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<td>Author(s)</td>
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New Information Technologies In India:
Social And Cultural Implications

by

Keval J Kumar
NEW INFORMATION TECHNOLOGIES IN INDIA:

SOCIAL AND CULTURAL IMPLICATIONS

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The computer, telecommunications, and information content industries are among the most rapidly growing global industries, and are expected to remain so for the near future. Many national governments are counting on these industries to provide the primary stimulus to their future growth (Melody, 1992). The Indian government is no exception to this worldwide trend. Over the last decade or so, government policy on industrial development has sought to actively promote and expand (and simultaneously to deregulate and privatize) what have been termed the "new" information technologies in the hope that they would stimulate growth. The policy has been shaped by both "internal" and "external" forces. The "internal" forces have included the armed forces, manufacturers, elite sections of the population and senior bureaucrats (whose views on "modernization" of the industry are similar); the "external" pressures have come primarily from aid donors like the World Bank and the International Monetary Fund.

Indeed, both the "old" and the "new" information technologies have in recent years made massive inroads into the workaday and leisure worlds of the urban Indian. The "old" information technologies which include the telegraph, the radio, the cinema, television, the press and recorded music have introduced the cultural industries into the home and the community. The "new" technologies which include satellite television, video, cable, computers and telecommunications have extended the influence of the cultural industries in the home as well as in the office and on the shopfloor. While video, cable and satellite television have "globalised" news and entertainment fare, the integration of computer and telecommunications technologies have "globalised" voice, news and data flows.

India has joined the league of rich industrialised nations which have accorded top priority to the development of the new information technologies since "information" has become the primary commodity or resource for the creation of wealth in the modern world. Such information relates to data about natural resources, prices of commodities, stock exchange rates, fluctuations in the rates of "floating" currencies, investments, the economic and political situations that affect business and trade, banking, insurance, etc. In a supposedly open free-market international economic system, the immediacy of information exchange becomes paramount in the struggle to compete in an information-oriented world. However, in the effort to promote the information technologies and the infrastructure necessary for their effective functioning, developing countries like India have overlooked the social and cultural consequences, besides the neglect of other priority sectors like education, employment generation, poverty alleviation, health and medical care, etc.
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Social scientific research on the Indian experience of the massive growth of the information technology industry has yet to make a beginning. While over 700 institutes offer courses in computer literacy (Grimaji, 1992), and several universities have opened departments of computer science and electronics science, hardly any institute or university department devotes time to the study of the sociology and psychology of the rapidly expanding computer and telecommunications industries. University departments of communication / journalism too neglect the study of the new information technologies. Even a comprehensive survey of the emerging technologies in India is hard to come by. Several seminars on the subject are organised by for instance the Computer Society of India or by Institutes of Engineers or even by manufacturers in the electronics industry, but the focus is rarely on the social and cultural aspects, with the participants mostly being hardware and software people, not social scientists or communication researchers. Arvind Singhal and Everett Rogers' book with the ambitious title, "India's Information Revolution" offers only a brief survey of the information technology scene in India after the installation of Rajiv Gandhi as the Prime Minister in late 1984.

This paper takes a hard critical look at Indian government policy on the new information technologies, and the implications of such a policy for the social and cultural life of the nation. The assumptions are that information technologies are not ahistorical or a-cultural, and that they impinge on society and culture in ways that aggravate social conflict, and challenge the cultural values of communities. The focus of the paper is on the possible implications of the information technologies on employment, privacy, surveillance, human relations, consumerism, and efficiency in administration.

INDIAN GOVERNMENT POLICY ON IT

Several compulsions from the scientific, the military, the administrative and business communities have made the entry of new information technologies into a country like India almost inevitable. India possesses one of the largest scientific communities in the world, and its IITs and other technology-related training and research establishments are the envy of other developing nations. Further, India has one of the largest armies in the world, with a need for research in defense and state-of-the-art technologies. A highly centralised administration has perforce to resort to the use of telecommunications and computers to exercise efficient control and to communicate at various levels of government. The business communities find it difficult to expand without the infrastructure offered by the convergence of telecommunications, computers and other technologies.

