry and the state suggest that both view India's 'English-speaking talent pool' as a vast and under-utilised resource that is available to be tapped by global industries.

The ITES sector includes a range of services, from back office operations such as airlines ticket and insurance claims processing and medical transcription services, to call centres that provide 24/7 customer support, back office services, telemarketing, for banks, credit card companies, computer companies and the like. The two largest segments in the Indian industry are 'customer interaction services' and finance and accounting. Because of language, most BPOs in India cater to clients based in the U.S. and U.K., as well as in Australia and other English-speaking countries. ITES includes three basic types of work – customer interaction projects, which may be 'voice' (call centres) or 'non-voice' (email/chat), and transaction projects, such as applications processing. Some companies offer different kinds of services, while others specialise in just one type. There are basically two types of company operating in the ITES sector -- 'captive units', which are subsidiaries of MNCs, and third party centres that have a number of customers. The small survey that we carried out attempted to cover all the types of work and company in the sector: 59 per cent of our respondents were working in captive call centres, 18 per cent in third party call centres, 15 per cent in third party non-voice BPOs, and the balance in captive non-voice BPO projects or medical transcription.

Recently there has been a move towards convergence of the software and ITES sectors: most of the large software companies have entered this business in an attempt to leverage

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[95] NASSCOM, Indian ITES-BPO Industry – Factsheet. www.nassom.org.
[96] NASSCOM-McKinsey Study 2005; http://www.nasscom.org/newsline/issue50/In_focus.asp.
[97] *Ibid.*

their current customer base into additional business. For instance, Wipro took over Spectramind, MphasiS has a BPO operation that is larger than its software unit (Msource), and Infosys has floated Progeon. While the work and the nature of the workforce in IT services and ITES are very different, this trend has contributed to the fact that software and back office services have tended to be lumped together in official discourses, blurring the distinction between them. This has created an image of a single large 'knowledge workforce', despite the large variety of types of work and skill levels within it. As will be discussed further below, it has also created an impression among workers that a BPO job may be a stepping stone into the software industry (which is more prestigious and offers higher pay), which in fact rarely happens.

8.2 Creating a youth workforce

The profile of the BPO workforce is very different from that of software services. As in the software industry, it is composed primarily of young people (most under 25 years) who come from middle class or lower middle class urban backgrounds, but they tend to be less well qualified. Companies prefer fresh graduates from the arts, science, or commerce streams, and may even hire people who have studied only up to the 12th standard if their other skills are sufficient. Their main requirement (especially for 'voice' projects) is fluency in English, so they target potential workers from the larger cities who come from English-medium educational backgrounds and who are already familiar with Western culture. As the pool of qualified workers in cities such as Bangalore and Delhi is getting exhausted, however, BPOs are also going to second and third tier towns in search of workers. BPO companies hold regular recruitment drives around the country by visiting job fairs and colleges and holding walk-in interviews.

Although the BPO industry offers mainly low-end service jobs, it has been able to draw in middle class college graduates by offering very attractive salaries: workers usually start at Rs 8000 to 10,000 per month or more, much more than what fresh graduates could earn in most other jobs. With few requirements apart from knowledge of English, keyboard skills, and adequate communication skills, fresh graduates with few other job prospects find BPO to be an easy career option. BPO companies also try to attract qualified people from the right social background by representing the jobs as executive positions. Call centre workers are given designations such as 'Customer Service Associate', 'Customer Relationship Executive', or 'Customer Support Representative', and are never called 'workers'.[98] The fact that it is a 'global' industry catering to clients in the West is also a selling point. Moreover, most BPO companies project themselves as fun and trendy places to work – as an extension of college life into the workplace – and have created a westernised youth culture that is designed to retain staff (see following section).

As a result of these strategies, BPO companies have succeeded in attracting educated young men and women from the urban middle and lower middle classes. The workforce, although it is engaged in what is the equivalent of a conventional service job such as clerical work or sales, is distinguished from other service workers by its socio-economic and demographic characteristics (Remesh 2004b:8). For many fresh graduates, who have

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[98] Remesh (2004b:8) found that there are more than twenty different designations used to denote almost the same kind of work.

few other career options, working in a call centre is a convenient stopgap to earn money before or while pursuing higher studies. BPO has also provided lucrative employment opportunities to youth from the lower middle class who otherwise would be unemployed or working in low-paid service or clerical jobs in the domestic sector. The language requirement has created a kind of social stratification within the BPO workforce, between those on 'voice' projects who must have good English fluency and familiarity with Western culture, and so tend to be from larger cities and better socio-economic backgrounds, and those who work on 'non-voice' projects, who are more likely to come from smaller cities and less privileged backgrounds. But it should be noted that in general, the qualifications of BPO workers in India are much higher than those of workers in the U.S. and other developed countries, where call centre work is low-prestige, low-skilled, and low-paid. Because it is a global outsourcing industry, it is able to offer salaries that are low by Western standards but high by Indian standards, and so is able to attract better-qualified workers due to the large number of college graduates who are in search of jobs. Although in the global market outsourcing to India is considered to have certain drawbacks, such as language and accent problems, the high educational level of the workforce allows companies to sell their services on the basis of the 'high quality' of their employees.

8.2.1 Social background and characteristics of workforce

Our formal survey covered only 34 employees from several BPO-ITES companies in Bangalore, which is of course too small a sample from which to make any general statements about the social background of the workforce. However, put together with other available information -- including our informal interviews with a larger sample of BPO workers as well as a larger study of 277 customer care agents in NOIDA (Remesh 2004a, 2004b) -- some trends may be suggested.

First, it is well known that the BPO workforce is on average very young, a pattern that is corroborated by the fact that 81 per cent of our respondents were 25 years or younger. This is a significant point of difference between call centre workers in the West and India: in the U.S. people of all ages are found working in call centres, while in India the average age is around 24 to 25. The survey of call centre workers in NOIDA found that 97 per cent of respondents were in the age group 20-30, with an average age of 25 (Remesh 2004b:8). While there are frequent press reports that the industry is attempting to recruit from older age groups -- such as retired persons or middle-aged housewives, who they believe would constitute a more stable workforce -- there were few such workers in the companies that we surveyed. In fact, HR managers mentioned that their attempts to employ older workers have not been very successful because older persons are not as quick to learn as fresh graduates, and they also lack the computer skills (familiarity with keyboard, ability pick up software-based processes easily, and ability to multi-task) that most educated urban youth today possess. Call centre work, while monotonous, requires the ability to manipulate several different technologies at once, as agents segue between the caller on the phone line, the equipment that manages the call flow, and the computer databases that they have to access in order to perform their work. These are routine skills that young people acquire easily but for which older employees require much more training and practice. Also, as one HR manager pointed out, another reason that this strategy has not worked is because most of the managers in this industry are very young,

and "a senior man in India would never want to report to a young man". In one large call centre that we studied, we were told that there were only five male employees above forty years, out of a workforce of 1800. Thus, the youth of the workforce, despite its drawbacks in terms of high attrition rates, is a deliberate strategy on the part of BPO companies to create an easily trainable and flexible labour force. This is also shown in the fact that most advertisements for BPO jobs are aimed at fresh graduates and specify an upper age limit of 26 to 28 years (Remesh 2004b:7). The high turnover rate and continual recruitment of new workers help to maintain the young average age of the workforce.

Another key feature of the workforce is the more balanced gender ratio, compared to the IT industry. According to HR managers interviewed, the workforce is about evenly divided between men and women in most companies, but according to NASSCOM data, the industry-wide gender ratio is actually reversed -- 31 men to 69 women -- indicating a process of feminisation of the ITES workforce.[99] However, this figure may be misleading: the ratio in the largest call centre that we studied was 59 males to 41 females, and in our survey as well, 68 per cent of respondents were men. The NOIDA study also found a similar proportion of 64 per cent males and 36 per cent females (Remesh 2004b:9). Whatever be the actual figures, it is clear that there is a pattern of gendering in the IT workforce as a whole, as more women cluster towards the bottom end of IT jobs and in the ITES-BPO sector (cf. Rothboeck, et.al. 2001).

Reliable data on the educational and social background of the ITES workforce are not available. However, it appears that the workforce consists primarily of graduates. While some companies follow a policy of hiring only graduates, others also accept those with 12th standard education. In one large company surveyed by us, 80 per cent of the workforce were said to be graduates with B.A. or B.Com. degrees (the majority being commerce graduates), while the remaining had degrees such as MBBS (medicine), BE (engineering), BBM (Bachelor's of Business Management), etc. In general, BPO companies avoid hiring engineering graduates because they believe that they will not stick to the job – but there are some engineers working in the industry, especially in call centres that provide technical support services. Many engineering graduates entered this industry during the IT slowdown, but according to one informant they now form only 10 per cent of the total workforce.[100] It is also not unusual to find professionally qualified people, such as medical and law graduates, working in these jobs – and not only as 'domain specialists'. For young people who have just finished their education and are not able to get desired jobs in their own fields of specialisation, BPOs offer a lucrative stopgap arrangement while they search for other opportunities. The companies are aware of this trend, and for this reason prefer to hire what they call 'mediocres' who have fewer options elsewhere. In the NOIDA study, 97 per cent of respondents were found to be at least graduates, including 12 per cent with post-graduate degrees and above and 11 per cent with professional training (Remesh 2004b:8-9). This study also found that 84 per cent had been educated in public or convent schools with English medium instruction, and 94 per cent had completed their last academic course with first class or distinction. In our survey, one-third of respondents were commerce graduates, another nearly one-third

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[99] NASSCOM, 'Knowledge Professionals – Factsheet'. www.nassom.org.

[100] However, the captive call centre of a large American computer company (that provides tech support) reported that 20 per cent of their workforce are engineers.

were other graduates (science or arts), and 18 per cent were engineering graduates. Three respondents had professional qualifications such as CA and MBA, while only two respondents were not graduates (they had PUC or the equivalent qualification). However, the NOIDA study also shows that, contrary to the popular image, the majority of call centre agents are not fresh graduates but entered the industry a few years after completing graduation (Remesh 2004b: 8).

While larger data sources on the age and gender composition of the ITES workforce are available, there is little information on other aspects of social background, which must be surmised by drawing on various partial sources. In our survey, 55 per cent of respondents were found to come from Karnataka, 18 per cent from Tamil Nadu, and the balance from several other states – suggesting that the catchment area for workers in the Bangalore ITES sector tends to be the local region (despite the fact that HR managers say that they recruit from all over India). Data on regional/ linguistic identity support this conclusion: in the Bangalore sample, 19 per cent were Kannada speakers, 16 per cent each Malayalam and Tamil speakers, and 13 per cent Telugu speakers, while Hindi, Marathi, Bengali, Urdu, and other languages were also represented. Similarly, the NOIDA study found that workers tend to come from surrounding areas: 35 per cent were from Delhi, 32 per cent from U.P., and 9 per cent each from Punjab and Bihar (Remesh 2004b:10).

Our survey found that 58 per cent of respondents were from metro cities (Bangalore, Delhi, etc), 36 per cent from tier two towns such as Mysore and Coimbatore, and 6 per cent from small towns. The primarily urban base of the BPO workforce is also indicated by the fact that 39 per cent of respondents' fathers were from metros, 45 per cent from tier two towns, and 15 per cent from small towns.

With regard to community, 67 per cent were Hindus, 9 per cent Muslims, and 24 per cent Christians. Other observations support the surmise that there is a large proportion of Christians in the BPO workforce in Bangalore, due to the requirement for English fluency (which Christians are more likely to have). The industry has been particularly attractive to Anglo-Indians and other Christians from lower middle class families (of which there are many in Bangalore), who have the requisite cultural capital (more specifically, good conversational English with little 'mother tongue influence' or accent) but perhaps lower educational attainments and few other employment opportunities.[101]

The caste background of our sample of ITES workers was similar to that found in the software sector, apart from the greater representation of Christians: 32 per cent were Brahmins and 23 per cent belonged to other upper castes or the dominant agricultural castes. The balance were Muslims, Christians, or from other communities such as Jains. There was no respondent from OBC or SC categories (although two refused to disclose their caste identity). The NOIDA study was less detailed, but found that 96 per cent of respondents were from the 'forward castes', 2 per cent from OBCs, and 1 per cent 'others' (Remesh 2004b:9).[102]

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[101] Religion-wise data are not available for the NOIDA study, so we do not know whether the high proportion of Christians in the workforce is a Bangalore-specific phenomenon.
[102] This report does not mention how Muslims, Christians, etc, were classified.

With regard to social class, 58 per cent of respondents' fathers in our survey were graduates or above, 38 per cent had completed PUC or SSLC (12th or 10th class), while only one respondent's father had not completed SSLC. 70 per cent of fathers were executives or managers in public or private sector enterprises, government officers, professionals, or in business. 21 per cent of fathers were employed in lower-level white collar (clerical) jobs or were blue collar workers, while 9 per cent were self-employed. No one reported agriculture as father's occupation. The majority of respondents' mothers were housewives, and on average they were less educated than the fathers. The NOIDA study found a similar trend: 56 per cent of the fathers had government jobs, 27 per cent were in business, and 13 per cent in professional services (Remesh 2004b:8).

While the sample is very small, these figures suggest that BPO companies recruit primarily from the urban middle classes -- although there is a fair representation from what could be termed the lower middle class as well -- because it is the youth of such families that are likely to possess the language skills and other cultural capital required by the industry. Popular representations of the BPO industry suggest that it has provided employment opportunities for youth from modest socio-economic backgrounds, but the requirement for English fluency and other cultural capital tends to exclude a large proportion of the population – even more so perhaps than in the case of the software industry where one does find engineering graduates who had studied in the vernacular medium and who come from smaller towns and even rural areas. In the case of call centres especially, good English medium education throughout one's career would be necessary to achieve the level of comprehension and fluency in the language needed – a requirement that would exclude almost everyone from rural areas and even most small towns.

8.2.2 Recruitment

Due to the high attrition rates and the fact that many employees quit their jobs within a year or two, BPO companies continually have to recruit and train new workers in bulk, and their recruitment procedures and practices are designed to capture large numbers with minimal cost. Most companies recruit workers through several different methods: direct advertisement, campus recruitment, employment consultants, and employee referrals (for which they are given cash incentives). In order to fill their requirements, these companies are heavily represented at job fairs, they hold frequent walk-in interviews in different cities, and visit college campuses. Some BPO offices are open round-the-clock for walk-in interviews. 'Freshers' are usually recruited both from campus and through referrals, while experienced people are sourced from consultants and referrals. Many companies visit college campuses such as St. Joseph's and Mount Carmel in Bangalore to make presentations and invite applications. They also hold recruitment drives in other cities such as Chennai, as well as in towns such as Mysore and Mangalore. Large employment agencies handle ITES recruitments as well as IT; in addition there are independent call centre training centres that provide recruitment as well as training services to BPOs. In one of our study companies, 45 per cent of the workers were recruited through headhunters (known as 'business partners'), one-fourth through internal references, one-fourth through advertisements, and 5 per cent were 'walk-ins'. In the same company, 35-40 per cent of new recruits were 'freshers', while the balance were experienced people.

As noted above, BPO companies target educated urban youth for recruitment, and that too of a particular class. They recruit college graduates from any stream, but tend to hire many commerce graduates (with B.Com. degree). While they visit degree colleges for recruitment, they do not usually go to engineering colleges. For many companies, even 12th standard education is sufficient qualification. However, the qualification required depend partly on what kind of project they are recruiting for – for instance, a tech support job in a computer company might require those with MCA or BCA degrees, while outbound (telemarketing) projects may place more emphasis on voice, sales ability, and so on. Because most companies run multiple projects and processes simultaneously, recruitment processes are geared towards filling positions in specific projects, and the tests that candidates undergo are tailored to the project, as is the training. Apart from qualifications, BPO companies look for a certain social type. The recruitment officer of one company specifically mentioned that they recruit from 'urban colleges', and that among these they also prefer "donation colleges" (i.e., those with higher fees, and therefore with students from middle class or higher social backgrounds) because "they have a different crowd, they are more cosmopolitan and with more social skills. You know, these are the kind of guys that when they see you can say hello, whereas most Indians won't just greet you on the street if you're a stranger". (This informant said that such social skills are important because they are hiring for a customer care centre.)

