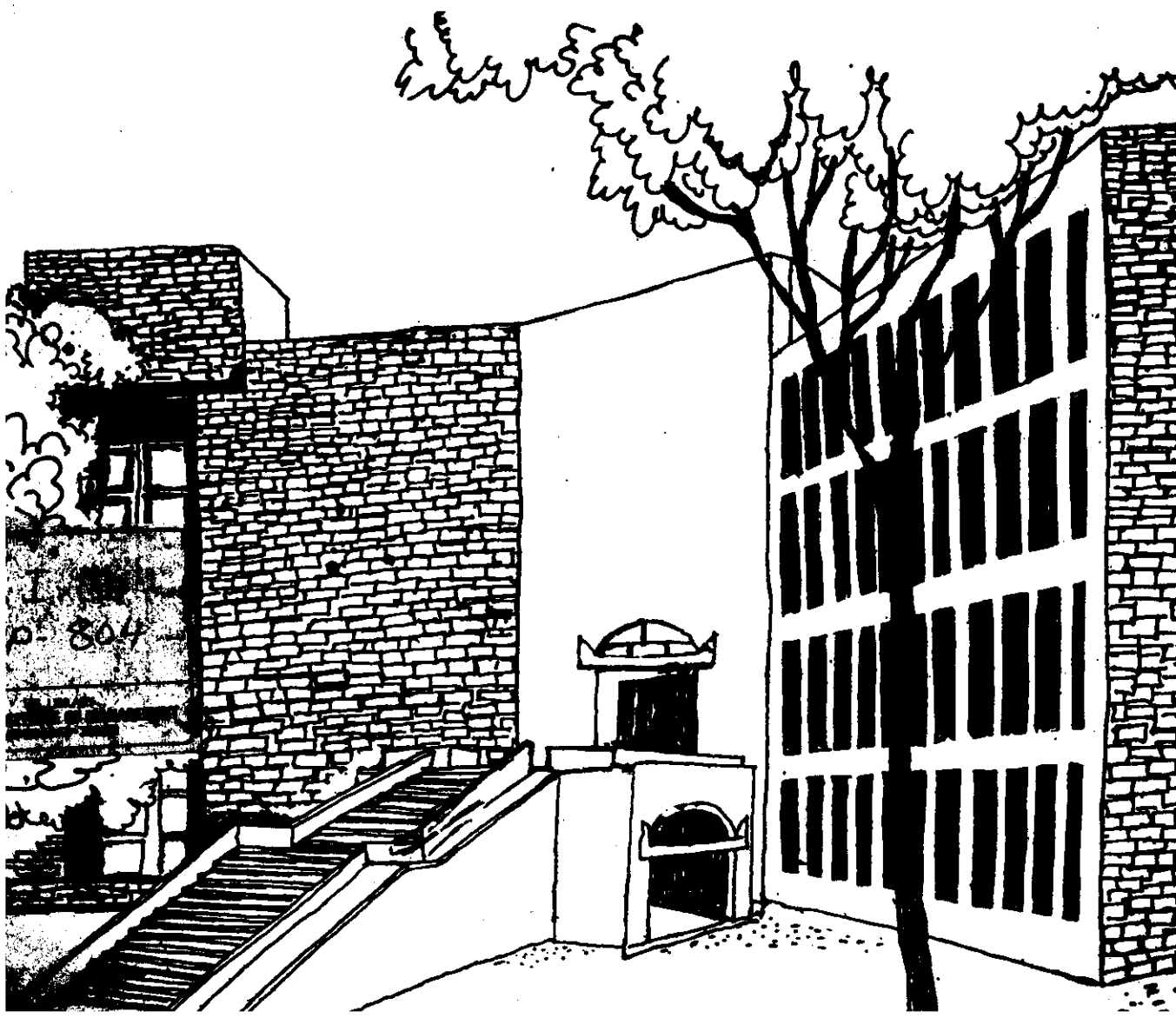




Working Paper



TELECOMMUNICATIONS: SOME SOCIAL ISSUES

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Abstract

In this paper we look at the technological developments in telecommunications over the years and their implications to the society in which we live. We realise that in this "Information Age" the World is only as far as the nearest telephone to us. But development also has its costs in terms of dwindling resources and reduction in privacy, both individual and national. It brings in a lot of issues that need to be resolved at the individual as well as the global levels to best utilise the technological developments.

TELECOMMUNICATIONS : SOME SOCIAL ISSUES

The future of telecommunication is especially vulnerable to emotive speculation : combined with computing it becomes the harbinger of the post industrial society.