The economic crisis in India in the mid eighties and early nineties resulting from the acute balance of payments situation forced the nation to turn to the World Bank and other lending institutions for immediate assistance. But the price to be paid was heavy. The rupee had to be devalued, restrictions on foreign investment lifted, and tariffs and duties on imports reduced or done away with altogether. 'Liberalisation' of the economy became the norm; 'deregulation and privatization were promoted at the expense of self-reliance, indigenous development and public service. In such a political and economic
climate, new industrial and economic policies were hammered out: telecommunications and the new information technologies were accorded prime importance and urgency. Indeed, active promotion and support of the new information technologies became an important part of industrial and economic policies. The Draft Eighth Five Year Plan as well as the draft policy paper on Science and technology, and on the New Telecom Policy, make this quite evident.

Telecommunications expenditure in the first seven Five Year Plans has averaged three per cent of total plan outlay. In the Eighth Plan, telecom spending has been increased to constitute 10 per cent (Rs. 40,000 crore or US$ 15 billion) of the total plan outlay. DOT hopes to increase telephone penetration to 20 phones per 1000 population by the year 2000 (Kapoor, 1992).

The goal is to make India a 'wired nation' that is also hooked into the 'international' network. The pace at which the nation is being wired is frenetic, reminiscent of the pace at which transmitters were installed in 1987 at the rate of one transmitter a day in order to introduce a 'national' television network. Since October 2, 1991 over a hundred panchayat villages per month are being connected by telephone. In 1991-92, as many as 21,752 panchayat villages entered the national telecommunications network; by year 2000 every one of the 600,000 village will be part of the national network. Already, every district in the country has the benefit of of phone and computer facilities. Each district headquarter is now part of the national computer network known as NICNET. The National Informatics Centre’s Network(NICNET) is an extensive network of computers and interactive terminals in Delhi, regional centres, state capitals and district headquarters. The network consists of one satellite channel linking the master and micro-earth stations, providing lowcost and high speed terminal links for local distribution.(Gupta, 1990). Two projects, CRISP (Computerised Rural Information System Project) and RAPID (Resource Allocation and Processing of Information for Districts) have been implemented to assist in rural development schemes such as IRDP, RLEGP, TRYSEM and NREP (ibid.).

Further, NICNET has over 40 informatics booths all over the country linked through satellite to its New Delhi headquarters. The computers at the booths provide seventeen information modules which includes railway and airline timetables, hotel guides, university and employment guides, industrial and investment directories, hospital and media directories, and a comprehensive statistical profile of India, census data of all villages. Students are given interesting options to select their university or place of study - colleges and institutes are given statewise, with useful details on applications, duration of the course, etc. A scheme termed the Electronic Data Exchange provides details on exports and other commercial information. GISTNIC is the largest database in Asia. At present, the information libraries are free; the cost per use is two rupees, but one the libraries become better known are more widely used, a nominal charge will be collected. In time to come, private computer users will be able to link their terminals to NICNET.
COMMERCIAL AND BUSINESS NETWORKS

INDONET or I-NET is a national commercial computer network launched in 1986 to help industrial, financial, science and educational communities to transmit, exchange and receive data via telecommunication lines. The network offers facilities for interlinking terminals and computers in over a hundred cities. INDONET is also connected to the international gateway at Bombay to access databases and networks abroad. Most international databases are now accessible from a single password via EASYNET, the service provided by M/S Telebase, Philadelphia. The National Information System for Science and Technology (NISSAT) promotes the use of on-line information services among scientific, academic and research institutions. The Indian Railways, Air India, Indian Airlines, Oil and Natural gas Commission, Coal India, Steel Authority of India, Indian Tobacco Company and other Indian companies have established private information networks making use of either NICNET, INDONET or leased circuits from the Department of Telecommunications. (Gupta, 1990). Other data networks include ERNET (the education and research network in India) and INTERNET, the world's largest academic computer network connecting 26 countries for E-mail.

Besides, the Department of Telecommunications has introduced a remote area business messaging network (RABMN) consisting of very small operative terms (VSATS) located in customer terminals and the master earth station in Skandradab, near Delhi. The remote terminals are connected to the master earth station via satellite. This network also offers connection with the public telex network (Gupta, 1990).

The Dept of Telecommunications has plans also to set up radio paging services in 27 cities, as well as cellular phones in as many cities. For radio paging services, the equipment supplier to all the shortlisted companies is Motorola, the American company. Motorola has already established the Motorola India Electronics Private Ltd and the Motorola Information Systems India Ltd. The main bidders for the services are multinational telecom companies, or those with Indian subsidiaries. Technology Parks for both hardware and software export promotion have been set up in different parts of the country.