While screening procedures vary from company to company, candidates are usually put through several rounds of tests. The first step is to screen the resume, to check if the candidate has the right (or wrong) kind of education and job experience. Next, there is usually a group interview to assess English and communication skills, followed by a personal interview to determine whether they are suitable for the industry, will stick to the job, and are willing to work on night shifts; a written test that usually consists of English grammar, language ability, comprehension, and logical, analytical, and mathematical skills; a voice test; a telephonic test; and sometimes 'simulation' test in which candidates have to listen to actual calls and rate how they were handled. Other skills such as use of computer and keyboard, or general knowledge of customer service norms, may also be tested. The order of the tests depends on the priorities of the company. For instance, a call centre may check the voice and communication skills first, and send only those who clear those tests for the subsequent rounds.

During the early rounds, candidates may be 'weeded out' in the basis of a few simple criteria, such as number of years of education (usually there is a minimum specified of fifteen to seventeen), type of degree (engineering graduates are usually rejected), their reasons for wanting to join a call centre (they should not say that they want a temporary job or cannot find another one in their field), and so on. The voice test primarily assesses 'MTI' (mother tongue influence), or accent, as well as English grammar, and those with 'heavy MTI' or poor grammatical skills are eliminated.

Significantly, in many companies the major hurdle to be passed is the personal interview, in which the recruitment officer tries to ascertain (among other things) whether the candidate will stick to the job. The usual first question is, 'why do you want to work in a call centre?', and the candidate should give an answer that satisfies the company's expectations. This is called the 'retention check', which includes questions about family background, education, job aspirations, work history, and the like. An HR officer said that

if the candidate comes from a "disjointed family, for instance in which the spouse is residing outside Bangalore", they would not take them. They enquire whether they are married and have small children, presumably because these would be impediments to working on night shifts. Interviewers also attempt to understand the candidate's 'attitude' by asking a series of specifically designed questions (sometimes designed to catch the candidate in a contradiction), or posing situations to which they have to respond. The interviewer looks for signs of 'flightiness': "If the candidates give confusing answers, we think that they may not stick". They also weed out those who appear to be too competent or over-qualified for the job. One HR officer said that if the candidate has a "very good family background with high percentage of marks in their degree", they would not take him or her, because this would imply that they are "looking at call centres as a stopgap arrangement". One of our respondents admitted to falsifying his c.v. in order to get a job in a call centre because he was advised by a family friend who was familiar with the industry not to mention his post-graduate qualification. (Falsification of bio-data is apparently quite common among BPO applicants.) This reinforces the contention that the industry looks for mediocrity and docility in its workers, i.e., those who are sufficiently educated to do the job well but not so well-qualified that they have other opportunities or will become trouble-makers. This conclusion is supported by the following quotation from a document on call centre management written by a management consultant:

> HR departments will encourage us to seek people who have a strong sense of purpose and career. Be careful. This can be a desperately boring and monotonous role. Often stamina and low ambition might be more appropriate characteristics than attributes that might indicate a potential high flyer (Roncoroni 2002).

During the personal interview the candidate is also given a 'reality-check': "They are told about the training bond, shift timings and monotony of the job". To eliminate those who might be likely to quit soon after the training period, the interviewers attempt to apprise the candidates of "all the possible difficulties that they might face in this kind of work … Still there are people who join for fun and later realise that it is tough and then quit". One manager said that they aim to recruit people who will stay in the job for at least a year or eighteen months, and that they take only six or seven out of every hundred applicants.

Successful candidates are given an offer letter and usually asked to join the company immediately. The next stage is the training programme, which almost all new recruits – even those with experience in the industry – must undergo.

8.2.3 Training

In BPO companies and especially call centres, the work consists primarily of continual remote communication with customers located abroad, through voice, email, chat, and so on. For this reason, these companies invest heavily in training recruits in communication skills, accent, voice, customer service norms, and the like, as well as in the 'culture' of the customers' country, to enable workers to interact effectively with customers and in a culturally appropriate manner.

New recruits to ITES companies are put through intensive training programmes lasting from four to eight weeks, in batches of about twenty students each. These are usually run

at the workplace and on the usual shift timings, although some are held in different locations or are provided by third-party trainers. Trainees are paid their starting salary during this period, but they do not receive the extra incentives and other benefits that regular employees get. In order to acclimatise workers to working on shifts, many companies run the training programmes on shift timings, such as from 6.00 a.m. to 3.00 p.m., 3.00 to 12.00 p.m., and so on.

Training programmes are usually divided into 'pre-process' and 'process' segments of two to three weeks each. 'Pre-process' training imparts general skills and knowledge such as 'accent neutralisation', English comprehension, and spoken English skills, American or British culture, communication skills, and customer service. A typical training package consists of eighty hours of pre-process training (eight hours a day for ten days) – twenty hours each of accent, culture, grammar and customer service. Process training is more technical and is concerned with the specific processes and the work for which they have been hired. Training programmes may also be divided into three parts -- two weeks of accent integration training, two weeks of product specific training, and two weeks on receiving and attending telephone calls. Training is tailored to the specific project or function, and in accordance with the customer's specifications.

In one company where we observed training programmes, assessments are carried out periodically during the training period, and trainees who do not meet the required standard may be asked to leave, even before they 'hit the floor'. In another company, trainees are assessed periodically but not 'weeded out' during the training period; those who are not up to the mark are, however, not allowed to 'go live'.) The first assessment may take place within three to four days of the beginning of the programme: this is to identify those who are deemed not suitable for some reason but have "slipped through the HR sieve". It is expected that after interacting with the trainees for a few days, the trainer would to be able to identify those "those who can be polished and those who are not trainable". In one call centre, we were told that four to five trainees out of a batch of twenty are usually dismissed. Following the training period, there is a 'phone week' or 'bridge week' lasting one or two weeks, during which both process and pre-process trainers work with the new batch on the floor. New workers are also given 'refreshers' periodically as needed, based on their performance appraisals.

Much media attention has been focused on the accent training that is given to call centre agents, and the requirement that agents put on fake American or British accents and assume false identities. However, this is not a universal requirement, and depends on the customer and the project. Some customers demand that workers use perfect American or British accents ('enhanced accent') and assumed identities in order to disguise that they are speaking from India, while others are happy with a 'neutralised' accent that is comprehensible after removing any trace of 'mother tongue influence' (MTI). Similarly, some customers allow workers to reveal the fact that they are speaking from India, while others want them to conceal it. These requirements are specified in the contracts that service providers sign with customers, known as 'SLAs' (Service Level Agreements), or are part of the company's internal policy (in the case of captive centres). Even more important than accent training is comprehension: for example, workers on UK projects in one company were required to be able to understand fourteen different British dialects. Agents are also given lessons in the culture of the country whose customers they will be

handling, which usually includes some potted history, basic geography (the fifty states of the USA and their capitals), important events and people, local customs, holidays and sports, and so on. The objective of the culture module is to enable agents to make successful small talk with customers. Workers are expected to be conversant with local trends, such as what is happening in the World Series, by reading the newspapers and watching television programmes from the UK or US. Sometimes they are even expected to check the weather reports every day, in case someone asks if it is snowing where they are. However, with increasing awareness of outsourcing to India, fewer customers expect Indian call centre agents to hide their identities or locations; instead they require them to provide high quality, efficient, and polite service in an accent that customers can comprehend.

The culture training also covers the standard cultural stereotypes described in section 6.3.2 – that Americans are more independent and assertive while Indians are family-oriented and obedient, and so on. These are used to point to possible sources of misunderstanding when handling American customers: for instance, they are told that 'back in a minute' means exactly one minute to an American, while in India it could mean much longer than that. Differences in communications styles are highlighted, for instance, the Indian habit of 'interrupting' one another, versus American's expectations that the listener will be quiet until they finish talking. Telephone manners and customer service norms are also given extensive attention, including how to handle 'irates' (callers who are angry and difficult to handle).

The training sessions are also designed to impart work-related skills and discipline, apart from the specific skills and knowledge related to the job. For instance, one aim appears to be to teach time discipline: in a training programme that we observed, trainees who were late coming back from breaks even by a minute were given 'fun' punishments, such as having to read out a list of difficult words from the training manual in front of the class (thereby revealing their ignorance by mispronouncing words). In another company, trainees are sent to a separate location for training, which is an intensive residential programme known as 'boot camp'. This ten-day programme has a "packed routine" of eleven hours of activity daily, "combining both learning and fun". The trainer explained:

> They are made to live life the way they would be living after they go on floor, in terms of the kind of pressure they would face. It creates bonding among agents and helps in building team relations among them. We make them work at night so that they get the feel of night shifts. Through boot camp they gradually shift into night shift so they don't face any problem when they go on the floor. We have all the required equipment for enacting mock floor situations - someone acts as a customer and all agents listen and observe calls. There are activities related to sensitising the agents to the culture and people that they are going to serve. We use experiential learning … Boot camps are aimed at reducing attrition by creating bonding among employees – people stay in a company because they like the people there.

These army-style 'boot camp' techniques are aimed at producing fully socialised and indoctrinated service workers, incorporating them into the company's culture and its philosophy of customer service, and retaining them through social bonding.

The ethic of customer service is grilled into trainees in other ways as well, as in the following pep talk that was given by a trainer. Interestingly, this trainer drew on an Indian cultural ideal in order to convince her students that they should sacrifice for the satisfaction of the customer:

> You are the ambassador of your company. Our company has a big brand name, and the customer will decide on whether the service matches the brand depending on their interaction with you. You have to always pretend to be alert, patient and happy even though you might be dead tired and hungry. It might be your eightieth call of the day, but the customer doesn't know that – he expects to be treated as well as the first caller, as the most important customer. For example, at Indian wedding receptions, the bride and groom have to stand with fixed smiles on their faces for hours, greeting guests, no matter how tired they are. This is because of the Indian notion that guest is god. So we have to treat our customers the same way. After all, this is what you are paid for, and paid well. It's not that you are made to work for sixteen hours – you have only nine hours, of which one hour is break time. So during those nine hours you have to act and seem happy, like you like your job, even if you don't. You have to pep yourself up, and pep up others around you.

As in any service industry, customer service is the top priority in Indian BPOs and call centres, and this kind of training is not very different from that found in other service industries such as hotels and airlines around the world, whose workers are expected to perform 'emotional labour'.[103]

8.3 Labour mobility and flexibility

Like the software labour force, BPO workers too are highly mobile and flexible, although in different ways. First, the attrition rate is much higher in the BPO industry, which means that workers do not stay in the job for very long and move in and out of the industry, or between companies, rapidly. This continual churning of the workforce creates a high level of flexibility from the company point of view, in that it is easy to scale up or down rapidly as needed. But a second major reason for the high attrition rate is the stressful and monotonous nature of the work, and consequent low level of job satisfaction. The fact that the BPO industry targets youth adds to this mobility, since many workers have other career plans and use BPO jobs as a stepping-stone to higher education or another job.

8.3.1 The revolving door workforce

The high rate of attrition is one of the major problems that managers in BPOs spoke about – rates are said to be as high as 30 to 50 per cent, depending the company and place. However, attrition rates cited by companies are unreliable, since most do not like to admit that they have high staff turnovers. HR managers may claim that their competitors have attrition rates of 100 per cent, while their own company's rate is less than 25 per cent. That 25 per cent attrition is considered to be an acceptable level, however, is revealing.

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[103] On emotional labour, see Hochshild (1983), Taylor (1998), and Bain and Taylor (2000).

The high attrition rate means that workers change companies and jobs frequently – much more than do IT employees – but ITES workers also seem to be more localised in the sense that they move less often between different cities for employment. HR managers appear to have accepted the fact that most employees will not stick to the job for more than one or two years. Workers leave to join another company, in search of higher pay or a promotion, or in many cases leave the industry altogether, for another kind of job or to pursue their education. According to one HR manager, about half of those who leave the company are quitting the industry altogether. While many employees, especially those who come from lower middle class or working class families, see the BPO industry as a viable career option or simply as a job that pays well, most of those from better-off families view a BPO job only as a stopgap before they continue their education, or as a stepping-stone to another career, such as in software (cf. Singh and Pandey 2005).

The high level of staff turnover in the industry is reflected in our survey data: one-fourth of the respondents had worked in one company, one-fourth in two, and 41 per cent in three or four companies. 29 per cent had been with their current company for less than one year, 47 per cent for between one and two years, and only 21 per cent for more than two years. Moreover, 76 per cent of respondents were at the entry level (designated as 'agents', 'consultants' or 'executives'), while 24 per cent were team leaders or 'coaches'. 59 per cent had been working for two years or less and 35 per cent for three to five years, and only one respondent for more than five years. This profile reflects the overall youth and inexperience of the BPO workforce, due to the young age of the industry itself as well as the high attrition rate. In one company we studied, the average length of stay (for employees) was said to be just ten to eleven months.

There are several factors that contribute to the high attrition rates in the ITES industry. First, as already mentioned, many employees join BPO companies on a temporary basis and do not plan to pursue careers in the industry. For many, it is a way to make easy money while studying, or to save money for higher education. As a process trainer in a third-party call centre said: "It is expected that people will go – most people who come to call centres are not looking for permanent employment, they see it as an in-between, for instance while studying further. It's an intermediate phase for most, so they will stick on for maximum three or four years." This informant, who was taking a correspondence course to complete her master's degree while working full time, gave herself as an example. Of the respondents in our small survey, 80 per cent were studying while working or were planning to study further after working for a year or two. This pattern was corroborated by informal interviews with other workers, many of whom expressed a desire to study for higher degrees so that they could get better jobs. The industry has recognised this trend, and as an incentive to retain employees many companies offer some kind of scholarship or financial aid to employees who want to pursue higher degrees such as MBA. For instance, several companies have tie-ups with management institutes, which run part-time MBA courses for employees. A few companies have initiated part-time employment schemes to facilitate those who want to study and work at the same time. For example, a large third-party call centre covered in our survey has a 6.30 to 10.30 p.m. shift meant specifically for students. However, most BPO companies still do not offer part-time jobs because they do not provide sufficient 'return on investment'. Another major factor behind the high attrition rates is the fact that women workers tend to leave their jobs after marriage or after they have children (see section 8.3.3).

Perhaps a more significant reason for high attrition rates is the monotonous nature of the work, coupled with high stress levels, odd timings, and night shifts. This problem is acknowledged by HR managers, who attempt to counter stress and boredom through a variety of strategies (discussed in the following section). One manager pointed to boredom as a major reason for attrition – agents would like to change to a different project or queue after six months, but the company may not accommodate this desire. Long working hours and the need to work on night shifts add to stress levels: apart from the nine-hour shift, some employees travel for an hour or more each way. According to our respondents, night shifts are a major cause of attrition, particularly among women. Health problems linked to night shifts and stress are frequently reported by call centre workers, and most large call centres have a doctor and/or nurse on duty round the clock.

As noted above, a major source of stress associated with the job stems from the need to perform 'emotional labour', and especially to remain calm and helpful even with irate and abusive callers. Most BPO jobs are customer service jobs that put workers in a position of having to "bow to the customer". When workers were asked to describe their interactions with customers, the most frequent response was that some are 'irritating' or 'persistent'; many mentioned having to listen to remarks against outsourcing, and some mentioned racist remarks or communication problems. Sexual harassment of women over the phone is also very common. Learning to handle such situations and not take abuse personally is difficult for many workers, and some quit within the first few weeks because they cannot bear the emotional strain. One HR manager said:

> Some people just can't handle the stress and work pressure. One of the major problems is learning how to handle irate customers. If the worker is very sensitive, s/he or she will get upset by someone yelling at them. After some time they learn how to handle these situations and not take it personally, but at first they may feel bad.