Arthur C. Clarke foresaw the communication satellite. He wrote:

" What we are building now is the nervous system of mankind which will link together the whole human race, for better or worse, in a unity which no earlier age could have imagined "

E. M. Foster wrote in his story "The Machine Stops "

" ... There came a day when , without the slightest warning, without any previous hints of feebleness, the entire communication system broke down , all over the world , and the world as they understood it , ended ..."

George Orwell's views were more feasible, but more terrifying _

" ... Behind Winston's back the voice from the telescreen was still babbling away about pig iron and the fulfilment of the ninth three-year plan . The telescreen received and transmitted simultaneously."

He goes on " There was of course no way of knowing whether you were being watched at any given moment . How often or on what system the Thought Police plugged in on any individual were mere guesswork. It was even conceivable that they watched everybody all the time "

Clarke, Foster, Orwell ... differing views at different times of the communication future.

Most of the technology they foresaw already exists. The development in technology has already made a great difference in

the way we live. The impact of telecommunication in the day to day life can never be overstated.

In this paper we look at the technological developments in telecommunication and their implication to the society.

THE INFORMATION AGE

There has been increasing perception of communication as a catalytic agent needed for development and change rather than a mere service demanded by society. Particularly the convergence of emerging telecommunication technologies and computers is transforming business operations, broadcasting, telephone systems and human interactions in general.

The revolution in communication technologies is transforming the communication information environment in such a fundamental way that social scientists speak of the dawn of a new era - " The Information Age ". Many of the western societies are already changing from being industrially advanced societies to " Information Societies " in which computer technologies, networking and other enhanced form of interpersonal and institutional communications are a major force. As Naisbitt says in his bestseller " Megatrends " - "... Although we continue to think we live in an industrial society ,we have in fact changed to an economy based on the creation and destruction of information."

And while the extraordinary change determined to change the whole civilization sweeps across the world with full power and reach , social scientists and philosophers grope for words to describe the startling phenomenon. Some speak of a looming Space

Age , Electronic Era , or Global Village . Zbigniew Brazeziaski has told us we face a " Technetronic Age " . Sociologist Daniel Bell describes the coming of a " Post -Industrial Society " . Alvin Toffler speaks of the " Third Wave " sweeping across the the history.

And the age is before us. With all its farreaching implications. There is no facet of our society which hasn't been affected by this revolution.

Cherry (1977) feels that it would be hazardous for anyone reared in an industrialized country to imagine what personal life was like before the telephone or what feelings people had then. And here his reference is not merely to the domestic telephones , but to the life before the creation of hosts of social organizations in the economic and public spheres , which today totally depend upon the telephone.

Cherry gives two reasons to show that telephone service has a much more profound social effect than other technical modes of communication : first, the telephone system allows us to move about the country and yet appear to stay in one place, thereby adding security to mobility . Second, it offers all the psychological values of the human voice and needs no special codes, training or skills. Another important effect is that communication is immediate and direct.

The various reasons for telephone use in daily life boil down to two : instrumental and intrinsic uses. Among the instrumental uses are the resort to telephones in times of household crisis or emergencies such as illness , accidents etc. Another growing use of telephone is transaction of goods and

services. Among the intrinsic uses of the telephone are the social contacts it facilitates, between friends, relatives, neighbours and clients.

Telecommunication is becoming a vital component in the diverse fields of human activities. By integrating the economy, it acts as one of the primary agents in the creation of wealth and income by acting as a coordinating link for diverse activities. Interregional dependence and specialization are the direct result of rapid communication. The increased speed in manufacturing processes brought about by the application of telecommunications not only made it possible to meet the needs of increasing population but it actually reduced the cost of manufactured products. Telecommunication services are the life line in any defence network. Mobile telecommunication systems are used extensively by organizations like civil police, traffic police, ambulance service etc. The growth of telecommunication services is an indispensable adjunct to the growth of foreign trade and the conduct of foreign relations.

The rural society will be benefited greatly by increased telecommunication services. Ramachandran (1983) lists the benefits of telecommunication for rural areas :

- * Information channel for market conditions, consultancy and other services;
- * Support to functioning of industries, warehouses etc., which play an important part in generating rural employment;
- * Quick means of communication in emergencies;

- * Reducing the isolation of remote communities; and
- * Maintenance of law and order.

The current technology in telecommunication helps us communicate in many different ways. We have satellite, teletext, teleconferencing, video-telephone and electronic data interchange. These different types of communication are supported by an infrastructural facility that is extremely effective and efficient.