PROPOSED OUTLAY FOR TELECOMMUNICATIONS
DURING EIGHTH FIVE YEAR PLAN (1992-97)

<table>
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<tr>
<th></th>
<th>Rs. Crores</th>
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<tbody>
<tr>
<td>Local Telephone Systems</td>
<td>25,530</td>
</tr>
<tr>
<td>Long Distance Transmission</td>
<td>12, 550</td>
</tr>
<tr>
<td>Long Distance Switching</td>
<td>1,080</td>
</tr>
<tr>
<td>Open-Wire Telegraph</td>
<td>1,095</td>
</tr>
<tr>
<td>Others (including MTNL)</td>
<td>2,300</td>
</tr>
<tr>
<td>TOTAL</td>
<td>42,555</td>
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</tbody>
</table>

(Source: Ministry of Telecommunication Annual Report (1991-92))
TURNOVER OF TOP TEN COMPUTER COMPANIES

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Company</th>
<th>1990-91 (Rs. Crores)</th>
<th>1991-92 (Rs. Crores)</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>HCL - HP</td>
<td>218.4</td>
<td>220.0</td>
</tr>
<tr>
<td>2</td>
<td>Wipro Infotech</td>
<td>164.4</td>
<td>194.3</td>
</tr>
<tr>
<td>3</td>
<td>Tata Consultancy</td>
<td>100.3</td>
<td>161.0</td>
</tr>
<tr>
<td>4</td>
<td>Pertech Computers</td>
<td>105.3</td>
<td>125.2</td>
</tr>
<tr>
<td>5</td>
<td>ECIL</td>
<td>119.8</td>
<td>124.5</td>
</tr>
<tr>
<td>6</td>
<td>ICIM</td>
<td>84.4</td>
<td>115.3</td>
</tr>
<tr>
<td>7</td>
<td>CMC</td>
<td>147.0</td>
<td>14.0</td>
</tr>
<tr>
<td>8</td>
<td>DEIL</td>
<td>61.0</td>
<td>81.0</td>
</tr>
<tr>
<td>9</td>
<td>Sterling Computers</td>
<td>58.1</td>
<td>72.1</td>
</tr>
<tr>
<td>10</td>
<td>Tandon India</td>
<td>119.0</td>
<td>65.0</td>
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SOCIAL AND CULTURAL IMPLICATIONS

The above survey of the expansion of telecommunications and information technologies suggests that the government policy strongly favours large business and commercial and academic users rather than the common public users whose basic need is cheap and efficient telephone, telegraph and postal facilities. Public telephone rates, especially for STD are still very high, and a private telephone connection still takes several years and a hefty deposit. The waiting lists keep getting longer and longer each year; even by year 2000, supply will not be able to catch up with demand.

PROJECTED DEMAND AND AVAILABILITY OF TELEPHONE

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<th>2000</th>
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<tr>
<td>Demand</td>
<td>73.42</td>
<td>92.07</td>
</tr>
<tr>
<td>Availability</td>
<td>50.75</td>
<td>125.75</td>
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(Source: Department of Telecommunications)

Taking phones to the village level is necessary but unless use of these phones is highly subsidised, most rural people will find them of little use, since each call is a long distance call.

Rural telephones will help business and the better-off (as was seen in the Kittur experiment), but will widen the gap between the information-haves and the information havenots. The situation in the
urban areas is very similar except that most calls are local, and therefore more affordable. The kind of information that will widen the gap is information about public services like transport, finance, education, prices, the weather, banking and insurance, agriculture, etc.

WORK AND EMPLOYMENT

The 'new' information technologies were developed in industrialised societies to serve their needs and interests.

Such societies needed capital-intensive labour-saving technologies to make up for high labour costs and low populations. The 'new' technologies brought about speed, efficiency and a non-polluting environment. As the technologies became cheaper with greater volume of users, business and administration needed fewer and ever fewer workers. Thus several workers were rendered redundant or were provided part-time jobs. The worst sufferers were women who worked as typists, stenographers, telephone operators, packers, etc. The low-paid jobs were the ones to go first. It was expected that the 'new' information technologies would give rise to some jobs, at least to begin with, but the number of jobs thus created were not proportionate to the number of jobs lost. A major factor in the rapid rise in unemployment in the industrialised world has been technologies that have made certain kinds of jobs obsolete. Equally important factors have been the transfer of manufacturing to less-industrialised countries where labour is cheap, and the stress on non-polluting information industries.