Due to these problems, the maximum attrition takes place during the first six weeks on the job. Many managers noted that workers face a shock when they 'hit the floor': "As long as training period is on, people feel its all hunky dory. Once they enter the floor, reality hits them". Some companies employ psychologists to counsel workers and help them to learn to handle stress.

According to several HR managers, employee commitment to the job and the industry is so low that apparently some workers quit without giving proper notice: "They just don't show up for work the next day", which means that they are not even interested in getting recommendation letters or certificates of employment from the company. Several managers, through such stories, commented on the footloose and irresponsible nature of BPO workers. However, there is another side to the story. As in the case of the software industry, high attrition rates are not solely the product of individual decisions to change jobs, or to workers' lack of loyalty; rather they are built into the structure of the system. The ITES industry appears to have adopted a revolving door policy in which it is continually taking in fresh recruits, training them through intensive 'boot camp' methods, deploying them on the floor for a year or two, and then churning them out when they become more expensive to retain. Although BPO companies continually bemoan their

high attrition rates and claim to be searching for the reasons for, and solutions to, this problem, it appears that the high rate of employee turnover is in fact beneficial to them and is subtly encouraged. This surmise is supported by a review of job advertisements, which shows that companies prefer inexperienced workers. The suggestion is that "… firms are keen on getting a 'raw workforce' [that] … can be groomed to meet their requirements" (Remesh 2004b:25).

This conclusion was frankly corroborated by the HR head of a large call centre, who explained to us that most call centres do not want to retain employees beyond two years because their 'return on investment' is higher when there is rapid rotation. Companies focus their retention efforts on those who are likely to leave in the first three months (the peak period for dropouts) -- before they have begun to recoup their investment -- but not on those who threaten to quit after two years. This informant explained the maths behind this calculation in the following way: the company spends nearly $2000 on each worker for hiring, induction and training, and if the employee works for 270 days they "achieve break-even". Thus, "if you can hold them for 270 days you have done your job", because by that point the company has recouped the cost of training and also begun to make a profit out of that worker. If they retain the person for 18 to 24 months, all the better, but beyond two years they are spending more on the employee (because of the rapid increase in salaries and other benefits over time) than they would on training a fresher, so at this point "it's not so bad if they go". This means that the often-expressed concern over attrition is actually focused on only a certain category of workers. Most companies include a clause in the employment contract that prohibits employees from quitting within the first six months (on threat of having to pay back the amount spent on training, or a similar penalty). Companies believe this is justified because of the large amount spent on training, but apparently such clauses are not legally enforceable, nor do companies usually attempt to enforce them.[104]

While BPO companies make great efforts to retain employees for up to two years, they employ what might be called 'anti-retention' strategies to encourage workers to quit after they have passed the two-year mark (apart from the few who have been identified as potential management material and have received rapid promotions). For instance, agents expect to get promotions within a year or two of joining, at least to team leader or trainer position. If they are stagnating after two years, it is taken as a signal that they have no future in the company and they are likely to leave in search of a better job. Similarly, we were told that various incentives that are given to motivate employees tend to be withdrawn at the end of two years. Through such methods, unwanted workers are almost

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[104] However, this could be a reason for employees leaving without giving notice. It is apparently quite common for BPO employees to give fake resumes, addresses, and even names when they join; companies rarely perform background checks, and so it is easy for an employee to simply disappear. After several recent, highly publicised incidents of security breaches in Indian call centres, however, companies are becoming more careful in their hiring practices and background checks.

automatically weeded out, without the company actually having to fire them -- thereby solving the company's problem of having to support more highly paid staff.[105]

8.3.2 Job satisfaction and aspirations

As has already been pointed out, many ITES employees do not look upon their jobs as a career opportunity and do not plan to work in the industry for long. When asked why they chose this job in the first place, the largest number of survey respondents (about half) mentioned the money, while some (about one-fourth) mentioned 'good prospects for growth' or 'good learning opportunity, and an equal number said that they 'like the industry'. On the other hand, about half gave responses such as, 'everyone was getting into call centres' or 'it just happened'. Very few said that it was due to the influence of family or friends (in contrast to the responses of software engineers) – reflecting the generally poor reputation of the industry among the wider public.

When asked whether the job has met their expectations, the large majority of respondents said yes, referring to the money they are earning, the working environment, and so on. About three-fourths said that they find the work 'challenging' or 'satisfying', and/or that they are learning from the experience. But at the same time, about half said that they do not plan to remain in the industry (35 per cent said they will work 'for some time' in this job and 12 per cent said 'no'), while 40 per cent said that they want continue in the industry. Of the latter group, most said that they think they will be able to 'grow' in the company or industry, and many mentioned that they want to move into management, training, or HR functions. The majority of respondents believed that they have good prospects for promotion. Of those who want to leave the industry, half said that they want to study further. These responses present a mixed picture with regard to careers in BPO – while many employees do expect to be able to develop their careers within the industry by becoming managers, there are many others who do not see the job as a long-term prospect. This attitude clearly contributes to high attrition rates, but the high turnover in the industry itself, plus a perception that there is no good career path within it, is also responsible for producing this attitude.

Responses on job satisfaction also present a mixed picture. About half the respondents said that they find the work 'challenging' most of the time, but few used terms such as 'interesting' or 'fun' to describe their work. The nature of work in the ITES industry, and employees' perceptions of it, are discussed in more detail in the following section.

Although many workers do not plan to continue in the industry, a number of respondents said that they have learned valuable skills that they believe will help them in their future careers. Of these, most mentioned that their spoken English and/or communication skills had improved, and many also said that their 'social skills' had improved. Almost half mentioned that their personalities had changed due to the training or work experience: of these, most said they had become more 'confident' or bold, more 'professional' at work, and more 'focussed' and career conscious. As one young employee said, "Call centres

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[105] Remesh (2004b:13) refers to this as a 'dualistic pattern' in the workforce, in which there is a small 'core' of regular staff who are team leaders and managers, and a periphery of agents who work on time-bound contracts or who are expendable.

can only be used as stepping stones to learning. The more you learn to use what you have learnt in these call centres on an everyday basis, the more you can grow. So, take this and move on." While some respondents were optimistic about the skills and experience they could gain from their jobs, there is a widespread perception both within and outside the industry that this kind of work experience does not add anything to employees' skills or resumes. Even a senior HR manager in a call centre said that the agents do not gain any skills from this work: "What skill sets will they have other than taking calls?" In fact, when BPO employees look for other jobs, their experience and time spent in these companies is usually not counted as valid work experience.

HR managers interviewed pointed to clear 'career development' paths within their companies, which they claim provide incentives to employees. After a couple years of experience, agents can be promoted to positions such as team leader, quality officer, trainer, or into support functions such as HR. But the number of higher-level positions is obviously limited, and so not every agent can get promoted. In one call centre, the agent-supervisor ratio is one to twelve, while in another there were only 150 supervisors and fifteen managers out of 1500 employees. Opportunities for promotion are further limited because supervisory and managerial positions are often filled by 'lateral hires' rather than 'from the floor'. One company claimed that 75 per cent of those in management positions had moved up from below, but in other companies employees were frustrated because managers were being hired from outside rather than being promoted from below. Thus, while most workers have ambitions to move off the floor into management or training jobs, very few of them will actually make it, and those who are not promoted are likely to quit.

As a retention strategy, some companies attempt to fill a large proportion of positions through internal promotion. In some companies, additional layers and designations are created in order to provide for upward mobility, even when they are not really required from an organisational perspective or do not reflect real differences in job profile. For instance, in the captive call centre of an American company, in centres located in the U.S. there are only four levels – consultant, leader, manager, and general manager – whereas in the Indian centre there are ten levels -- associate managers, senior managers, senior operations leader, senior coach, associate coach, and so on -- because "Indians need many more levels", according to the HR head. This informant noted: "It is the Indian psyche, the social aspect, that desires quick recognition and respect in the eyes of the society, for which you need a title". In this way, agents can get a senior title after working for only one year. He also noted that because Indian call centre agents are younger on average than those in the U.S., they are very 'ambitious' and want to move up quickly, which is another reason for the high turnover rate.

8.3.3 Women workers and gender issues

BPO companies are considered to be 'woman friendly' places to work, due to the non-physical nature of the work, easy availability of jobs, and supposed 'flexibility' of the work. While these jobs have attracted a large number of women, and the proportion of women in the ITES workforce is nearly one half, there are aspects of the work that are gendered and not so 'woman friendly'. First, as noted above, the concentration of women in BPO jobs reflects a process of gendering in the IT workforce as a whole, as women

tend to cluster in the low-end jobs (Rothboeck, et.al. 2001). Second, within the ITES industry women tend to be concentrated in the lower level 'process' jobs rather than in technical functions that usually have higher pay (Remesh 2004b:24; Singh and Pandey 2005:686). Third, women tend to drop out of the workforce after marriage or having children, especially due to night shifts, because they face social and family pressures to which men are not subject. The study by Singh and Pandey (2005) found that most women workers are unmarried, and that there are few women workers in the 30-40 age group. A fourth feature of gendering in the workforce is the fact that there are fewer women in higher level positions. This is again due to the nature of the work, which tends to push women out of the industry just at the point when they might be considered for promotion -- after a few years' of experience, which is also when they are likely to get married and have children (Remesh 2004b:23; Singh and Pandey 2005:686). Also, Remesh (2004b:24) found that many women do not seek upward mobility within their companies and are content to remain as floor-level agents, because they do not want to take on additional responsibilities that will compromise their ability to fulfil domestic and family obligations. "… the firms are found capitalising on gender divisions by actively recruiting women that they perceive will not be interested in promotion" (2004:24).

Although there are no firm data to support this contention, evidence from informal interviews suggests that female BPO workers (if they remain in the job) tend to stay unmarried for a longer time than what is usual. This may be because they know they will have to quit after marriage, or because they find it difficult to get married through conventional channels because call centres have earned a somewhat unsavoury reputation in the wider society (see section 8.5).

Another significant feature of women's participation in the ITES workforce that is noted by both Remesh (2004b) and Singh and Pandey (2005) is that for many women workers, the job is not an economic necessity but is a supplement to the family income or is something they have taken up as a 'pastime'. This is true especially for women from middle and upper-middle class families, and explains both the absence of a desire for upward mobility and the fact that many women continue to work only as long as the job does not interfere with their domestic responsibilities. However, for many of those from lower income groups, their earnings are the major source of their family's income (Singh and Pandey 2005:687). The relatively high incomes that women can earn in the BPO industry explains why many families accept this type of employment for their daughters or wives, despite the general social disapproval that is attached to it.

8.3.4 Individualisation at the workplace

Performance-linked salaries and incentives (discussed in the following section), and the spirit of competition that is encouraged in BPO companies, lead to a process of individualisation among workers, as described above in the case of the software industry. Although starting salaries are uniform, (usually about Rs 8000-10,000 per month), individual salaries diverge quickly due to differences in performance ratings. Also, certain functions such as sales have in-built incentives based on commission, which means that those agents earn much more than those in other queues. Because of these differentials, agents are not supposed to talk about their salaries to one another. These processes of individualisation, together with the rapid rate of turnover, reduce the scope

for the development of any sense of collective identity among the BPO workforce. In any case, reported fledgling attempts to organise workers in a few call centres met with stiff resistance from managements, with rebellious workers being summarily dismissed.

As is the case in the software industry (and more generally in service industries), the lack of recognition or identity as 'workers' (in contrast to the 'traditional' industrial workplace) means that there is little engagement with collective bargaining. Since the industry itself is associated with high salaries, posh working conditions, and quick mobility, issues such as occupational health hazards, long-term medical benefits, safety during commuting, while recognised as problematic by both employees and companies, are not addressed in a collective manner. Instead, as Remesh (2004b) points out, companies provide alternative mechanisms to give 'voice' to workers' grievances, which act as a safety valve, such as group recreational activities, team and department meetings, and intranet discussion groups (2004:21). Sophisticated HR techniques are aimed at creating a sense of empowerment (for instance, by encouraging informality with the boss and socialising in the workplace) among workers, while at the same time granting little real autonomy or flexibility. These techniques are discussed in detail in the following section.

8.4 Modes of organisational control

In section 6.1, we have described organisational control in software outsourcing companies as a mixture of direct and indirect methods. In the ITES industry, the same mix is found, but to the extreme in both directions. On the one hand, the work process in call centres and BPO units is controlled through very exact, rigid, and 'panoptical' systems of monitoring, measurement, and management, using sophisticated computer and telecommunications systems that bind the human worker tightly to the machine. On the other hand, many BPO companies attempt to mask these Taylorist elements, and try to reduce the stress and monotony that is inherent in the work, through 'soft management' techniques aimed at creating a lively, attractive, and 'fun' workplace. They also claim to have the 'flat' and informal organisational forms of the 'new workplace' (described above), and, like software companies, organise workers into 'teams'. Workers are motivated to perform and to stay on the job through a combination of material incentives, 'illusory empowerment', and implied promises of rapid upward mobility (cf. Remesh 2005). This section describes these forms of organisational control, starting with the management structure.

8.4.1 Organisational structure

The organisational structure of most BPO companies is fairly simple: it includes both vertical and horizontal divisions. Third party call centres or BPOs are organised vertically according to projects for specific clients, and employees do not usually switch between projects because they have been trained for the specific function. Each client's project is usually located on a separate floor or in a distinct space, and employees have access only to their own areas and also usually interact only with other employees in the same project. As a result, they tend to identify more with the customer rather with their actual

employer.[106] Captive centres, on the other hand, are organised according to functions. In the large captive call centre of an American company, for instance, there are five 'queues' into which customer calls are routed to operators, hence five different functions or processes (such as registration, billing, tech support, and sales), each controlled by a different division. In these companies as well, employees are trained to perform particular functions and usually do not shift between 'queues' (unless the company has a deliberate policy of job rotation on request as a retention strategy). This is because changing to a different queue, function, or project would require retraining. While the broad vertical structure is comprised of different projects or queues, within each there are a number of separate teams, usually consisting of ten to twenty members (as in the software industry). The teams are not differentiated by function or specialisation, rather their purpose is to allow close management of the workers and the work process and to create a sense of identification and 'bonding' among employees.

While the specifics vary, the organisational structure is broadly the same across companies. Typically, at the lowest level are the entry-level 'floor' workers, who are designated as 'executives', 'agents', or 'representatives'. These designations are usually further specified, based on the type of work or project, yielding job titles such as 'customer service executive', 'tech support executive', 'telesales executive', and so on. These floor-level workers belong to teams of about eight to twelve members, each one led by a team leader (TL, or 'coach', as this position is called in one company that we surveyed). As in the software industry, growth can be very rapid in a BPO company, and it is possible for an executive to become a team leader (or another position in between agent and TL) with one or two years of experience, which means that there is little difference in age and experience between the leader and his or her team members. Getting promoted to team leader or trainer is highly desirable because it means that one does not have to take calls any more (or at least not so many), but only supervise those who do. Above the team leader there is a position such as 'manager operations', who looks after several teams and in turn reports to the project or programme head, who is responsible for the entire project or function. Above this level there may be another layer of programme managers, each of whom handles a number of clients or functions, and on top several vice-presidents responsible for different functions, reporting to the CEO. Thus, there are just five to six levels in the organisational hierarchy, but as noted above, these may be sub-divided into additional designations in order to create an illusion of rapid promotion.