SATELLITE COMMUNICATION

In fewer than twenty years, satellites have become an integral part of the communications industry and have been used successfully for voice, video, and data transmissions in numerous situations. Newspaper printing, medical care, peace missions, teleconferencing, Olympic games, teaching and emergency disaster and rescue services have all been carried out successfully via satellite communication.

By a direct broadcasting satellite, at a relatively low cost, entire national broadcast systems could be established which would avoid the expense of terrestrial connections.

TELETEXT

It is a generic term applied to such open broadcast operations as the BBC's Ceefax ("See. Facts") and Independent Television's ORACLE. The basic process involves the insertion of textual material, translated into electronic digital coded data, into two of the 50 normally unused lines of the TV picture. These digital data are pulled out of the regular TV signal by a

special decoder.

What are the advantages of Teletext ? Johnson summed up in the Financial Times in 1975 :

" Teletext is literally, the first minute to minute information medium. The moment that information is available and the viewer is ready for it , the two can be brought together . If the viewer is watching a bulletin and something new happens , then it can appear on his sreen as soon as the editor is able to insert it . If the viewer is busy with other things and then turns on his set , he immediately has the latest information on the topic that interests him."

TELECONFERENCING

Options offered by advances in telecommunications include the opportunity to substitute teleconferences for face-to-face business meetings to which some or all of the participants will have to travel. Transactions in a teleconference tend to be more rapid than in face-to-face conference. Another advantage of teleconference over face-to-face conference is that its scheduling is much more flexible , it can occur almost on the spur of the moment.

Teleconferencing could increase the effectiveness of office workers in so far as it reduces travel costs, improves response time, allows organization more flexible choice of location and structure, and improves communication within organization by serving the latent demand for communication that does not justify travel.

EPABX AND LAN

The EPABX (Electronic Private Automatic Branch Exchange) transport , switch , and process both voice and data , completely in digital form and do it on familiar , twisted pair telephone cable. These modern telephone systems offer a tremendous range of features that improve usability , productivity and manageability. More than just a computerized switchboard , these new systems can interconnect telephones , terminals , personal computers , word processors, and a variety of other office equipment. Modern digital EPABX systems provide all the functions of traditional PBXs and add features made possible by the digital control switch and by the computer itself. It is not unusual for vendors of such systems to offer in excess of 50 features , available mainly as options. A system can be specifically designed to meet the needs of almost any conceivable organization. Even more important, these systems can be reconfigured rather easily to handle changing conditions and mobile users.

A Local Area Network (LAN) uses a single cable , most often coaxial to carry a tremendous quantity of data. Devices connect directly to the cable , or , more typically to branches that tap-off the main cable. These are logical connections accomplished by breaking data streams into packets , each of which carries a variable amount of data and bears the address of both the sending and receiving devices.

A MATTER OF FAX

FAX machines resemble office copiers but can send and receive documents over telephone lines. The terminals can

transmit written , printed , or graphic information. Newspapers for example, use FAX machines to transmit photos around the world. A routine FAX transaction is as easy as one , two , three. Before you begin the machine is connected to a telephone line, plugged into an outlet , and supplied with paper. Place your correspondence on the feed tray of your FAX unit, dial the telephone number of another unit and press the button to transmit. In less than 30 seconds per page , your document is electronically encoded and transmitted to the other FAX unit where a replica of your original is printed.

ELECTRONIC-MAIL & VOICE-MAIL

They are useful for large corporations with multiple locations and also for other public uses. Each enables a message or document to be entered into a central system and held until the recipient is ready for it. Messages can be stored , forwarded and answered through each system. E-Mail messages are created using a computer terminal or personal computer ; Voice-Mail messages use a telephone.

Both systems can save significantly time and trouble by allowing the sender to reach intended recipients in only one attempt , eliminating the game of " telephone lag ".

VIDEO-TELEPHONE

It is estimated that by the year 2000 AD , there may be one million video telephones in service .

Dickson (1975) gives eight prominent areas in which the impact of videophone will be felt :

- Influence on personal behaviour;
- Communication among deaf;
- Delivery of medical care;
- Educational applications;
- Organizational structure;
- Urban transportation;
- Intercity travel;
- Economic ramifications.

Nature of work is also changing as a result of the communications revolution. Many automated information services have been widely available to managers since the late 1960s including the availability of interactive telecommunications links with large computers. Teletext and View-data systems by enabling the viewer to select any information that is of interest are useful in monitoring homes for fire & theft, providing electronic school, electronic mail, library services from the home and electronic funds transfer.

