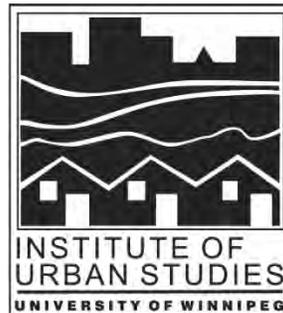
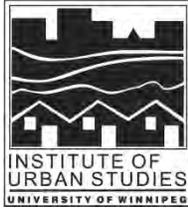


A Public Communication System

**by Lloyd Axworthy, Jim Cassidy, Jocylene O'Hara, & John Badertscher
1971**

The Institute of Urban Studies





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A PUBLIC COMMUNICATION SYSTEM

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A PUBLIC COMMUNICATION SYSTEM

A study of the use of the new communications technology
by government to enhance citizen participation
and increase program effectiveness

Prepared for

The Committee on Government Productivity
(Gov't of Ontario)

by

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Section I - Introduction

Government is the basis of civilization - and communication is the basis of government. Democracy particularly depends upon a two-way flow of information between government and the governed. In an age when the technology of communication, and the technology and organization of government itself is becoming increasingly complicated, the problem of how to insure an open system of information is critical.

The problem of communication between people and government is not new. For centuries the problems of censorship, freedom of speech, suppression of information, have been debated and fought over. The tension between the right of the citizen to know and the presumed requirement of government to withhold certain facts and ideas is a standard condition of democracies, and must be constantly re-examined to see where the balance should lie. Governments have always and will always have to face the problem of who should be able to say what, in which channels, to whom and for what purposes.

This premise has been aptly demonstrated many times by such people as Richard R. Fagen in his book, Politics and Communication:

"Today, as three thousand years ago, the King still counsels with his ministers, peasants still gather in the field and complain about government, men still meet in the coffee houses to argue about politics and the citizens still weep in the streets when the royal bier passes."¹

telephone, computers and broadband cables) were single-purpose machines designed to increase efficiency. When business uses these machines to increase efficiency, business becomes more efficient, when government uses machines to increase efficiency it becomes more efficient also - but when government becomes more efficient in a business-oriented manner, it tends to become less democratic.

The problem to be overcome in this case is an extremely difficult one in organizations where knowledge is the key to power. This problem has always existed and certain types of information have always been restricted to the highest levels of leadership for the purpose of preserving the hierarchial authority.⁴ But in this particular period in man's history this problem carries with it a sense of extreme urgency - for this is the period when there can be instantaneous communication between departments of government and between governments themselves and any link in the communication system which purposely or otherwise withholds information could lead to an instantaneous transmission of incorrect or incomplete information and if carried to an extreme, a nuclear holocaust. The way that information was distorted in planning the Viet Nam War as related in the Pentagon Papers is clear evidence to demonstrate the need for a more open system of information exchange.

Another question is whether the existence of improved means of communication just widens, not broadens the range of human contact. The senior civil servant may find it easier to converse with his contemporaries in other provincial capitals, or with representatives of powerful interest groups, but does he use it to improve his contact with ordinary citizens? In fact, one consequence of improved transportation and communication has

been to widen the area of contact between the senior government person and others of similar outlook and experience as himself, and because of the exigencies of time, shrink the breadth and variety of contact and information with the general populace. The government official is so overloaded with information from his peers, that very little else can be absorbed.

Yet, it is increasingly obvious that the government official must have better information about the needs and interests of people if he is to plan good programs and avoid costly mistakes. The history of poorly-conceived and badly executed urban renewal projects across the country is one testimony to the fallacy of planning based on ill-informed appraisals of community needs and conditions.

Governments must base their operation on some perception of the demand for programs and the satisfaction with progress, and this depends on the communication flow from people. This flow tells government how policy is being reacted to and serves as an indicator of the success of future policies. However, there is at present the tendency for departments to hoard information and to block feedback simply because of a feeling of 'we know best' and 'the elections are three years away'. What they see as apathy is in a number of cases simply a lack of information and lack of channels for feedback. They know that people will automatically elect governments in any case and so they tend to listen to the larger organized citizens groups and respond by dexterous manipulation of means to reach the same end, or by diverting attention to one issue as opposed to another.

As Brunner and Crecine⁵ stated in a recent paper, "the achievement of goals in a political system requires information in the form

of feedback about the consequences of previous actions in order to modify subsequent actions in appropriate ways."

Governments must be careful not to regard the goals of the political system as static or as being the goals of the large and vocal interest group lobbies but they must redesign ways of obtaining feedback.