HR managers claim that there are good channels for promotion within their companies, and that promising workers are recognised, given appropriate training, and promoted to management positions. For instance, in one company we surveyed -- an Indian third-party call centre -- agents may be promoted to senior agent, after which they can either become team leaders or trainers. Process trainers are usually promoted from the floor because they are considered to be most 'fluent' in the process. Agents who are good in their quality

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[106] BPO workers who were contacted informally often named the client company (usually a well-known American or British company) as their 'employer', rather than giving the name of the Indian third party BPO that was the actual employer. This reflects the superior value that they attach to working for foreign or multinational companies. They are also trained to regard the client as the real customer or boss, which indeed is the case, given that clients continually monitor quality measures and ensure that the 'SLA' is met.

measures may be promoted as trainers because they are considered to know the process well, whereas those who are better in 'AHT' (average handling time) may be promoted as team leaders. Promotions are requested and considered during the appraisal process. However, informants' narratives suggest that promotions are not based entirely on objective assessments of performance, but rather 'visibility', correct 'team-playing' behaviour, cultivating a good relationship with the manager, and other such strategies, are important. As one agent put it:

> If you play your cards well, then there are chances that the manager will recognise you. You are already starting to control people and you even finish reports on time. There are enough learning opportunities and you will also get noticed. That's why I said you have to balance between not displeasing the TL and yet showing your leadership qualities to your peers and your own personal aims. You need to develop as a person too.

Having a 'good attitude' is also key: one of our informants missed an expected promotion because, as he said, he refused to 'brown-nose' the boss and complained loudly when he felt managers were in the wrong.

8.4.2 Management through 'team Taylorism'

As noted above, one of the main features of organisation and management in BPO companies is the division into teams. Team-based organisation is effective for several reasons. First, it allows management to keep tight control over employees, and to closely track the flow of work through the team leader, who is always on the floor and is constantly involved in monitoring and managing the work process and sorting out any problems that arise. Second, as in the case of software companies, team-based competition and collective rating systems invoke peer pressure as a management tool. Third, bonding within the team is supposed to promote employee retention as well as productivity.

Work in BPO companies is performed in large open-plan floors that may hold several hundred workers at one time. Workers are seated in open cubicles, with a console, computer monitor and other equipment in front of them. The floors are brightly lit, and due to the layout it is easy to observe activity on the entire floor from almost any vantage point just by standing up from one's seat. Usually, the members of a team are seated in the same area so that they can interact and converse among themselves, and help one another in case of problems. The team leader is seated in a cubicle in the same area, from where he or she can keep an eye on the floor and be available to agents who need help on calls. The seating arrangement and use of space allows for maximum surveillance and monitoring of the work process. Most BPOs also have closed-circuit video cameras scattered around the floor to provide additional 'panoptical' capacity (for 'security' reasons, we were told). Continual surveillance is also enabled by the centralised computer system that maps workers' activities (discussed in the following section). Team leaders and other managers also listen in on calls periodically to keep a check on workers' performance.

Each team is supposed to be a cohesive unit that works together to achieve targets, in competition with other teams. The statistics that are continually collected about work performance (see following section) are collated for teams as well as for individuals and compared on a daily, weekly, and monthly basis. Teams that make the most sales, have the lowest 'average handling time' for calls, etc, receive rewards or 'recognition', such as money for a special outing or a 'best team of the month' title. The promotion of competition among teams clearly is intended to enhance productivity, but it also introduces the element of peer pressure into the management system. Because teams compete with one another to achieve targets or to win contests, members within each team put pressure on one another to keep up their performance ratings.

Companies attempt to produce and maintain team-based loyalty through constant pep talks given by managers and team leaders, rituals to drum up enthusiasm (such as a team cheer, much like that enacted by sports teams before a game), and register approval for accomplishments (such as cheering a colleague who achieves a particular target first), and various social and 'fun' activities, both in the workplace and outside. For instance, each team starts its shift with a 'team brief' during which the team leader attempts to pep up the team members (many of whom are quite sleepy, starting their shift at 10.00 or 12.00 in the night), motivate them to achieve the targets given for the day or the week, point out problems with the work or 'stats' of the previous day, and convey any other relevant information, especially about new targets, rewards, or contests. Team briefs are also used to remind agents about the basics of handling calls, customer service, and so on. The techniques are similar to those used by sports coaches to whip up a winning spirit among the players. The following extract from observation notes in one call centre gives a flavour of how such team meetings are conducted. In this example, the team leader is meeting with his team members just before their shift begins at 1.30 a.m.:

> TL: Good morning [loud and energetic]
> Team members: Good morning [low murmurs]
> TL: Good morning [louder than the first]
> Team members: Good morning [loud and energetic]
> TL: Awesome
> TL: Can we do it? [loud]
> Team members: Yes we can do it [loud and energetic]
> TL: Awesome
> TL   Can anybody tell me what are the two steps to success?
> Team members: Tell us.
> TL: Guys, listen to the customer actively, recreate the issue. There is difference between American culture and Indian culture. Indians give explanation first and results later and Americans want results first and explanation later. Give a precap to the member.
>
> [TL then makes the team perform a small role-play in which one member is a customer and another is the consultant. After hearing the problem the latter summarises it, giving the member a 'precap' on what he had said.]

During floor observations in this company, the researcher witnessed a prolonged argument between an agent and the team leader about overtime work. The consultant was indignant because her name had been removed from the 'OT' (overtime) list. On

questioning, it was found that she and others were keen to put in overtime because they were in close competition with another team to win a large prize. In such competitions, which may last for a week or a month, the accumulating scores of the competing teams are displayed on a large board on the floor, and agents keep track of the scorecards and calculate what target they need to achieve each night in order to beat the competition. So, for instance, at the beginning of the night's shift, they calculate how many calls, sales, etc, each team member needs to complete in order to reach the required target for the night. Those who are falling behind are encouraged and exhorted by others to try harder, or else the more competent agents may work harder or for longer hours to make up the shortfall. They even urge one another to take less break time, or to work overtime (because the more time you spend in your seat, the more calls you can take), in order to bring up the score.[107] In the same company, there was a sign on the inside of the door of the toilet stall in the ladies' restroom that read: *'Hurry Up and Rush Out – Rest of the Floor Is Working Now. Remember, Only the Top 2 % of the Company Will be Sent on that Exciting Trip to Goa'.*

In order to foster identification and bonding within the team, companies attempt to keep team membership constant. Of course, due to attrition, the composition of teams changes frequently, but when new members join a team, leaders and managers make efforts to 'integrate' them. Various team-building activities, such as team outings, picnics, dinners, and so on, are a regular feature of the BPO work culture. While managers and team leaders attempt to motivate employees to participate in these 'voluntary' team activities, very often they are less than enthusiastic and attendance may be poor -- especially because they usually take place on an off day.[108] Although participating in team-building activities is not mandatory, it is usually made clear to workers that failure to participate will not look good at appraisal time. As one worker said:

> They arrange trips on Sundays and make it mandatory. They say that if you don't come you are a bad team player. But only those who want growth in the company care about these things. The rest of us who aren't making a career in the BPO don't care. If they say we are bad team players we say it's ok, not a problem.

Clearly, efforts to incorporate agents into the collectivity of the company or the team are not always successful.

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[107] The fact that the 'contest' is not entirely fair, and is a technique to get them to work harder and longer, appears to be lost on most of the participants. For instance, in this company the flow of calls is centrally controlled, and different agents get calls at different rates depending on their level of competence. Hence if the higher rated agents are on the floor, more calls can be completed for the team. Because the call flow is centrally controlled, the agents have no control over how much work they can do.

[108] One of our researchers attended a team outing to a bowling alley that was held on an off day. Half of the team members did not show up, most of the others came late (because they were sleeping), and the false enthusiasm with which the agents participated in the games revealed the limits of such 'team-building' exercises.

8.4.3 Control over the work process

The technology and organisation of work in call centres has been well described in the burgeoning literature on the 'new workplace'. Call centres in particular have been closely studied by 'critical organisational' theorists, who have highlighted and debated the Taylorist and 'panoptical' modes of control that are employed.[109] Our own and others' observations in BPO companies in India indicate that the same methods of control are in operation here, the main difference being in the nature of training for Indian BPO workers (especially accent and cultural training). This is not surprising, given the fact that this is an outsourcing industry that has emerged to cater to customers located in the developed countries, and the technology and methods of management have been largely imported from there. In this section these technologies of control are not described in detail, but only some of the key points with regard to their impact on the workforce are noted.[110]

Most call centres/ BPOs are open 24 hours a day, seven days a week, throughout the year, which means that workers must work in shifts. While shifts usually cover the entire 24 hours, in most companies the majority of work takes place primarily in the evening and night in order to cater to customers in the West, while day shifts have smaller staff strengths. Most call centres have nine-hour shifts, during which agents work for eight hours and have one half-hour 'lunch' break and two fifteen-minute breaks. Agents usually work five days a week, but the weekly days off are determined by the workload and the shift system – it is rare for a worker to have Saturday/ Sunday off. The number of shifts and shift timings depend on the project: in captive centres there may be just three shifts, whereas in third-party centres there are multiple shifts to cater to different customers, for instance from 2.00 p.m. to 11.00 p.m. for UK customers, and from 8.00 p.m. to 5.00 a.m. for U.S. customers. Companies have different policies regarding assignment of shifts – while in some companies agents remain on the same shift for long periods of time, in others their shift is changed every month or so. Employees usually do not get a choice of shift, although as a reward for good performance they may be allowed to choose their shift for the following month. The captive call centre of a large American company where we carried out extensive research has 1800 people who work on 52 different shifts, and it is only one of nine call centres maintained by this company around the world. Needless to say, the control and coordination of calls, service, and functions within and among these centres and their workers is a complex logistical problem.

The organisation of call centres and other back office operations is almost fully automated and controlled through sophisticated computer systems and telecom networks that tie the workers closely to their machines and to the entire system. Call flow (or flow of other work, such as application forms, in the case of non-voice projects) is controlled through an automatic call distribution (ACD) system. In the case of a company with several centres – such as the American company that we studied – there is a centralised ACD system for the entire company, which routes calls into different centres located

[109] There is a growing critical literature on call centres in various countries, to which the Indian example can be usefully compared. See, for example, Winiecki (2004), van den Broek (2004), Bain and Taylor (2000), Taylor and Bain (2005), Bain, et.al. (2002), and Mulholland (2004).
[110] Control over the labour process in Indian call centres has been well described by Remesh (2004a, 2004b, 2005).

around the world, and also manages the distribution of calls within each centre. We found that the local Indian management had no control over the flow of calls into the centre, and there was frequent discussion and speculation among workers and managers about the changing rate and destinations of call flows. The shift timings and staffing on each shift in each centre are decided based on the normal volume of calls for different days of the week and times of the day. The call flow can be adjusted to cover a temporary shortfall of staff or other problem in a particular centre. Even within a centre, calls are not routed to agents evenly – in this company, the more experienced agents with better ratings receive more calls, while inexperienced agents get fewer. However, the automated system usually ensures that there is a regular flow of calls coming into the workstation of each agent throughout the shift – although sometimes there are idle periods because the volume or pace of incoming calls can never be exactly predicted. The system also decides when agents can take their breaks, as the total volume of calls must be maintained and breaks are accordingly staggered. The computer system informs the agent when it is time for his or her break. The agent must log off from the system at precisely the given minute (or a bit later if s/he is on a call), and log back on after the correct interval of fifteen or thirty minutes. Taking a longer break invites a negative performance mark, as does stopping the flow of calls at times other than scheduled breaks (known as 'going on aux mode', which is supposed to be used only for emergencies, or when requested by the TL). In this company, if an agent goes on 'aux mode' for more than five minutes, s/he is 'knocked off the system' remotely by the workforce management system, is asked to explain his or her behaviour, and may even be given a 'corrective'.

The automated system contains complex tracking tools that continually monitor the flow of calls, the time taken on each call, and other such parameters. These statistics are displayed on the agent's monitor and are accessible to the team leader and other managers, and they are consolidated each week and month in order to evaluate performance. There are basic 'metrics' that are tracked in almost all projects, such as average handling time (AHT) or number of calls handled per shift, while other metrics are specific to projects, such as percentage of sales closed, number of new members registered, number of 'upsells' completed (when the agent sells an additional product), and so on. Of course, calls may be shorter or longer than the specified AHT, but agents are supposed to maintain the given average. Because the computer monitor continually displays the time taken on the last call and the AHT, the agent can adjust his or her performance to achieve the overall target AHT during that shift. In one company, we were told that *all* the agents are supposed to finish under the norm in any one shift. The team leader also monitors this parameter continuously, and if he finds that an agent is taking too much time on calls s/he 'sidejacks' with him or her to help the agent to bring down the AHT. In call centres, AHT is considered to be the most crucial measure of performance because it is directly linked to productivity.

Performance criteria are determined by the contract that the service provider enters into with the client, known as a CLA (client level agreement) or SLA (service level agreement), i.e., they are specific to the project and the customer. Every agent must complete a certain minimum number of calls in a shift in order for the company to keep to the SLA. For instance, if the SLA specifies that 1000 calls should be handled per shift, and there are ten agents, each will have to handle 100 calls. The AHT target is calculated on this basis (eight hours shift divided by 100 calls). The AHT varies from as little as

three minutes for simple functions such as parcel booking for courier companies, to twenty minutes or more for tech support. Depending on the AHT, agents may handle hundreds of calls in a single shift. While there is an average AHT given for everyone, it is also tailored to individual agents, depending on their experience. A newcomer is given time to get accustomed to the process, so may be given a longer AHT target, which is gradually reduced.

In short, the ACD system is not merely a technology to control the distribution of calls and the flow of information between customers and call centre agents: crucially, it is a very effective system of 'panoptical' control that renders the work and performance of each worker completely transparent to management.[111] For instance, if an agent is doing something wrong, s/he is given immediate feedback from the 'coach' or team lead. Problems that require such intervention are known as 'defects' in one of the companies studied. In the case of a 'customer affecting defect', the team leader or trainer interrupts the call and gives immediate feedback and correction, for instance, if the agent has taken down an address wrong. For a 'non-affecting defect', the feedback is given after the shift is over. Apart from direct monitoring of the work process, the ACD provides a mechanism for control over workers through the performance management system, discussed in the following section.

8.4.4 Control over workers: monitoring, performance appraisal, and discipline

In most BPO processes, there are two basic types of performance parameters – quantitative measures (such as AHT, number of calls completed) and quality measures. Targets are fixed for each metric, and the performance of individual workers and of teams is evaluated against these targets. For instance, as discussed above, every project or function has a specified AHT that agents are supposed to meet, and this measure is combined with four or five other quantitative metrics to yield an overall performance rating.

In addition to these quantitative measures, the quality of work performed is tracked and evaluated, and these assessments are fed into the performance appraisal process. In order to monitor quality, TLs, trainers, and officers from the quality department listen in on calls on a regular basis, either directly by 'y-jacking' with the agent (sitting next to him or her and using an additional headset), or remotely, so that the agent is not aware that the calls are being monitored. In one company, we were told that 30 per cent of the calls are being monitored at any point of time. A sample of calls are also regularly recorded to be evaluated later by trainers and quality personnel. Recording of calls enables managers and trainers to play back calls during coaching sessions and point out problems to the agent, and also provides proof of wrongdoing or mistakes when the worker is being given a 'corrective'. Quality measures include parameters such as tone of voice, language (grammar), accent, problem solving, customer satisfaction, etc. Although ratings are given on a point scale, the evaluation is rather subjective: the evaluator must decide whether the call was completed satisfactorily, whether the customer appeared to be satisfied, whether the agent was clear, the accent correct, and so on, and assign scores to

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[111] The extent to which these systems constitute an 'electronic panopticon' has been debated in the literature. See, for instance, Winiecki (2004), van den Broek (2004), and Bain and Taylor (2000).

each parameter. A trainer described the system in her company as very 'system-driven', leaving no scope for subjectivity in ratings, but clearly the judgments made by the evaluators cannot be completely 'objective'. The weightage that is given to different aspects of quality depends on the SLA; for instance, some projects may emphasise accent, whereas others may place a higher value on customer service. Some companies also conduct periodic customer surveys to evaluate the performance of agents. The overall computation of quality is expressed as a percentage. The target for quality performance is fixed according to the SLA or the company's own requirements (in one company, the target was 85 per cent).