ELECTRONIC DATA INTERCHANGE

The penetration of mainframe computers into businesses is finally at a point where direct business-to-business communications, one main frame to another, is possible. Indeed, organizations will increasingly exchange data, voice, and image transmissions directly, and eventually will even transfer funds electronically, without an intermediary.

NEW COMMUNICATION PATHS

Today, we think of communication as something that occurs between people, or between people and machines. But many other

communication paths are possible, involving people, machines, and a host of inanimate objects.

With the embedding of computer chips in all manner of products, buildings will "talk" to other buildings, or with delivery vehicles. Home appliances will communicate with remote repair services or with other appliances.

As we begin to see communication from vehicle to vehicle, and from road to vehicle, it creates a very different kind of environment in which to do business.

European car makers, universities, government agencies and businesses are already planning for this environment with an \$875 million joint research program called Prometheus. Spearheaded by Daimler Benz, the programme is studying "smart highways" - road-to-vehicle communication systems for traffic control, collision avoidance and other traveler advisory services.

As dashboard computers in automobiles begin to display electronic road maps, it creates a new advertising vehicle for the hotels, restaurants and gasoline stations that will want to appear on those maps.

Car maintenance can be accomplished remotely. Automobiles will become mobile offices or hotel rooms, with automated guidance systems. And business relationships will change in ways both subtle and dramatic.

INFRASTRUCTURE SERVICES

The changing information environment will spawn an entirely new industry - infrastructure services - which will involve massive national projects. In many countries, common

carriers and information services will converge and evolve into this segment.

Infrastructure services would include basic ISDN services, database services, transaction based video-text services, maintenance, monitoring and control systems, educational uses, universal security systems and entertainment. Examples would be highway traffic control and collision-avoidance systems; medical service delivery to homes, with remote diagnoses; or government-to-business systems, such as a system linking a pharmaceutical company to government review agencies, to streamline the drug approval process.

The invention of the wheel and axle system brought the world closer. The invention of telephone improved on it considerably. Now, no place on earth is more than a few seconds away. Telecommunication is providing an alternative for transportation.

TELECOMMUTING : THE TRAVEL TELECOMMUNICATION TRADE-OFF

Advanced telecommunications will enable jobs which must be office based today to be conducted from home in the future. Bird (1976) discusses two basic applications of telecommunication systems designed to reduce the need for travel to and from work - Neighbourhood Work Centre (NWC) and Work-At-Home Unit (HU).

NWCs would be established by interested companies who jointly rent or purchase space in buildings within residential areas to establish telecommunication centres which can be used by employees in the neighbourhood. Thus, each person within a

company would go to work at the NWC closest to his/her home. With the HU arrangement, each person has the necessary equipment installed in his/her home connected to the telecommunication system of his/her company. Workers would maintain contact with superiors, subordinates and co-workers by teleconferencing and computer based text systems would replace most paper-based information flows.

Telecommuting will lead to a certain personalization of the work place: it decentralizes work, shifts it back to the home, and gives people greater freedom to decide their own pace and style of work. Telecommuting can also help reduce unemployment. It also satisfies the desire for more flexible work schedules. Telecommuting permits a gradual transition to retirement, and frees staff from the constraints of fixed office hours. It also offers a chance of reducing pollution and traffic jams giving way to smooth stream of information.

TELECOMMUTING : NOT ONE WAY TRAFFIC

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And Telecommuting will not come to us without costs. The moral issues involved in the substitution of travel by telecommunication include privacy, loss of inter-personal relations, disruption of home life, sector unemployment, disruption potential and access rights.

Dependence on computer and communication services for so much of our social interaction is certain to bring about periodic lapses in personal and institutional privacy.

Reduction of inter-city travel may cut back our range of

interpersonal experiences that we have access to during travel.

Substitution of transportation by telecommunication might lead to unemployment in the transportation industry. Also reliance on telecommunications raises potential dangers of massive failure, sabotage, strike, shut downs and break downs due to natural disasters.

Bird (1981) also gives the disadvantages of NWCs and HUs as depersonalization, reduced social integration and reduced identification with employer.

According to Nilles et al (1976), another effect of the widespread development of telecommuting is on the use of primary resources. If suitable materials to substitute for copper were not produced, it would create serious resource extraction problems. Also, resources used in the manufacture of computer terminal and data transmission equipments are often less abundant than those used for the manufacture of the automobile. This concern raised in mid-seventies, however is no longer valid because of invention of optical fibres. Two factors that are driving the large scale use of fibre optics are: (1) Longer transmission distances are possible and (2) Installation, maintenance and replacement of fibre optics cables are more economical than copper cable. Other advantages offered by fibre optics are wider bandwidth, noise immunity, smaller size and less weight, abundance of raw materials etc.