The effect of the widespread diffusion of information technologies in the countries of the South has been even more disastrous. In the attempt to 'catch' up with the North, and to enter the global market, the South has shown little concern for the possible reduction of jobs in both the manufacturing and service sectors. Sam Pitroda, the highpriest of NIT in India, came to an agreement with labour leaders that the Department of Telecommunications would not lay off any workers, but would not employ anyone for ten years. Banks and insurance companies reached similar agreements with their respective labour leaders when computerisation was opposed.

According to Singhal and Rogers (1989), 'the social impacts of the high-tech microelectronics products can aid business development, productivity and efficiency in India, change the lifestyles of the population, and eventually move the nation toward becoming an information society'. This is the hope, but it remains a vain hope and a myth. It hides the consequences of introducing capital-intensive technologies in labour-intensive economies, especially on employment and work. Information technologies render several jobs redundant - both skilled and unskilled jobs. The workers most affected by the switch to these advanced technologies are women who until now were widely employed as telephone operators, typists, stenographers, clerks, salesgirls, office assistants, assembly line workers, and others.
Two Bombay economists, Sudha Deshpande and L K Deshpande, suggest that since the eighties, when liberalisation was introduced in India, female employment has increased. The female work participation rate - the ratio of women workers to their population - had increased to 9.74 per cent in 1991 from 8.3 per cent in 1981. In urban areas, there were 178 women workers for every 1000 male workers in 1991 compared to 139 in 1981 (Neeraj Kaushal, 1992). However, the increase in female employment was mostly in low-paying traditional manufacturing industries and not in high-paid jobs.

NIT change the nature of work and employment. Work takes on a new orientation, related more to the storage, processing, retrieval and distribution of information than to traditional modes of labour and industry. Information is thus turned into a a commodity which has a market price, instead of being a public resource and a public good which is easily available to one and all. further, NIT tends to turn service and work into something impersonal, mechanical, routine, though less laborious. Certainly more efficient, neater, faster but one that lacks the personal touch.

The vulnerability of NIT is rarely touched on. \"Virus\" attacks can be fatal; breakdowns frequent, leaving the information worker entirely helpless when computers go on the blink. Shoppers in supermarkets, airline and railway travellers have had the frustrating experience of waiting for computers to return to life. It is widely believed that corruption is minimised when computerisation is introduced. Yet Harshad Mehta, the foreign banks and other wizards could exploit the new technologies to execute a stock scam that ran into crores of rupees. No computer system is thus foolproof.

The \"new\" information technologies make it quite easy for governments to keep a close watch on citizens, and to invade their privacy. \"George Orwell didn\'t guess the half of it. His brilliant and frightening picture of life in 1984, written in 1948, vastly underestimated the power of the tools that would become available to a technology-based dictatorship. Although his party members were supervised at home and work by two-way telescreens, they could at least escape into anonymity of the slums of the Proles, where only human surveillance was likely to catch them. In the real 1984, the computer could trail them anywhere\"(Large, 1984). India has yet to legislate against the misuse of the new information technologies for collecting private information for commercial or political purposes.

NIT AND DEVELOPMENT

In the Nehruvian-Mahalnobis model of development which was akin to the \"modernization\" model propagated by Western development economists and communication scientists, the mass media were believed to be the moving forces for social change and progress. During the eighties and nineties the mass media have been replaced by telecommunications and the new information technologies. The prophets now are Sam Pitroda, Rajesh Pilot and other disciples of the high-tech Prime Minister, the late Rajiv Gandhi (Singhal and Rogers, 1989). Earlier, the mass media were the \"magic multipliers\"; today, the \"new\"
information technologies are believed to be as 'magical' in their power to bring about development.

The gospel according to Sam Pitroda states that the information technologies would change work culture, homes, education, business, industries (Pitroda, 1989). Rich countries are rich, he argues, because of telecommunications, so, if we want to be rich, we should have telecommunications first (Ibid.).

As with the 'modernization' model, the new prophets of development have overlooked the role of the socioeconomic and power structures at the national and global levels, and other vital factors too like resources, infrastructure, the brain drain, and the imbalance and inequity in the world's economic and information order. The very design of telecommunication and computer networks, for instance, favour the industrialised countries and multinational companies, and the elites in the rich and the poor nations. The electronic communities thus created are the ones who control and rule over 'electronic space' (Samarjiwa, 1992) which McLuhan termed the 'global village', but which in reality has been transformed into a global marketplace where the transnationals continue a colonial-type exploitation of the developing world in the name of 'modernization', 'liberalization', and 'development'. In the early 'nineties, the international economy has been transformed into a 'global economy' in which 'almost a third of what is described as world trade takes place within the transnational corporations' (Kurien:1993).
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