All of these metrics are measured on a daily and weekly basis and are computed together, using a complex 'matrix' system, to come up with an overall score for each agent, usually expressed as a consolidated percentage on the two basic parameters (AHT and quality). This monitoring is used to give feedback to agents (usually on a monthly basis) in order to improve their performance. This is the core of the performance appraisal system, which also determines salary and even retention. Good performance is encouraged both through positive reinforcement, such as monetary incentives, and negative measures, including dismissal. Based on the worker's rating, he or she may receive an increment for good performance, be listed as an 'underperformer' and targeted for additional training, or even lose his or her job. Good performance is rewarded with various prizes, awards, and 'incentives', or eventually with promotion. Salaries also include a performance-linked component, which means that the salaries of good performers rise faster than those of average and poor performers. Performance ratings are calculated for teams as well as individuals, and used to distribute awards in the various competitions such as 'team of the month', 'consultant of the month', etc, discussed above.

As in the case of team competitions, performance incentives are designed to foster competition among employers as a means of enhancing productivity. Most companies have a 'Rewards and Recognition' (R & R) department, which is responsible for designing and running the various contests and incentive systems. The emphasis on 'R & R' is based on the HR philosophy that employees work for recognition and respect as much as for money. One of the companies we studied had spent $200,000 on rewards and recognition during the previous year. There are various awards given on a monthly and yearly basis, such as 'best coach', 'best leader', 'best manager', 'consultant of the year', and so on. Prizes include consumer goods such as colour television sets, washing machines and CD players. In one company, the top 2 per cent of performers were rewarded with a Mediterranean cruise. These awards and prizes are distributed at the large annual functions that are held by most BPOs at five-star hotels or other such venues, or during the monthly parties held in the company canteen. Similar lavish systems of 'reward and recognition' are found in most of the BPO companies. As the R & R officer of one company explained: "The aim of R & R is to reward and recognise best performance, or any initiative or valuable contribution made by the consultants to the company. Apart from this, motivating, boosting the morale, and retaining the consultants are major responsibilities". There are different awards, incentives, and contests at the level of the company, the site, the project or department, and the team – which means that there is a good chance for most workers to win a prize or award at some point. The ubiquity of this system is indicated by the fact that the majority of respondents in our survey said that they had won some award or contest in their companies, and its

effectiveness is suggested by the fact that about 40 per cent said that they compete with co-workers for performance ratings or awards. This too is a result of deliberate policies: in one call centre, we were told that they ensure that each employee gets some kind of recognition during his or her first year. In the same company, when any employee completes one year the occasion is celebrated – he or she is presented with roses, sweets, and a certificate in the presence of a representative of the top management, and may even be promoted to the next level.

Apart from ratings that slot workers as 'average', 'good', or 'poor' performers, there are specific requirements that, if not met, may result in dismissal. For instance, in one company that we studied, some metrics have an absolute minimum level of performance to be met, and if the agent falls below that level s/he loses the job. Similarly, on quality measures, agents are given one verbal warning and then three written memos (if they are repeating the same mistake), and if they have not corrected themselves after this, they are dismissed. Companies are particularly harsh in the case of mistakes that impact their revenue. One company has a warning system known as 'triggers', which are given for a defined list of serious mistakes, and if an agent is given more than three 'triggers' in ninety days, s/he is dismissed. For instance, a very serious breach that results in a trigger (if discovered by the manager) is for an agent to disconnect a call before completing it, or to speak rudely to a customer -- even if the caller is being extremely abusive. In the case of abusive or obscene phone calls, agents are required to read out a standard warning to the customer (that they must discontinue this behaviour or they will disconnect) three times, before they are allowed to disconnect. Otherwise disconnecting will result in a 'trigger'.

In one company, we were told that of the total 'separations' (people quitting the company), 22 per cent are 'involuntary' (employees were laid off). While poor performance was cited as the major reason for lay-off, in about half the cases, absenteeism ('willful apathy'), integrity violation, business code violation, inappropriate behaviour (such as shouting at a customers) were other reasons given. In this company, if an agent avoids taking call by hanging up the line, s/he would be fired immediately -- although the management does not always come to know about such cases since not all calls are monitored.

Most BPOs have rather stringent leave policies, and taking leave without prior permission can be grounds for a 'trigger' or even dismissal. These companies must maintain a certain level of staffing on each shift, hence workers not showing up unexpectedly can cause problems. Apart from medical leave, declared holidays, and the usual two days off per week, employees usually are allowed two or three days of casual leave per month, but they are not supposed to avail of this leave without taking prior permission. Several informants complained that they sometimes had difficulty getting their TLs or managers to grant them leave. This was corroborated by a TL, who said that workers are discouraged from taking personal leave because it affects productivity: calls are routed to a team based on a certain number of agents that are supposed to be there, but if they are less the waiting time increases, which adversely affects the team's 'stats'. Even if an agent is sick, s/he must get the consent of the TL or manager 4-6 hours prior to the shift, failing which it is considered 'unscheduled leave', and such unauthorised absence is sufficient reason for termination (Remesh 2004b:15). Also, employees cannot accumulate

personal leave beyond six months, which means that they cannot go on leave for more than eighteen days at a time. Some companies have a system in which workers can accumulate points in their performance ratings by not availing of leave, or for working on public holidays (Singh and Pandey 2005:685).

In one call centre that we studied, apart from vacation and sick leave agents were allowed some days of 'personal absence', which is leave without pay. Interestingly, agents are encouraged to avail of this kind of leave if they want to be absent because it does not affect productivity. According to a TL, productivity is measured simply by number of agents who are on the floor and taking calls, divided by the number who are supposed to be there. If an agent is on PA and so is off the rolls, the productivity can still be 100 per cent, but if someone is on vacation (and so is still on the rolls because s/he is being paid) it may become 90 per cent (9 out of 10 present). This kind of calculation of productivity underscores the element of 'abstract labour' in the operation of call centres.

While clearly there are comprehensive systems in place to control the work process as well as the workers in call centres, we should not assume that workers are in fact totally submissive to the system. While it is difficult to interpret particular acts or statements as evidence of workers 'resistance', some of our interview data suggest that employees do employ subtle strategies to defeat the system, or at least to vent their emotions in a high stress situation, for instance when dealing with an irate or abusive customer. Workers may 'act out' when they plan to quit the job and so are no longer concerned about their ratings or worried about getting fired. One informant said:

> People who have no intention of staying in the job do things that are against the rules. On my last day I took extended breaks, was rude on calls, put on aux and had a blast. Some of them even flick CPUs, headsets and speakers before leaving.

Abusive calls (which are usually anti-Indian and linked to the anti-outsourcing feeling in the U.S.) are particularly galling, and some agents find ways of 'getting back' at the customer for abusing them or insulting Indians:

> I am very patriotic. I would not like to work as a slave to some MNC. It is my duty to bring India forward. When people [customers] talk against India I tell them, 'Excuse me! You have no right to talk like that about my country. Did I say anything like that about yours! I have every right to block your account if you would continue like that'.

Another agent said that if the customer says something against India, he deliberately "screws up" the call. Instances of going on unauthorised leave, especially when the employee intends to leave the job, are also quite common.

The direct methods of control over the work process and the workforce described in this section represent rationalisation of the work process taken to an extreme, through the use of computerised surveillance and monitoring systems. As in the case of software companies, these methods are balanced, in most BPO companies, by the extensive deployment of 'subjective' or 'normative' methods of control, discussed in the following section.

8.4.5 Youth culture in the workplace

The development of subjective forms of organisational control in the 'new workplaces' of the informational economy is described in section 6.1.2. In order to deflect attention away from the monotony of work, the extremely rigid and structured techniques of direct control, and the stress caused by working on night shifts, and also as a retention strategy, BPO companies offer comfortable, 'fun', and even 'hip' working environments. Managers and team leaders are trained to motivate workers, using a range of techniques to create team spirit as well as competitiveness and encouraging workers to increase their productivity through incentives and games. A deliberate attempt is made to foster a friendly social atmosphere in the workplace, in order to create a spirit of camaraderie, despite the competitiveness. The fact that the vast majority of workers are very young adds to what is often described as the 'college-like' atmosphere in call centres. For instance, many BPO companies allow workers to come in casual dress, and one finds many agents dressed in trendy clothes such as jeans and tight tops, sporting the emblems of the new global youth culture such as piercings, tattoos, and coloured hair. At times there is loud rock music blaring over the floor at 3.00 a.m. Although rigid discipline is imposed on the workforce in the ways described above, an illusion of freedom and feeling of 'fun' are sought to be created through such techniques. Companies employ a strategy known as 'illusory empowerment', in which arbitrary rules are made and then allowed to be broken (Remesh 2005). The illusion of freedom and fun is reinforced by the fact that for many call centre workers this is their first job, which has given them not only some financial independence from their families but also a new sense of independence due to the night shifts.

These companies have developed a variety of policies and techniques to make the workplace a friendly and 'fun' place. Some companies even have a position called 'Chief Fun Officer', who is responsible for organising the many activities that are held throughout the year, both in the workplace and outside. For instance, one call centre holds weekly events or competitions such as ethnic dress competitions, and weekend activities such as picnics and other outings. To break the monotony of work, there are events such as 'dressing days' when everyone has to come wearing a certain colour or type of dress. Many holidays, both Indian and foreign, are celebrated with elaborate decorations, rituals and parties.[112] One company had spent 75 lakh on such celebrations during the previous year, and had also organised events such as a beauty pageant, rock shows, a singing competition, and cricket and soccer tournaments. One night when we were observing work on the floor at a call centre, it happened to be Halloween (a 'spooky' American holiday), and someone dressed as the 'Grim Reaper' came through the floors to entertain the workers. These 'fun' activities are usually organised by the R & R department, which also allocates a budget to each manager and team to be spent on team outings, dinners, or gifts. The R&R manager of one company said: "All these activities are required to break the monotony, which is our biggest challenge".

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[112] One of the most common complaints of BPO workers is that they have to work on major Indian festival days and holidays such as Diwali or August 15, while getting irrelevant American holidays such as Thanksgiving off. Companies attempt to assuage their feelings by lavishly celebrating both Indian and foreign festivals and holidays at the workplace.

The effects of these 'soft management' techniques are evident in workers' narratives. When asked to describe the work culture in their companies, survey respondents mentioned positive and negative characteristics almost equally: that it is open and flexible, and that it is rigid and closed. But the large majority said that the social atmosphere is 'friendly', cooperative, and/ or 'informal', and that there is a 'high level of socialising' in the office. The majority also said that they are able to chat with co-workers while they are on the floor, and also that they take part in, and enjoy, the various 'fun activities' organised by their companies. These responses suggest that workers 'buy into' the system to a large extent, although there is also evidence of 'resistance' and a more critical attitude (even cynicism) towards these rather transparent management techniques, especially among more experienced workers.

As a result of all these factors, a new kind of youth subculture has emerged within the BPO industry, which is both consciously fostered by companies as a means of attracting and retaining workers and has in part spontaneously developed due to the nature of the workforce and the work itself. As in schools and colleges, peer pressure plays a central role in the production and reproduction of this youth subculture. A number of informants commented on the fact that many workers completely change their style of dress and behaviour after they start working in a call centre: the girls switch from *salwar-kameez* to jeans and from long plaits to short trendy haircuts, and take up smoking, while boys sport more trendy clothes and start to visit pubs, and so on. Although of course it does not always take place, the fact that this kind of transformation is expected, especially of female workers, points to the nature of the call centre subculture: "Look at that girl. She is so sober. Let her join a call centre and work there for some time. She will explode!! She will begin to sport all glitzy clothes and long earrings. They enter like Gandhis and come out like Hitlers!", said one particularly articulate informant. Those who refuse to adopt this cultural style tend to be ostracised, and because they are not able to develop social relationships at work they may be driven to quit their jobs. A number of informants commented on the importance of being 'accepted' by one's peers while working in a call centre.

8.5 The call centre subculture: lifestyle and worker subjectivity

The emergence of a westernised youth subculture within BPO companies has earned the industry a rather negative reputation among many middle class Indians. There is a general impression that because workers are talking to Americans all the time, they tend to adopt that culture. Call centre workers are said to drink, smoke, take drugs, date, and even have numerous sexual affairs. Newspapers run regular features on call centre lifestyles, including lurid details such as office toilets getting clogged by condoms. While it may be true that the new youth culture in India has been promoted by call centres, this culture is certainly not confined to BPO workers. However, this category of service workers may be able to pursue the new consumerist lifestyle of the urban youth to a greater extent than most others in their age group, due to their higher incomes.

The reputation of call centre workers is only partially substantiated by our data. For instance, only half of the respondents in our survey said that their lifestyles and/or attitudes are different from those of their parents. The differences they mentioned are that

they are more liberal and that they 'live for the present' rather than planning for the future. More felt that they lead a better life than their parents (in contrast to the responses of software engineers), the main differences being that they have 'more money to spend' and 'more opportunities'. A large proportion of respondents also said that their social lives are more satisfying because they are able to interact with different kinds of people, and that they are more 'aware' than their parents. When asked how working in BPO has affected their lives, many mentioned that they spend more money on personal items and on 'partying', but an equal number said they have less time for socialising and friends. A large proportion mentioned that they have become more independent (specifically, financially independent from their parents), while about one-fourth said that they have better social lives or more friends. Most reported that on their days off, they meet friends and colleagues, visit restaurants and pubs, go shopping, watch TV or movies at home, and exercise or play sports.

Although BPO workers have a reputation as fun-loving, profligate consumers who blow up their salaries on drinking, buying fancy cell phones and designer clothes, our limited data on expenditure patterns reveals a more ambiguous picture. The items of expenditure mentioned most frequently were household expenses and personal items/ consumer goods (mentioned equally), while almost the same proportion (65 per cent) mentioned savings. Very few said that entertainment or eating out are major items of expenditure. While these findings tend to debunk the common notion that call centre workers spend their money frivolously, only 15 per cent said that they are supporting their parents, although 71 per cent were living with their families (the balance were in PG accommodation or living with roommates). The consumption data surprisingly show lower levels of expenditure on consumer goods, such as televisions, stereo systems and two wheelers, than the popular image of call centre workers would lead one to expect. The item owned by the largest number (85 per cent) was a mobile phone – again not surprisingly, since mobile phones have come to symbolise the 'new generation' in urban India and is also, for this category of youth, an essential means of keeping in touch with friends. Respondents did indicate a preference for shopping at brand name stores, shopping malls, and large department stores -- although most also said that they are not 'brand conscious'.

Many observers have commented that BPO employees tend to form relationships primarily with office colleagues, due to their odd working hours and other peculiarities of call centre work. When asked who makes up their social circle in Bangalore, the largest number (three-fourths) said 'office colleagues', followed by 'friends from college' and then 'family/ relatives'. As a female worker commented: "Since call centre employees live a life completely different from those in other professions, their social interaction gets confined to people in similar profession". The fact that BPO workers tend to form closed social circles further reinforces the production and reproduction of a specific call centre subculture.

As mentioned above, working in a call centre is considered by many in the conventional middle class to be not quite respectable, and in some cases of workers interviewed, parents and relatives disapproved of their jobs. Half of the survey respondents said that their parents are happy with their jobs and earning power, while almost the same number said that their parents are unhappy about their jobs. An HR manager admitted that parents often object to their children working in call centres because they are not available for

social and family activities, or because of the low status that is attached to the work. Sometime young people from outside of Bangalore join call centres without their parents' knowledge. Female employees in particular have gained 'bad reputations' due to their work:

> When a girl gets a drop at some odd hour in the night, neighbours switch on the lights and gaze at her with shock and make comments … as 75 to 80 per cent of workers come from average middle class families whose values are different from cosmopolitan culture, working at a call centre is not welcome.