It was inevitable that technologies of such important effects raise some important issues of social concern.

INFORMATION PROTECTIONISM

There is a trend towards barriers to international information flows, a form of protectionism like other trade protectionism designed to foster national information capabilities because development in both developed and developing countries is increasingly perceived as dependent upon telecommunication and information capabilities.

The controversy about the communication and information imbalance has gripped the world in the last one decade. Since the mid-seventies, the developing countries are agitated about "one way flow of information", from a few developed countries in the west to the rest of the world.

A few examples of this information protectionism are :

- * National privacy laws can be used to impede the international flow of information.
- * State owned national telecommunication authorities are manipulating access to and the price of the services they offer.
- * Developing laws which mandate data processing within national boundaries and which impede the flow of data for processing abroad.
- * There are signs that information is coming to be viewed as an international commodity and may be taxed as it flows across international boundaries. In France and Brazil, there have been proposals for the establishment of informational gateways through which all information entering or leaving the country would pass. This would inevitably encourage taxation of information.
- * Finally international organizations are getting into the

act. UNESCO's call for a New World Information Order (NWIO) points to a need for more equitable distribution of data processing and access to telecommunication for developing countries.

The NAM summit at Algiers in 1973, for the first time, called for co-operation in the reorganisation of communication systems with a view to establishing direct and fast communication among the developing countries. The summit proposed wider exchange and dissemination of information through national and regional channels which would reduce reliance on the transnational agencies and ensure a more balanced flow of information. This resulted in the creation of News Agencies's pool in 1976.

The general conference of UNESCO at its 19th session held in Nairobi in 1976 instructed the then Director-General, Dr. Amsad Mahtar M'Bow "to undertake review of all the problems of communication in the contemporary society seen against the background of technological progress and recent developments in international relations with due regard to their complexity and magnitude". This is how the International Commission for study of communication problems under the presidency of the late Sean Macbride was set up by UNESCO. The Macbride report, as yet the most comprehensive analysis of a wide range of communication issues, led UNESCO Belgrade conference to approve NWIO and setting up the International Programme for Development of Communication (IPDC). While the resolution of NWIO focussed on elimination of imbalances, the IPDC was envisaged to assist the developing countries in the elaboration and implementation of

their respective information and communication development programmes.

Telecommunications serve as integral support mechanism for the international trade in goods. Banking, Insurance, and Shipping services, so fundamental to trade in goods, would be unthinkable without unrestricted telecommunication and information flows. An approach for dealing with telecommunication & information as trade issues is suggested. Both GATT principle and its GATT process should be extended to telecommunication and information. Application of the GATT rules would allow for a commitment to the general principle of free trade in information as well as managed departures from that principle. Use of the GATT process for telecommunication and information issues would provide an established framework for multilateral negotiations and legal remedies.

INDIVIDUAL PRIVACY

Many completely new social questions are raised by future telecommunication.

Use of picture phone will lead to a loss of privacy. More problems surround the individual mobile phone. In order for the cellular system of the future to work, your whereabouts will have to be known to the system, perhaps to the nearest mile or so. Computers will keep track of you as you move around. The potential for surveillance by the state or similar authority is clear. Through telecommunication the cashless society of electronic transactions will be hastened on. The bills kept and built-up from these transactions could be linked and patterns of

movements and behaviour deducted.

Electronic devices make easier the interception of communications by government agencies and businesses or even private individuals ; surveillance cameras in store and in work place monitor aspects of our behaviour. Even more pervasive are automated personal information systems , or data banks, that record details of our private lives. Computers monitor banking and credit transactions , the issuing of welfare and unemployment checks, telephone calls , major household purchases, and airline travel schedules ; they record traffic violations, preferences in cable TV viewing ; and medical records. Home computers and two way interactive cable TV , with their ability to allow public opinion polling , teleshopping , telebanking , the purchase of special entertainment and fire security, or medical monitoring services, may be a widespread reality tomorrow , vastly increasing the potential for compiling even more details about what we are and what we do.

The issue of privacy and data is vital. The technology neutral in theory can be used to great advantage by a centralized state wishing to control its citizens. The fears are real. Hoguebe (1981) argues that the lack of individual and social privacy could lead to heavy political control and increased commercial exploitation through the monitoring of the content of communication and the collection of transaction data on the use of information and communication media.