Many informants commented that women find it difficult to get married after working in a call centre because they have a reputation for sexual freedom and other 'bad habits'. Even male employees hold this view of their female colleagues: two young men whom we interviewed commented that girls change (for the worse) when they join call centres, in their way of dressing and behaving, such as taking up smoking and drinking, colouring their hair, etc. Both said that they would not marry a call centre girl, although they had no objection to dating them. Another informant said: "My father told me to be careful of girls at work. You can see so many girls smoking. So sometimes the guys feel that the girls here are too smart for them, and don't want to date them". Although there may be more social freedom between men and women in these workplaces than in many other contexts in India, this does not mean that all BPO employees have such liberal attitudes: 39 per cent of respondents said they would prefer to have an arranged marriage, against 42 per cent who prefer love marriage; and only 30 per cent were dating at the time of the interview.

The experience of working in a global call centre, talking to foreign customers eight hours a day, together with the way in which call centre work is constructed in the media and popular imagination, has a profound effect on the subjectivity of workers – even those who do not remain for long in the job. While there is no space to explore this issue in detail here, the impact may not be as straightforward as is often assumed. In popular perception, ITES workers face an identity crisis because they have to be 'American' or 'British' at work but are still Indian in the rest of their lives. However, it could be argued that most workers negotiate these roles very easily, performing a 'code switch' as they put on the required accent while on the phone because it is part of the job, and switching to the vernacular or Indian English when not on calls. Apart from the false accent and identity, what probably has a more profound impact on workers is the emotional labour that they are required to perform, which can be extremely stressful. As noted above, while emotional labour and associated stress are a normal part of such service jobs, in Indian call centres the emotional stress of the work is augmented by the fact that they face racial and other types of abuse from customers due to anti-outsourcing sentiment, especially in the U.S. Added to these factors is the negative reputation of call centre work, and the feeling among many employees that they are over-qualified for their jobs:

> Initially I felt so ashamed that I worked in a call centre that I used to tell people that I'm working for an internet service provider without mentioning any details. I feel this job is meant for those who cannot do anything else in life. College dropouts or simple graduates can work here. It is stagnating and you feel stuck. It's only money that drives people to join call centres.

Negative attitudes of family members and the larger community may add to low self-esteem. To counteract parents' resistance and fears, many BPO companies have 'open house' days when family members are invited to the workplace. However, these visits do not always have the intended effect. The father of a call centre work recounted his experience in this way:

> The building is good, the facilities given to employees are nice. But I never felt it was India. I could not see India there. 10 per cent, maybe 25 per cent is Indian, 75 per cent is American. People were moving around frantically … The way ladies were behaving …The party mood was not similar to festival mood in Karnataka. What dance, what jumping, what cigarette smoking … Abbabba! But I am happy that my son's feet are firmly rooted in Indian culture.

The new lifestyle adopted by many call centre employees has created inter-generational differences and conflicts to a greater degree than in the case of software engineers. This parent was worried about not only the future of his son but also of Indian culture:

> Many countries attacked Indian culture several times in the past. But our culture didn't change. But if the entire generation undergoes a cultural change, what will happen to our culture? Their way of life is more towards foreign culture. The music they listen to is western. If this goes on, will not our culture get washed away?

The fact that call centre workers often have to assume false names and accents has given rise to this fear of cultural imperialism, and it is indeed the case that the BPO industry has produced a new kind of globalised or hybrid youth culture that has significant continuities with other cultural trends in metropolitan cities such as Bangalore, such as MTV, KFC, and FM radio (McMillin 2006:236). Yet this argument is clearly too simple, and the apparent cultural transformation that workers undergo may be at once more superficial than is commonly assumed and also have more complex sources. Rather than understanding the BPO phenomenon as representing a straightforward 'cultural invasion' by the West, it must be situated within the political economy of outsourcing, which has produced a new kind of labour force that is managed (like the IT workforce) through culture as much as through computerised surveillance systems.

The call centre subculture has become an important element in the new globalised youth culture that is emerging in large cities in India such as Bangalore and Delhi. While the ITES industry is of course not the only location for the production of this culture, it can be seen as one of its major sources, due to the deliberately young and urban middle class profile of the workforce, the relatively high salaries, and HR practices that emphasise 'fun' and social bonding in the workplace. New consumption patterns are promoted by enhanced spending power as well as by incentive systems that offer consumer goods as rewards for performance. The fact that the work in BPO companies is inherently low-end and monotonous as well as highly stressful seems to further promote the 'cultural' aspect of management and control, as managements search for ways to retain and motivate their

workforces. But like any system of cultural control or domination, there is always scope for agency, resistance, and critique by workers.[113]

The BPO industry is well aware that its dependence on a rather 'flighty' youth workforce has created an unstable situation. BPO 'HR Summits' sponsored by NASSCOM and frequent discussions on HR and manpower issues in other such forums indicate that the creation and growth of a stable workforce is a major concern of an industry that is projected to grow at a rapid pace over the next few years. In view of the rapid turnover in the workforce, the quickly changing global economic scenario, and the mobility of capital in the global economy, it remains to be seen whether ITES is a sustainable industry that will generate substantial new employment opportunities, as has been projected by the industry and the state. But apart from the question of sustainability and employment levels, one also needs to ask what kinds of jobs are being created in this sector, and what is the long-term impact of this kind of work and employment on the educated youth who make up the workforce.

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[113] See McMillin (2006) for a discussion of cultural transformation, identity, and labour in Bangalore call centres.

9. CONCLUSION

The results of this study, presented in the preceding chapters, point to several larger sociological as well as policy-related issues. These are outlined briefly in this concluding chapter.

9.1 Globalisation as development

First, the study raises questions about the nature and direction of development in India in the post-liberalisation era. The success of the IT industry has created a new global image for India, and as a result it has come to be regarded by many business leaders, international agencies, as well some of the political elite, as a model for India's growth and development that can be emulated in other sectors.[114] Emerging from a background in which the ability of any Indian industry to gain a global presence was unimaginable, it is to the credit of the IT industry that a positive public image, a collective sense of achievement, and a new-found confidence have been generated in the nation. However, the euphoria about the achievements of the software and services outsourcing industry tends to ignore its specific location and role within the global informational economy, as an export-oriented industry that is highly dependent on global economic developments and trends. Due to its concentration on outsourced and offshore software and IT-enabled services, the Indian IT industry has developed largely as an enclave, one that is closely linked to the global economy but has few substantial connections to local, regional, and national economies.

The counter-argument that is frequently and vociferously put forth by leaders of the IT industry, is that the growth of the industry has had a multiplier effect that is largely accountable for the recent boom in the economy. While there is no doubt that the IT sector has played a substantial role in the current rapid expansion of the urban economy, especially in metropolises such as Bangalore, due to its linkages with the real estate, construction, consumer goods, automobile, and telecommunications sectors, this kind of disarticulated development can nonetheless be questioned. That is, what are the outcomes and implications of globalisation-led development in a context where other sectors and infrastructure such as agriculture, education, health, and public housing remain inadequate and problematic? Raising such questions is not to place the onus on the IT industry and its leaders to solve all of the nation's problems, or to castigate them for the limitations or problems in other sectors. Rather, the caution is for public discourse and policy not to rely excessively on the IT industry as a way out of the current conditions of underdevelopment.

Moreover, the lionisation of IT as the leading edge of India's economic development is based on a conventional and narrow notion of development measured by GNP, economic growth rates, and the like. The IT industry no doubt has generated significant export earnings, substantial revenues for individual companies, as well some amount of

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[114] Excessive reliance on IT as the leader of India's future growth has been questioned by management experts as well as academics. For instance, NASSCOM's rosy prediction that the software and services industry will account for 7.7 per cent of the country's gross domestic product (GDP) by 2008 is highly questionable.

employment (primarily for the educated middle classes) -- but the wider social and economic impact and implications of this kind of globalisation-led growth need to be assessed more critically and dispassionately than what most media and business reports have offered. For instance, Chandrasekhar (2005b) argues that the IT industry is an enclave from the point of view of employment as well as economic growth. Even with one million workers,

> … the number of workers in software and IT services amount to just one quarter of one per cent of all workers in India as per the 2001 Census, or one-third of one per cent of all main workers in 2001 or two-thirds of one per cent of all workers outside agriculture and household industry. This suggests that a sector whose presence in terms of its contribution to GDP and its contribution to India's currently comfortable balance of payments position is indeed substantial, cannot make much of a direct difference to a substantial section of India's population. Hence an excessive dependence on this sector for growth at the margin may be inequalising, unless players in the industry make a substantial contribution to the state's tax revenues that can sustain expenditures on employment generation and social provision (Chandrasekhar 2005b).

Growth, as our best global academic, Amartya Sen, has consistently argued, must be qualified and accompanied by all-round social development and welfare of the public at large. What this model of development should be, and how it can be achieved, should go beyond the simple celebration of IT as the flagship economy of a new, globally powerful India.

While our study does not contribute directly to the economic debate about the impact of IT on India's economic development, its findings do throw light on other relevant questions, such as the kinds of jobs and work that are being created in this industry; the changing nature of work and employment in the 'new economy', and their impact on individual employees and their families; the processes through which a new 'knowledge workforce' is being forged and their wider social implications; and the cultural transformations that have been introduced by this global industry and by globalisation in general.

9.1.1 The political economy of the IT industry: state and capital

Related to the question of the globalisation-led model of development represented by the IT industry, is another crucial issue – that of the changing relationship between the state and private capital in the post-liberalisation era. Leaders of the IT industry often point to the growth of this sector as evidence that a more liberal regulatory regime can foster economic development, and they argue strongly against the imposition of unnecessary regulations (especially labour laws) on the industry. This position is in line with recent trends towards the loosening of labour laws and regulations in India; the gradual erosion of many of the regulatory, economic, and social security functions that the state performed under the Nehruvian dispensation; and the steady demise of the public sector and rise of private enterprise as the major source of economic growth. The neoliberal demand for less 'interference' by the government in the economy is also linked to the requirements of the new global economy for flexibility and mobility of both capital and labour. But while the government has imposed only a minimum of regulation on the IT

industry, pursuing a 'hands-off' policy with regard to labour laws and the like, it has also facilitated its growth through a variety of tax breaks, fiscal incentives, and other favourable policies. The close cooperation between the state and private sector in policy formulation that is seen in the IT sector suggests that a new relationship between state and capital (and especially global capital) is being forged – a surmise that is supported by the close connection between some sections of the political elite and the IT industry in Karnataka. Parthasarathy (2005) refers to this trend as the 'embedding' of the Indian state in private capital, but in the case of the IT industry it is clearly not only Indian private capital but also global capital, in various forms, that has become very influential on state policy. If this is the model for India's future development path, it needs to be asked whether allowing business interests – whether Indian or global -- to drive policy formulation and political decision-making in areas such as education and infrastructure development will yield development policies and programmes that are in the interests of the country as a whole. This question underlies two other issues that have been highlighted by this study – the problem of private sector employment and social equality, and the influence of the IT industry on education policy.

9.2 The IT industry and the reproduction of social inequalities

The advent of a global industry that has brought with it new forms of employment and rising income levels, together with social and political tensions in the 'IT capital' Bangalore and in Karnataka, has raised questions about its impact on existing structures of social inequality.

9.2.1 Exclusion and positive discrimination

Our analysis of the processes of exclusion and inclusion that operate in the formation of the IT workforce suggests that the kinds of employment opportunities provided by the industry tend to build on existing class divisions rather than absorbing a broader cross-section of the population into the technical-professional workforce. Because the industry requires workers who possess a certain kind of cultural capital as well as technical skills, it tends to draw primarily from the educated urban middle classes, and within these, especially from those who have attended elite educational institutions. Given the nature of caste/class structures and the urban/rural divide in India, this means that the vast majority of lower caste, working class, and rural people cannot be absorbed by the IT industry. As discussed in detail in Chapter 4, this process of exclusion is not deliberately designed or pursued by the IT industry, yet it needs to be recognised that the use of supposedly neutral, job-related criteria for selection (the 'merit only' position) operates as an exclusionary mechanism because the cultural and social capital required by IT companies (as indeed by most white collar, managerial, and professional jobs in the private sector) is not evenly distributed throughout society. The IT industry insists that it must be left free to recruit only the best workers if it is to maintain its competitive edge in the global market, and for this reason it has consistently opposed the idea of job reservations in the private sector. However, some companies and industry spokespersons have acknowledged that the private sector must bear some responsibility for social justice and for creating greater opportunities for a wider cross-section of the population, and the idea of evolving a voluntary affirmative action programme has found favour in some quarters. But barring only one or two, till date most companies have not taken substantial steps in

this direction. This is a central issue for debate and policy formulation, either by the state or as a voluntary initiative by industry.

9.2.2 Urban dualism and digital divide

The high salaries offered by IT companies have contributed to the emergence of new forms of social differentiation, based on the growing 'urban dualism' seen in major centres of the industry such as Bangalore, where there is an increasingly sharp and visible social and economic divide between those who work in the IT industry and those who do not. While the IT industry has generated downstream economic effects through the growth of ancillary service industries, the differentiation between IT workers and others is apparent and has generated social tensions. This is a trend that has been noted in the West as well, where the new informational economy has given rise to polarised labour markets, in which there are sharp differences between a segment of highly skilled and well-paid workers and those who are less skilled and work under insecure employment conditions. This pattern of 'urban dualism' is exacerbated in the Indian context, where a large proportion of workers remain outside the organised sector itself, leave aside the high-tech globalised 'informational economy'.

The global or transnational nature of the IT/ITES industry -- the fact that its workers are engaged in 'virtual' work with customers located in the developed countries and also travel abroad frequently – has created another form of dualism, in which this sector is more closely connected with the global economy than with the local/ regional economies of the places where it is located.[115] The exclusion of a substantial section of the population from the benefits of IT's highly visible success has created resentment and political resistance in some quarters. In Bangalore, more than in other Indian cities, the IT industry is never far from the political agenda or from political controversies, in part due to the widespread perception that the IT industry has not benefited the rural masses or the majority of the urban population, but is only enriching a few educated and technical elites and foreign companies.

9.2.3 The knowledge workforce and the education system

In the context of the debate on exclusion, social inequality, and job reservations, IT industry leaders often shift the responsibility on to the government for creating a 'substandard workforce', especially by not providing English medium and high quality primary education to all students. Because the vast majority of students are not

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[115] The counter-argument that IT companies generate economic growth and employment by making use of local services, labour, and so on, does not obviate the fact that their primary economic relationships are with their customers and parent companies in the West. The weakness of local economic development generated by the IT industry is indicated by the fact that there is no real 'ecosystem' within the industry in the premier IT city of Bangalore. Unlike the Silicon Valley model of development based on a dense network of economic relationships among firms, and between IT firms and other institutions, such networks are very weak or non-existent in Bangalore, while successful IT entrepreneurs have significant *transnational* networks (Upadhya n.d.[a]). Moreover, given the nature of a business that trades in 'intangibles', it is difficult to trace the cross-border flows of capital that sustain the IT industry, nor its overall contribution to the creation of wealth within the country (Upadhya 2005).

sufficiently qualified, IT companies argue that they have no choice but to hire from a limited pool of candidates. There have been several initiatives floated by IT companies, and/or the charitable foundations or NGOs sponsored by them, to improve the quality of primary education in government schools, especially by introducing English and computer literacy in the lower classes. At the other end of the education system, the IT industry and individual companies have made efforts to reorient engineering courses to cater to their specific needs and to improve the quality of graduates, in 'soft skills' as well as technical and IT-related knowledge. While the government has welcomed inputs from the private sector and NGOs in developing and implementing new education policies and programmes, in the absence of a comprehensive policy and agenda for education that is oriented to the needs of students and to the larger goals of social development, it needs to be asked whether this kind of intervention from the private sector is socially desirable. Experts have also questioned whether the objective of engineering education should be to produce more software engineers for the IT sector, and that of primary education to prepare children to become 'knowledge workers' in this narrow sense – or whether broader social objectives should be given priority. IT companies and their sponsored NGOs represent their efforts in the field of education as evidence of their 'corporate social responsibility', and argue that they can continue to expand and provide more jobs only if the education system is improved -- but it is clear that their primary objective is to create a larger body of trained 'knowledge workers', who after all are the primary 'resource' for this industry.

The mismatch between the education and training that is imparted by engineering and IT-related courses, and the employment requirements in the IT industry, is frequently highlighted by NASSCOM and industry leaders. The findings of this study corroborate this view, but our perspective on this issue is somewhat different. Many software engineers and BPO workers feel that they are overqualified for their jobs, that they are not using their education and training in their work to a significant degree, and that because they are stuck in low-end routine work they have little scope to develop their creativity or knowledge. Because the IT industry has developed on the basis of outsourcing, it prefers to hire engineering graduates in order to signal to customers that it has a well-qualified workforce; but the result of this strategy is a high level of job dissatisfaction, high attrition rates, as well as the opportunity costs incurred by the siphoning off of engineering and technical talent from other industries and fields into IT. Our study indicates that many software engineers (and most BPO employees) do not join the industry because of an inherent interest in the work, but for the monetary rewards or due to availability of jobs. So the problem is not to reorient engineering and college courses to meet the needs of the IT industry, but rather to develop mechanisms to ensure a closer correspondence between individuals' talents, interests, and training, and their occupations or professions. Of course, as long as the salary differential between IT and other industries remains substantial, there will always be students who are attracted to the industry despite an interest in other fields. But there may be some scope for IT companies to enhance job satisfaction (and stem attrition) by providing more opportunities for learning and offering more challenging work.

9.3 Work and employment relations in a global industry

Another set of questions about the impact of the Indian IT industry on development concerns the nature of the work and employment opportunities that have been created, and their wider social implications. These questions are not new, but have been raised repeatedly in other places and during other phases of globalisation, as global capital has flowed into developing countries to tap into cheap labour markets and/or sources of raw materials. The more recent phase of this debate centres on the question of whether the spread of new ICTs, and the emergence of 'knowledge industries', are providing new opportunities for marginalised sections of the population and promoting greater equality, or only reinforcing existing inequalities (including on the basis of gender). The economic outcomes of ICT-based development are largely dependent on the position of a country or industry in the global division of labour. India, although it has become a significant 'global player', remains at the low end of the software services market -- a position that has only been enhanced by the recent emphasis on business process outsourcing. This has had profound implications for the nature of the workforce and the structure of labour markets.

Several salient features of employment relations and work in the IT industry have been identified in this study, which can be encapsulated in the terms 'individualisation', 'flexibilisation', and mobility. These processes are inter-related and are also linked to wider economic transformations that are taking place. First, India's shift from a relatively closed, state-controlled economy to a more liberalised regime, and its increasing integration with the global economy, have led to a deterioration in the level of employment security that was available when public sector and government jobs dominated the organised sector. Although average incomes have risen for a substantial proportion of the middle class, the earlier social contract between the state and the middle classes is breaking down. Under the pre-liberalisation regime, even private sector companies had a fairly firm commitment to lifetime employment (partly ensured by labour laws and their enforcement by unions), but security of employment has declined with increased competition due to globalisation and the progressive dismantling of protective legislation for labour and of controls on capital flows. 'Traditional' Indian work culture in 'old economy' companies was characterised by hierarchical relationships, but the flip side of hierarchy was paternalism, which provided some level of protection for workers. In place of this, a new culture of competitive individualism has entered private sector workplaces.

This shift is most visible in the IT sector, with its flexible labour market, individualistic labour relations, mobile and flexible workforce, and 'new workplace' HR policies that emphasise individual achievement, self-motivation and competition. The high attrition rates bemoaned by HR managers are primarily a surface manifestation of the deeper structural changes in the labour market and employment relations towards a regime of flexible labour. A central feature of individualisation is the fact that employees do not have a collective identity as workers or as employees, nor do they collectively negotiate with management on common issues. Because of job insecurity, software engineers and other IT employees are constrained to become 'entrepreneurial workers' who fashion their own careers through strategies such as job-hopping, self-improvement courses, and

constant online and on-the-job learning. Under the new dispensation, workers are responsible for their own job security by continually re-outfitting themselves to suit the job market. The 'new age' work culture that has been introduced into the IT industry has further promoted this process of individualisation, through its emphasis on autonomy, self-motivation, and achievement-orientation.

The increasing flexibilisation of labour is also apparent in the emergence of a variety of temporary and contract employment arrangements, the importance of labour market intermediaries, and other employment practices of software companies such as maintaining a proportion of employees on the 'bench', and regularly 'churning' the workforce through the performance appraisal process. This tendency is even more apparent in the ITES sector, which appears to have created the ultimate flexible workforce -- one that is not only malleable due to the youth and inexperience of the majority of workers, and unorganised due to the transient nature of employment, but which is also totally dispensable, as existing workers are replaced by new ones every year or two.

Finally, the outsourcing industry has produced not only a new 'knowledge workforce' but also new forms of labour mobility, as Indian software engineers circulate across borders to execute projects but also become 'virtual migrants' through online work within virtual teams. This has given rise to specific and unique systems of control over labour and the labour process.

9.4 Work culture and control over the work process

In the new global workplaces that have emerged within the software services outsourcing and business process outsourcing industries, the forms of work, the nature of employment relations, the labour market, and the cultures of work are all substantially different from those found in the 'old economy' – although there are also significant continuities. The dominant management ideology in the IT industry, which extols flat structures, lack of bureaucracy, networked organisation, and employee empowerment, caters to the demand for flexible, mobile, and self-motivated workers. These new organisational forms have been imported into the outsourced economy in India, but in the process they have been transformed due to the compulsions of outsourcing and the offshore model, with specific outcomes for the nature of work and for workers.

While the ideology of management in the new workplace stresses worker autonomy and self-management, new forms of direct or 'panoptical' control over the work process have emerged in the software services industry. This development is linked to the rationalisation of the work process in large software projects through the use of modular programming techniques, 'global service delivery' models, and the application of international quality processes. From the company perspective, the rationalisation of software work increases efficiency and productivity through continual monitoring of the work process and use of employees' time. But from the individual software engineer's point of view, the process-driven nature of IT work reduces the scope for individual initiative and creativity. Overall, rationalisation of the work process appears to lead to the deskilling of workers and routinisation of work, apart from imposing rigid controls and structures that contradict the articulated management ideology of employee

empowerment. The introduction of process-driven management systems in software companies is a direct outcome of the outsourcing relationship, which compels service providers to compete for customers on the basis of perceived quality (and low cost). In order to soften the routinisation created by 'process orientation', which often gives rise to resentment, these companies also employ 'normative' or subjective management techniques. These techniques, based on theories of corporate culture and teamwork, are designed to create a sense of belonging and camaraderie among employees, as well as an illusion of empowerment, and to motivate them to put in extra effort and time. This combination of direct and indirect systems of organisational control allows companies to maximise productivity, but it also contains a contradiction: employees are expected to transform themselves into individualised, self-managed and self-directed 'entrepreneurial' workers, even while they must also perform within a tightly controlled and impersonal management system that tracks their every move and moment.

The blending of 'panoptical' or Taylorist systems of control over the work process with subjective techniques is most evident in the business process outsourcing industry. The attractive working environment of call centres, with their 'hip' managers and continuous fun activities on the floor, effectively mask the closely regulated and monitored nature of work. The factory-like, computer-controlled system not only manages the call flow and the entire work process, but also monitors and records the use of each minute by employees. These panoptical systems of control allow management to continually rate employee performance and thereby extract ever higher levels of productivity, creating 'cyborg' workers who are completely welded to their workstations. On the surface, the nature of work and the profile of the workforce are very different in IT and ITES, giving rise to different employment issues, yet there are some commonalities -- especially the ideology of 'fun' at work, the strategy of 'illusory empowerment', and the combination of techniques of normative control in tandem with more direct methods of worker regulation.

Another distinctive feature of work culture in the Indian software outsourcing and ITES industries is the deployment of *culture* itself as a management tool and as a mechanism of control over labour. Culture operates at several levels – in the form of deliberately manufactured corporate cultures through which employees supposed to be incorporated into the collectivity, imbued with corporate values, and oriented to the corporate 'mission'; in the techniques and theories of 'cross-cultural' management that are deployed to manage and coordinate culturally diverse and virtual teams; and in the 'cultural sensitivity' training programmes that aim to teach Indian software engineers and BPO workers to communicate and interact effectively with non-Indian customers and colleagues. In these new global workplaces, national cultures are being redefined and leveraged in specific ways, for instance through the stereotyping of the 'Indian techie' in terms of particular work habits. Even while they are labelled and slotted as 'Indian software engineers' with specific characteristics within the global software labour market, employees are trained and urged to adapt to a singular model of 'global corporate culture' that dominates the space in which they operate. They are asked to be at once 'global' in some respects, such as communication style, but are also assigned 'Indian' characteristics on other counts. Both the 'Indian' and the 'global' are defined through management discourses and strategies. The transnational or global nature of work in these industries, along with the deliberate deployment of cultural strategies of control by companies, have

implications for the production and reconstitution of the social identities and subjectivities of workers.

9.5 The reconstitution of sociality, subjectivity and identity

This study of workers in the IT and ITES industries points to the diverse transformations that have been set in motion by globalisation, not only in work and the workplace, but also in culture, sociality, and subjectivity.

First, as already noted, the process of individualisation, that has been identified as a key feature of workers and work in the 'new economy of the West, is also seen in the IT industry in India. Workers are required to be flexible and mobile, and also continually reinvent themselves in order to compete in the job market. But career planning and life planning presuppose a fairly stable economy and job market -- features that are absent in the IT industry and in the global economy generally, due to the high rate of mobility of capital and labour. In this context, software professionals and BPO workers cannot predict what kinds of jobs will be available in ten years, or where they might be – even though they may plan a particular career path in management or as a technical expert. In this context, as in the post-industrial societies of the West, the management of risk becomes a central cultural concern. Uncertainty feeds into the sense of restlessness and the dream of another career that is so common -- a chance to do what one really wants to do, some day.

Second, in the new economy, workers are required not only to plan and manage their own careers as *individuals,* but also to plan and manage their lives in the same way. Soft skills training programmes offered by companies in time management, self-actualisation, personality development, assertiveness training, emotional intelligence, and communication skills are aimed at producing self-managing and autonomous workers who are also self-directed, goal-oriented, and autonomous individuals. Providers of psychological counselling and spiritual training become guides in this process of creating a self-disciplined subject.

Third, globalisation, viewed through the lens of IT, appear to be producing somewhat contradictory cultural effects: on the one hand, new forms of modernity are emerging (for instance, the process of individualisation discussed above), while on the other a process of reaffirmation of 'tradition' appears to be working as IT workers rediscover their own 'Indian culture' through the medium of cross-cultural training programmes (which dichotomise India and the West), exposure to other cultures in the workplace, or even through the sense of nostalgia that is associated with the dramatic shifts in their lives. In this context, Indian culture has been redefined in specific, rather simplistic ways, for instance in terms of 'family values' – yet most IT professionals who espouse devotion to family are unable to fulfil what they regard as their social obligations. A sense of loss and nostalgia for an earlier form of sociality, dense with networks of family, kin and friends, pervades the self-reflective narratives of IT workers and points to a real shift in the nature of sociality in this class. While the 'joint family' is being reconstituted as a child care provider for busy working couples, the content of family and gender relations within the family has been substantially altered, giving rise to inter-generational tensions and other kinds of conflicts. For instance, the apparent 'emancipation' of women working in the IT

industry has not been matched, in most cases, by liberation in the domestic sphere. Rather, the hectic lifestyle of IT professionals tends to reinforce traditional gender equations as one spouse (always the woman) is constrained to stay home and cover for the absence of the other. Thus, a new form of social conservatism is emerging within this group of global professionals, in spite of their claims to being more 'liberal', 'aware', and 'tolerant' than their own parents. The peculiar blend of international 'exposure', high incomes, and time-challenged lives appears to have the effect of consolidating 'traditional middle class values', albeit within the new consumerist culture.

Fourth, identity within this group of upwardly mobile 'global' professionals is moulded in part by a new discourse about Indian culture and tradition that is circulating within the global cultural economy. This discourse contains several strands: India as an ancient land with a long tradition of science and mathematics, which is invoked to explain its current prowess in the field of IT; India as a rising economic power that will soon overtake the West (along with China), once it is freed from the vestigial shackles of the planned economy; Indian society as a happy mixture of tradition (adherence to family values and spirituality, to 'Indian culture' itself) and modernity (opening to the world, leading in the development of new technologies); and the new global professional as embodiment of this successful negotiation between the different worlds of the global workplace and home, the customer in the West and the boss in India.[116] But these celebratory narratives about IT that circulate among IT elites, the media, and certain public intellectuals are at odds with those of many individual IT professionals, who are struggling to make sense of the contradictions they face in forming a stable sense of identity in an unstable and rapidly changing world. Indian IT workers, more than most other social groups, are at the 'cutting edge' of globalisation; but their location and movement within different circuits of economic and cultural flows, and their interstitial position between India and the new global economy, has given rise to new but still inchoate subjectivities, orientations, and dilemmas.

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[116] Note the long-running employment advertisement of a leading software company that contains pictures of named employees captioned with the slogan, 'The Face of the New India'.

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APPENDIX 1. RESEARCH METHODS

The primary field site for the research was Bangalore, but fieldwork was also carried out in three countries of Europe (The Netherlands, Germany and Belgium), in order to compare the working conditions and lives of IT professionals abroad and in India and to capture a sample of those who are working abroad on short-term contracts. Bangalore was selected as the field site in India because it is considered to be the most important centre of IT activity in the country. Because several European multinationals have set up software development centres in Bangalore, it was possible to locate software professionals who have worked in both places, providing richer comparative data.

The project period ran from November 2003 to March 2006, and the field research was carried out in Bangalore over a period of 18 months (January 2004 to June 2005) and in Europe for a total period of four months (May-June and September-October 2004).

The research strategy was primarily qualitative and was aimed at producing in-depth knowledge about the topics investigated. A small survey of IT and ITES employees was also carried out to generate some amount of quantitative data. A mix of ethnographic and sociological methods was used, including a questionnaire-based survey, in-depth interviews, group discussions, participant-observation, and documentary research. The phases of the research are described below.

A. Bangalore fieldwork

1) Collection of secondary and primary literature and documentation.
2) Interviews with HR and other managers in several IT firms in Bangalore, and with key persons connected with the IT industry, to gain a basic understanding of the employment structure of the industry.
3) Construction of sample of IT and ITES companies in Bangalore for the survey, based on available data (to provide a cross-section in terms of type and size of firm), and contact made with prospective sample companies. Target sample size was 25 software and five ITES companies, but the actual number that were covered in the survey finally was fifteen and three, respectively, due to difficulties in persuading companies to participate in the study.
4) Initial interviews with CEOs and HR managers in the selected firms to collect background information about the companies and their workforces, to elicit management views about software and BPO workers, and to understand the employment structure and categories of work.
5) Based on this information, a stratified random sample of employees was drawn from each company, who were requested to grant interviews. The sample was stratified according to employment categories and to reflect the demographics of the workforce in terms of age, gender and years of experience. The target sample size was 15 per cent for smaller firms, and 5-10 per cent for larger ones, or at least 50 respondents from the very large companies. However, in most cases we could not achieve the desired sample size.
6) Structured interviews were conducted with the selected sample of IT and ITES employees professionals, using a questionnaire, in which information on social background, education, employment history, experiences of work, social attitudes,

etc, was collected. The questionnaire was pre-tested on a small sample of respondents and revised several times before being finalised.