Protecting personal privacy through the enactment and enforcement of privacy and data protection laws is a crucial

issue in advanced industrial democracies. In most western European countries and in North America, national and some state systems of data protection already exist. In Sweden, for example the experience of the Data Inspection Board with the implementation of the national data protection law covers more than 15 years, and the West Germans have now had 10 years of experience at the federal level with the office of the Federal Data Protection Commissioner. The UK in 1984 enacted a Data Protection Law that requires a Data Registrar to register all users of automated personal information systems in the public and private sectors.

Leeson (1984) talks about the international efforts to establish commonly accepted standards for the protection of individual privacy. The "Guidelines governing the protection of privacy and trans-border flow of personal data", a voluntary agreement signed by the US and adopted by the Organization for Economic Cooperation and Development (OECD) in September 1980 outline minimum standards of privacy protection. These guidelines have provided a basis for voluntary agreement among countries with various national approaches to the protection of privacy.

NATIONAL SOVEREIGNTY

National sovereignty relates to the ability of a nation to control its own destiny in an economic, technological and cultural sense. A matter of particular relevance to national sovereignty is transborder data flow.

Transborder data flow is facilitated by new forms of data communications. That data may range from the innocuous, such

as information on cloud formations, to corporate, financial, personal, administrative, research, planning, marketing, and evaluation data upon which foreign nationals may make decisions influencing another nation. The reaction to the foreign storage and processing of information has been labelled a "massive haemorrhage of our independence".

Transborder data flow could weaken a nation's sovereignty and its ability to take the initiative directing the development of its economic, technological, and cultural development. The new forms of data communication technologies facilitating such transborder data flow enable the multinational corporation to coordinate the increasingly specialized activities of foreign branch plants, and if they so desire, to control the decision making of such branch operations. Thus transborder data flow is of great concern to those nations who include among their national industry mix a large percentage of foreign owned organizations. Such nations are particularly concerned because the outward information flow is often greater than the inward flow.

DEVELOPMENT OF DUALISTIC ECONOMY

A huge gulf exists between the developed and less developed world in telecommunication. Less developed countries can ill afford the huge investments needed for the development of telecommunication. The rich countries grab the available frequency bandwidths and the best positions for their geostationery satellites, hence making matters even more difficult for the poorer countries in future. This leads to the

contrast between the information rich and information poor becoming increasingly marked.

Moore (1984) expresses concern over the fact that public suspicion combined with squabbling among nations over economic and social control of communication networks, may seriously hamper the evolution of truly universal international communications. There is a feeling that there is a -

"..... terrifying spectre of the dilemma facing the developing world through the headlong advances being made in information technology communication transnationals are developing nations to an international structure which is devouring third world peoples and cultures alike"

Not only among countries , but also within a country , the spread of telephone and telex services in urban and rich rural areas and its wide use in Government and commerce has clearly bifurcated the population between the elite one-tenth who is so linked and the vast majority who are not used to communicating rapidly and whose rate of learning and absorption of new ideas is much lower .

Golding and Murdock (1986) argue that the less well-off section of the population are disadvantaged twice over because the access to new information and communication services depends on the ability to pay. They are priced out of the market for the newly commercialized services.

Mills and Greshuny (1986) give the two extreme consequences of information in the field of employment as the development of a highly dualistic economy , with regional and

class differences sharpened between those with employment , those in insecure work and the permanently unemployed; and the redistribution of work through reduced life time working hours and the expansion of life long education , community activities etc.

The new technology might increase the strains of a dualistic economy , for example , accentuating awareness of the extremes of poverty and wealth that co-exist . On the other hand new security systems, new types of pass and credit cards, and surveillance methods could be used to bolster up an increasingly repressive social order.

MEANING LAG IN THE INFORMATION SOCIETY

Scholars generally agree that there has been a crisis of meaning in modern times. Alienation, Existential despair, absurdity, legitimation crisis, identity problem, anomic, sensate culture, counter culture, future shock, end of ideology, false consciousness and social noise are some of the terms by which this crisis has been identified. In a crisis of meaning , people find much that doesn't make sense , little that is basic or reliable to hang to.

Traditions are discarded , institutions - even the most hallowed ones - are weakly legitimised and justify themselves by rhetoric regarded by many as boring or hypocritical. All one seems to find , as T. S. Eliot wrote in "The wasteland" , is a " heap of broken images ". In lieu of reliable images , interpretations become impromptu , relativistic , and temporary , that is interpretation of an event is not a matter of what is

true but of what one can " carry off " rhetorically, and dramatically with a given audience.