7) Using these initial contacts with employees, their own social networks, and 'snowballing' technique, the researchers contacted an additional sample of IT employees in Bangalore and carried out informal and in-depth interviews with them, in some cases in repeated sessions, at their homes or at other locations away from the workplace. These interviews focused not only on work experiences but also on family life, social attitudes, identity, lifestyle, etc, in order to understand cultural changes within this group. Written confidential narratives and journals were collected from several informants. While the target sample size was 30, we contacted a much larger number of respondents (about 150) through this method.

8) From this initial sample, each researcher identified eight to ten respondents who were willing to act as key informants. They along with their family members were interviewed several times at intervals during the research period in order to provide some longitudinal data. These interview notes form the basis for about 25 family case studies.

9) The researchers also carried out participant-observation at places where software professionals and ITES workers gather formally and informally, such as professional association meetings, clubs, pubs, gyms, and spiritual centres, in order to gather ethnographic data on lifestyles and cultural orientations.

10) Interviews with key persons, including industry spokespersons, government officials, employment consultants, journalists, market researchers, officers of professional associations, 'headhunters', managers of software and call centre training institutes, real estate agents, and owners of retail stores and places of leisure, to collect additional information on the industry, the culture of software professionals, and their impact on the city.

11) Collection of documents, media clippings and internet files to form a database on the IT industry, IT professionals, and relevant public policies.

12) Monitoring of internet discussion groups, newsletters, and trade journals to collect additional data on the culture of the profession.

13) Analysis of quantitative data using suitable statistical methods, and analysis of qualitative, ethnographic, and documentary data using appropriate software.

B. Netherlands fieldwork

In the Netherlands component, methods similar to those outlined above were used, in a truncated form, covering a sample of IT professionals employed in different types of companies, including both temporary (contract and onsite) and permanent workers.

APPENDIX 2. PROJECT DATABASE

I.   Research in software companies, Bangalore

A.   Participating companies*

Large Indian companies:	2
Medium Indian companies	2
MNC software development centers	5
Small companies (Indian and cross-border):	6

B.   Interview notes

Interviews with CEOs, top executives :	24 (from 18 companies)
Interviews with HR managers, executives :	36 (from 16 companies)
Interviews with other managers:	9 (from 5 companies)
Structured employee interviews:	132 (from 15 companies)

C.   Observations

Number of companies :	7
Training programmes:	25
Company, team events, etc:	7
Activities on the floor, meetings, etc	20 days

II.   Research in ITES companies, Bangalore

A.   Participating companies:*

Third party companies (Indian):	2
Captive centres (MNC):	1

B.   Interview notes

Interviews with senior managers:	2 (from 2 companies)
Interviews with HR managers, trainers:	24 (from 7 companies)
Structured employee interviews:	34 (from 6 companies)

C.   Observations

Number of companies :	2
Training programmes:	6 days
Company, team events:	2
On the floor, meetings, etc	8 days

Participating companies – those in which the complete round of management, HR, and employee interviews were carried out.

III. **Interviews with key persons, others (Bangalore)**

Employment consultants, headhunters	8
Soft skills trainers and consultants	9
Doctors, psychologists, lawyers, etc	8
Ancillary service providers	1
Government officials	3
Association representatives	4
Management, faculty and students of engineering colleges, computer training institutes	12
Other	1
Total interviews	46
Observations of industry and other events	7

IV. **Informal interviews and interactions with employees and families, including followup and repeated interviews (Bangalore)**

Software professionals :	165 (approximately)
ITES employees:	16
Confidential narratives:	10 notes/ journal entries from 3 informants

V. **European fieldwork**

Interviews with Indian and European software engineers and managers:
Netherlands: 52
Belgium, Germany: 28

VI. **Film archive**

Footage and observation notes from film shooting in three companies have been archived.

VII. **Media archive**

Newspaper cuttings, web pages, downloaded articles, company reports, NASSCOM reports, and other documents on IT industry, IT workforce, Bangalore, and related topics have been collected and archived.

APPENDIX 3. RESEARCH OUTPUTS

The outputs of the research project include the following:

- Final Project Report submitted to IDPAD and circulated to participating individuals and companies and other interested persons;
- IDPAD Working Paper entitled 'The Global Indian Software Labour Force: IT Professionals in Europe';
- a series of conference papers (three already completed and due for publication) and papers for academic journals;
- an ethnographic monograph;
- a series of three ethnographic films on work culture in the Indian software industry, entitled 'Coding Culture: Bangalore's Software Industry' (already released and available from NIAS);
- an edited volume of papers from the international conference organised at NIAS on 'New Global Workforces and Virtual Workplaces: Connections, Culture, and Control';
- film and newspaper archives.

Outputs will be made available on the NIAS and IDPAD websites.

APPENDIX 4. POLICY ISSUES

The NIAS-IDPAD research project covered a wide range of themes and questions, and in the process we have identified several issues on which policy recommendations could be formulated. In this appendix, these issues are only outlined. A specific set of recommendations would require further discussion and debate.[117]

Employment policies and practices in the IT/ITES sector

The question of evolving distinct labour standards or employment policies for the IT industry was debated at a consultation with industry and government representatives that was organised as part of the NIAS-IDPAD project in December 2004. The major issue with regard to employment policies and practices is whether there is a need for new labour laws and regulations for the IT sector, which is different in many ways from other industries, and if so, whether the state should take the lead in evolving these, or it should be left to the industry to develop a set of 'best practices' that would be accepted voluntarily by companies, with some internal mechanisms for self-regulation. The major points of this discussion are summarised below.

Regulation of labour standards and laws

The IT industry has been consistently opposed to the enforcement of labour laws and regulations by government. Industry representatives contend that rigid labour laws have been counter-productive in India, stifling the growth of industry and employment due to lack of flexibility and excessive bureaucratic procedures that are imposed. It is often argued that the IT industry has grown rapidly in Karnataka, and in India as a whole, due to non-interference by the government. Indeed it is the case that the government has followed a hands-off policy for the IT sector, especially in Karnataka, at least with regard to labour regulations. Government representatives at the meeting confirmed that there has been little interference by the Labour Department in IT companies, although officially the industry, like any other, comes under ambit of standard labour laws. According to the state Department of Information Technology, the government sees its role as a facilitator rather than regulator of this industry. Industry spokespersons assert further that the IT industry voluntarily maintains much higher labour standards than what are required by law, and indeed, given the high attrition rates, companies must provide attractive compensation, benefits, and working conditions to recruit and retain employees. Although most participants in the consultation felt that most employment issues are well covered by market forces, it was agreed that the IT industry should comply with minimum labour standards and laws just like any other industry. However, the question of what kind of regulation or standards should be applied to the IT sector, and who should evolve and enforce these (industry itself, or the government, or whether India should adopt global labour standards) remained open. Apart from this general question, some specific issues with regard to labour in the IT sector that were discussed during the consultation are outlined below.

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[117] Many of these issues were discussed at the consultation on Employment Policies in the IT/ITES Industry that was held at NIAS as part of the IDPAD project. While some of the views expressed at this meeting have been incorporated here, this formulation is our own.

Use of contract labour

The use of contract labour for 'non-core' work, such as canteen, security, and housekeeping, by IT companies is a contentious issue. The Labour Commissioner's office reported that there have been some complaints about salary and working conditions by such contract workers (including non-compliance with minimum wage), while representatives of the major IT companies denied that such practices take place. Also, the Labour Commissioner's office has received written instructions not to conduct inspections in IT companies on the working conditions of contract workers. Participants in the consultation acknowledged that the hiring company is responsible for ensuring that the wages and working conditions of contract non-IT workers conform to the law. However, in the absence of inspection or other measures by the Labour Department, enforcement is an issue.

The industry has taken the position that a distinction should be made between core and non-core workers with regard to labour regulations, reservation policy, and the like. However, several participants argued that this would exacerbate already existing divisions between highly paid IT professionals and the low-paid contract workers, and that such tensions could lead to unionisation. It was also questioned whether there can be two sets of standards for different kinds of workers within the same industry. Industry representatives maintained that outsourcing non-core work saves on costs, and that if companies are prevented from doing so it would harm the industry and its employment potential.

Job security

Another important issue in the IT industry is that of job security. Although the industry opposes government interference in the name of growth, it was recognised that there may be need for social security measures because of the volatility of the market. Participants in the consultation noted that large-scale layoffs do take place during periods of slowdown, and that some kind of unemployment benefits may be required. (The representatives of several large companies claimed that they voluntarily sacrificed their earnings during the slowdown by keeping large numbers of employees on the bench, but they acknowledged that many small companies closed down and people lost jobs.) One suggestion was that both industry and government could contribute to unemployment insurance, as is the case with Provident Fund. The question that was discussed is how to create a framework at the national and company level that would take care of employees during a slowdown, or whether an additional social security net is required, apart from the statutory provisions already in place.

Sexual harassment at the workplace

The issue of sexual harassment was raised by the Labour Commissioner's representative, who said that his department had received a number of complaints from employees of both IT and ITES companies. While the large IT companies appear to have followed the Supreme Court directives in establishing committees and procedures for handling such complaints, in the absence of a law on sexual harassment there is no real compulsion for

companies to follow these orders. The Labour Department does not carry out inspections to ascertain whether companies have established committees according to the Supreme Court directives. Moreover, the IT industry is exempted from the Industrial Standing Orders, in which the SC guidelines have been incorporated.

Industry spokespersons pointed out that there is no institutional framework for evolving and putting 'best practices' into place for the IT industry, on this or any other issue. While there are pockets of best practices in some corporate houses, it was suggested that the industry should evolve a common code of practices, which all companies could voluntarily accept. It was also suggested that there should be an independent body to oversee such matters, rather than inspection by the government. Although in cases of sexual harassment women have little recourse in law, participants argued that legislation should be the last resort.

Working hours and conditions

On the issue of long working hours in the software industry, industry spokespersons suggested that the high salary levels compensates for this level of commitment. They also argued that because software engineers are 'self-driven' it is not possible to impose fixed working hours on them, nor is it practically feasible to monitor and enforce official timings. In any case, the government should not impose regulations that would undercut the main advantage that the country has in the outsourcing industry ('flexibility', in other words, long working hours). Even so, many HR managers and CEOs who we interviewed acknowledged that long working hours and stress lead to burnout, and several companies have formulated initiatives to control this problem, such as enforcing mandatory fifteen days leave per year, or locking the office doors at 9.00 p.m. But these are voluntary company policies, and although IT companies presumably are governed by existing labour laws, there is no regulation of working hours in this sector (in the software industry, rather than ITES). The Labour Commissioner's representative pointed out that India has subscribed to the ILO Core Standards which mandate eight hours of work per day and maximum 52 hours per week, over which overtime is to be paid at a higher level. In response it was argued that because of the nature of the work in software companies, there can be no restrictions either on breaks or on working hours.

In the case of the ITES industry, companies appear to adhere to standard norms, including fixed shift and break timings and a total of eight hours of work per day, five days a week. However, we did witness employees putting in overtime (especially as a way of pleasing the boss), which was not always compensated. As for other issues, it was suggested that a code of 'best practices' should be evolved for the IT/ITES industries, keeping in view their unique requirements, rather than imposing the same fixed norms on all sectors.

Employee rights

Several issues with regard to employees' rights have been identified. First, with regard to employment contracts, apart from the usual three months' notice period (which can be waived by forgoing the equivalent in salary), most companies have a 'service agreement' with a monetary clause, to recover the cost of training in case the employee quits within one year (or in some companies, within two to three years). In effect these are like bonds,

which are illegal. Also, when employees are sent onsite they are usually made to sign a bond or surety stipulating that they will not quit the company to join the client company, and that on completion of the assignment they will continue to work for the company in India for at least six months. If they break this contract they are supposed to pay a hefty fine amounting to what they earned while at the client site, or up to three years' salary, and apparently some companies do attempt to enforce these provisions. Another contentious issue in contracts is the non-competition clause preventing the employee from joining a competitor when he or she leaves the company. This provision also is not legal or enforceable in India (according to legal opinion), but since employees may not be aware of this such a clause may constrain their freedom of choice in employment.

Another issue that may emerge in the near future is NASSCOM's plan to develop a 'National Skills Registry' (NSR), which will be a centralised database of information about the professional and educational background of all present and prospective BPO employees. NASSCOM has launched this plan in collaboration with the National Securities Depository Limited (NSDL) in an attempt to strengthen security in the ITES industry. According to NASSCOM, the system has been "designed to ensure authenticity of data through independent verification and biometric identification of the individual".[118] Clearly, this proposal raises crucial questions about privacy and employee rights.

IP protection

The question of protection of intellectual property (IP) in India was raised during the consultation -- both the IP of clients and that of companies. In the latter case, the danger is that employees may carry the IP to a competitor if s/he changes jobs, especially because the non-competition clause is not enforceable in India. There was also some discussion on the question of who owns the IPs developed by employees of a company – the company or the individual employee. Some participants argued that the IP should belong to the company since the employees are paid by the company to do the work, whereas others suggested that IP and its benefits could be shared.

Making the IT industry more inclusive

During the consultation, there was a debate on the question of exclusion and inclusivity in the industry, but this discussion did not go much beyond the proposal for 'reservations' in the private sector, which is seen as an unwarranted imposition by the government on the freedom of companies to hire the best-qualified candidates. The question of caste or social inequality is usually avoided by using the argument of 'merit', with companies pointing out that they do not practice discrimination on the basis of caste or any other ascriptive criteria, and that if there is caste or other such bias in the profile of the workforce, it is due to social factors beyond their control. This is of course correct, but as discussed in detail in Chapter 4, there are (unintentional) processes of exclusion in the recruitment process that lead to the production of a fairly homogenous workforce (the large majority of employees coming from middle class, urban, and upper caste backgrounds). These include the selection of candidates from a relatively small pool of colleges, which have their own filtering mechanisms in the admission process that tend to

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[118] NASSCOM website.

privilege students of a certain social background; the requirement in many companies that candidates have consistently high marks throughout their educational careers; and the interview process that tends to weed out those who lack the requisite cultural capital, such as communication and social skills.

While IT companies cannot be expected to address all the social problems that produce this kind of exclusionary process, their own recruitment practices should at least be examined to see whether they could be modified to broaden the profile of the workforce, or whether some kind of positive discrimination or 'affirmative action' policy could be developed to make the industry more inclusive. This issue requires much more debate within the industry, which must go beyond the usual arguments about merit, efficiency, and non-interference by the government in the private sector, if the industry is truly interested in widening its social base and also expanding its workforce.

Higher education policy and the IT industry

Several issues with regard to the IT industry and education policy have been highlighted in Chapter 4. A major question is whether engineering education should be geared to cater to the manpower needs of this industry, or whether a more balanced approach to higher education needs to be evolved keeping in mind the requirements of other sectors as well. Questions of quality of education, and the regulation and accreditation of private institutions (especially computer training institutes), also need to be addressed, either by government or by autonomous bodies, in view of the large number of students who take degrees or diplomas in computer-related subjects but remain unemployable. A wider issue is that of career choice: with many students opting for IT for reasons other than intrinsic interest, mechanisms need to be evolved to help them make more appropriate career choices. This would be of benefit to not only to students but also to the industry, given the high incidence of job dissatisfaction, burnout, and attrition.

The diversion of many technical and science graduates into the IT industry, and away from potential careers in science or other industries, is another issue that needs to be debated by the larger business and academic communities.

Other issues

Other issues that have been identified in the course of our study, which may not be amenable to legal regulation but which companies may want to address through internal HR policies, include:

- Gender issues, as highlighted in section 6.2.5
- HR policies with regard to performance appraisal systems, 'involuntary attrition', and service agreements
- Use of temporary contract workers in 'core' functions in software services and ITES, and their conditions of employment
- Factors leading to high stress, burnout, and attrition

- In the BPO sector, ethical issues related to the use of a 'youth workforce', the paucity of real career opportunities, and the pattern of 'forced attrition' that creates a revolving door workforce, as outlined in Chapter 8.

Most of the issues outlined above do not lend themselves to easy solutions or sets of recommendations, but it is important to at least put them on the table and initiate a debate. We hope that this research report will contribute to this process.