One sign of meaning gap is a flood of cultic movements, within and outside conventional churches , whose seekers grope for something to believe in or for a glimpse of reality beyond ordinary consciousness. Others turn to magic, horoscopes, divination, I Ching and so on , for interpretation of what is happening or about to happen.

And the worst danger is , as Klapp (1982) mentions :

" ... Since the crisis of meaning has occurred in the midst of a flood of information ,there seems little reason to be confident that increased quantities of public information - whether from science , news agencies , publishing , education , or official pronouncements - will restore a meaning that seems to be slipping away "

THE POLITICAL MAUSOLEUM

It is impossible to be simultaneously blasted by a revolution in energy, a revolution in technology, a revolution in family life, and a worldwide revolution in communications without also facing - sooner or later - a potentially explosive political revolution.

Developments in satellites, computers, cable television, videotext, cellular radio, videoconferencing, computer networking are cause of concern for some contemporary observers as to their possible effects on our social and political institutions, while others greet the developments with considerable enthusiasm, seeing in it potential cures to grave problems that now afflict

our political processes.

The dominant stream of thought on this problem among scholars and practitioners of politics is one of worry , worry that the social change spurred on by these " hi-tech " developments will create a whole cast of new problems for our political and governmental institutions. One need entertain only briefly the massive changes allegedly wrought by television in order to grasp the potential in yet another set of " unforeseen consequences " , spilling from communication media into politics.

Many forecasters and futurists , on the other hand, argue that the promise of democracy can be fulfilled through the political use of the new media. They foresee a day when technology will permit all citizens to become directly involved in public-policy making.. Teledemocracy has become the catchword referring to the establishment of direct democracy through the use of communications media. This will mean that in the democratic politics of future , people sitting in their living rooms will consider the problems facing the nation , and register their opinions as to how these matters should be resolved. Representative institutions will disappear ; citizens will truly govern themselves.

John Naisbitt (1982) and Alvin Toffler (1980) , to cite two popular futurists , take the view that a " communications revolution " will transform our politics. Electronics will enable a vast polity to function like a New England town meeting in which citizens can hear and contribute to the community discussion of the issues. Electronic voting will both make

possible and stimulate the holding of referenda or plebiscites. Citizens will be able to decide matters for themselves rather than surrendering decision making power to representatives.

Frederic Williams (1982) views the processes of political change as -

"...the rapid transformation of political order from the written document and spoken word to an electronic communication network enveloping everyone. The new political order is the communications structure ... The new communication technologies offer the opportunity for citizen information and participation undreamed of by our founding fathers We may have to jettison our democracy away from the constraints of the eighteenth century and toward the advantages of the twenty-first "

Recognizing that modern telecommunications can permit a large number of citizens to register their preferences, some contend that direct legislation "by the people" is inevitable. For others, the argument is that a communications revolution will generate a new social class that will restructure political institutions to its liking. In unison they argue that our current political institutions - parties, representative legislatures, bureaucratic agencies - will prove increasingly incapable of dealing with the demands of a large and ever more complex society.

The most elaborate proposal for experimenting with institutional transformation has been advanced by Benjamin Barber in "strong democracy" (1984). If new mechanisms - such as lottery system of elections or a civic videotext service provided as a free channel by every cable company - were gradually put

into place, citizens would learn the civic values of public responsibility and involvement. The result would be a stronger form of participatory democracy, though one in which many of the present representative institutions still functioned.

But voting is only one form of citizen participation. The emerging telecommunication systems could be harnessed to make possible the exchange of large volumes of written and visual information (Blomquist, 1984), and to permit citizens to advocate their viewpoints to others either individually or in groups. By so doing, the role of citizen participation in the processes of agenda formation and policy determination might be expanded. Voting is a limited notion of participation, whether by means of a paper ballot, a voting machine, a computer punch card, or an electronic box. The new technologies certainly have important applications here, but they can also be used more ambitiously. They can be used to facilitate the means by which citizens communicate with each other and with their chosen leaders. Communication, dialogue, and information exchange are after all the cornerstone of an informed body politic.

THE SURVIVAL OF HUMAN VALUES .-

Information processing - which embraces everything from accounting to entertainment - has become the dominant activity of all economies which once devoted their principal energies to the tilling of soil and then to the manufacture of products.

Where is this information explosion headed ?

As one surveys the awesome technological possibilities - the question arises, which Henry David Thoreau uttered when he first

learned that a magnetic telegraph wire was to be laid between Maine and Texas : " But what has Maine to say to Texas ? ". Will there be ever increasing demand for all of this information ? . The growth of information processing in the aggregate poses the complicated question of whether there are natural limits to humanity's lust for symbol manipulation which will exert an upper limit on the growth of technology's bounty.

There are negative aspects of an ever-growing traffic in information.

Already there are symptoms of communication failures based on a superabundance of information that has inadequately assimilated. The crisis of leadership can be attributed partly to the contemporary condition in which information (or news) about near and distant crises is broadcast in a never-ending stream into almost every household well before our leaders have had time to cogitate , to plan , and to act . The apocalyptic visions of many communication futurologists may tempt us to urge our libraries, universities, and other centres of organized intelligence to become high-walled monasteries against a new Dark Age Civilization.

CONCLUSION

In the last 80 years more new forms of communication have developed than throughout the almost 360 centuries which separate us from the first homosapiens. Since the dawn of the modern electronics communications after World War II , more people have been put into contact with one another , more knowledge has been accumulated and recorded and more people have access to that

knowledge than ever before in history. Early electronics era of the telegraph freed communication from the speed of transportation. And the emergence of telephone in 1876 AD allowed us to bypass the written word and to extend our communication senses and capabilities directly. Then large satellites, expanded communication networks and computers have boosted the communication flow from the speed of humans or animals to the speed of light. Just as nineteenth century humans harnessed energy to multiply the printed word, we have harnessed it to gather, manipulate, and interpret information.

It is not only the developed world where the wavefronts of this communications wave have reached. Advances in satellite technology that have resulted in increased power levels in the satellite, more efficient use of transponders for voice and data channels and smaller earth stations have brought telecommunications within reach of much of the developing world.

In a large country like India, it is absolutely necessary that there should be an efficient means for rapid transmission of information throughout the country due to the following reasons :

* In a country of distances, where the processes of social and economic growth are based on the principles of political and economic democracy, where the decisions of individuals and groups in every part of the country all the time affect the socio - economic life of the entire country, communications should be quick and reliable as well as available to the ordinary citizen and should not be the exclusive privilege of authorities

or certain small groups ;

* Telecommunication saves time in the management process and is necessary in the interest of good management of all sectors of the economy :

* Industrial, agriculture and infrastructure sectors can effectively function only if there is fast, reliable and efficient communication.

* The market and the consumer can be best served only if there is an effective and widespread communication network.

* Regional growth and development of backward areas require the opening up of those areas , not only by means of transportation but also through a good fast and reliable telecommunication network. In short , a widespread and efficient telecommunication service is a necessary pre-requisite to the socio-economic development and well being of a country.

And as the communication engineers take us to the information society , the Integrated Services Digital Network (ISDN) would become a reality . In this set up , the subscriber's station would not only consist of the ordinary telephone instrument , but would have a video display unit which could be his/her home television, data input terminal and modem for interconnecting all these. Using such a station , the subscribers of the telephone network could get access to an electronic telephone directory. At the flip of the dial , it would be possible for him to get a display of the particular alphabetical portion of the directory . The subscriber would be able to get a display of any newspaper , that has been registered with the telephone administration. Also , one can do his entire shopping

sitting at the residence.

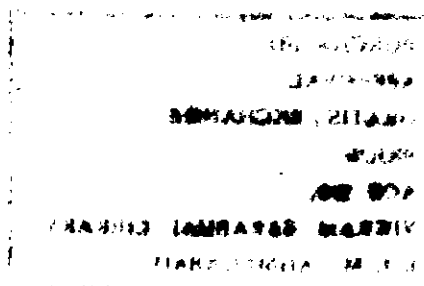
As the usage of telecommunication enters its second century , our society faces opportunities and potential shifts in modes of communicating that are as challenging as prospects were when we began using the telephone one hundred years ago and we seem to be approaching fast the Computopia envisaged by Masuda Yaneji (1981). Computopia, the computer utopia of the Japanese plan for an information society, is a society that brings about a general flourishing state of human intellectual creativity instead of affluent material consumption. It is a society where people may "draw future designs on an invisible canvas and pursue and realize individual lives worth living".

Yoneji Masuda's information society is a new type of human society vastly different from our industrial society. Information machines and telecommunications - intellectual power rather than steam engines and mechanical power - are the core technologies to enhance the human being's intellectual rather than physical abilities. Information abilities will replace machinery based factories and there will be a world market for information. Knowledge frontiers, - not land frontiers, will be the targets for expansion.

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