"In terms of democratic norms and the survival of popular government, success in governing is the elimination (with a minimum of coercion) of gaps between the actual performance of the system and the performance demanded by the public, to the extent that the overall level of public discontent is reduced or at least stabilized. Governments are both goal-changing and goal-seeking: They attempt to modify the performance goals of the public and to modify conditions in order to approximate these goals. For these types of policies to succeed, governments must have information about both public demands and system performance; they must be able to communicate information on the internal decision processes which directly affect goal-changing and goal-seeking policies; and the public must have information about these policies and their consequences in order to modify their demands in the light of experience. Any break in the channels of communication between the government and the public, or any decrease in the understanding, accuracy, or timeliness of the information communicated can be expected to reduce the performance of the system: It will become difficult or impossible for the government to modify its policies in the light of experience and meet public demands. In short, responsiveness through reliable feedback is a necessary condition of successful government." 6

Part of this flow of information from citizens can come through political parties or interest groups.⁷ But this flow is narrowly channeled as political groupings tend to be largely powerful, vocal and elitist groups. The political elite decidedly enjoy advantages in the defining of political problems and the scheduling of alternatives because of the resources and attention they command. There seems to be reasonably effective channels of communication between political party members and the government but very little real

effectiveness of communication between political parties and people other than in the public relations extravaganzas at election times.

There are many individuals in the community who are not part of any organized group, or who do not have the individual skills to operate effectively in the political system. For them the possibility of influencing government is remote. Their influence on government is confined to an occasional vote which may be decided on the basis of a quick handshake or a colourful pamphlet. They have limited information on the government policies or programs that may affect them. They are often confused on ways of reaching the public officials. In these cases, the mechanisms of feedback work very poorly.

The new technologies of communication have a relevance to this problem in two ways. First they can be used to improve the performance of the individual working within the conventional system of government. They can be used to give him more specific information on the performance of his elected officials, provide him with more information on government policy and improve his ability to deal with the administrator. They can also assist him to aggregate his interest with others of like mind more effectively.

Secondly, the new technologies of communication must form an integral part of new institutions for democratic participation. Within the last decade there have been increasing demands for a share in decision-making by numerous kinds of citizen groups. This has led to experiments with new institutions such as neighbourhood governments, community renewal corporations, and citizen advisory councils. Notions such as advocacy planning, community resource and information centres which attempt to provide professional skills

to citizens groups are gaining wider acceptance. They represent ways of strengthening the power of the poor, or disenfranchised groups in meeting with government officials and for presenting alternative plans and proposals and involving citizens in the process of decision-making.

The requirement for participation will keep pace with the increasing involvement of government in people's lives and it will be increasingly difficult for existing institutions to encompass the variety of activity by citizens.⁸ New institutions involving a shared power of decision-making will thus become more common. One problem is that we are not sure how those institutions should work, what kind of resources they will require, what form they will take.

It is also true that in these kinds of situations, the government official still is able to maintain an advantage. He has a monopoly on information, which gives him a decided edge over the citizen group. It is difficult for the group of citizens objecting to a downtown development project or a new school plan to compete with the data and research of the administrator. There will obviously have to be a system of information built into this new structure.

Some claim that government officials, both appointed and elected, are beginning to respond to these new currents of participation and are showing a willingness to begin tentatively to develop new institutions in which power can be shared. The role played by communications technology must be part of this reconstruction of democratic practice and structure. For example, the first demonstrations of community television are beginning to show the media as an effective way of stimulating citizens's movements, and giving them a

forum to express their views. Advances in computer technology show that citizens groups can have data equivalent to that possessed by the government officials. In other words, a system of communication specially geared to the needs of citizen organizations and subsequent new forms of organization are essential if the new forms of decision-making are to be effective.

This leads to the question of what kind of information should people have or need in order to participate more effectively? Is there not already an information overload, as Richard Meir talks about in A Communication Theory of Urban Growth? He observes a key factor in urbanization as the geometric increase of the frequency of communication, and that paradoxically this creates such a pressure on the absorption rate of the individual that he may actually receive and absorb less information.

Professional broadcasters also point to the fact that they already supply all the information that the public is prepared to watch. They cite continually the low ratings of public affairs programs as proof that the general populace is just not interested in more "news, information, public affairs", programming. There is therefore a strain of argument that suggests that the problem is not too little information, but too much.

This argument, however, needs re-definition. The issue may not be the volume or frequency of information but the kind that is available. It may be true that there is already an oversupply of information in the mass media - but that is information geared to satisfying the demands of a mass, universal audience. What is missing is a medium of communication that supplies the specialized, particularized interests of the community.

There are signs that this is being rectified, especially in the print media. The special interest magazines are flourishing. The mass circulation magazines are in trouble. The rise of the suburban newspapers contrasts to the problems of the metropolitan dailies. The alternative press is becoming respectable.

These options are not presently available in an extensive way in the electronic media. If there is one small segment of a city's population that wishes to follow the full proceedings of the legislative committee dealing with pollution, there is no way other than through personal attendance. If the senior citizens in the city, many of whom are bedridden or confined to home, wish to receive information on common problems, say health care, and discuss and debate improvements, they are limited again because the only forum available is the public meeting. If an ethnic group wishes to present showings of cultural interest to their own people; it is difficult to find air space or time.

The mass media do not provide access to this kind of information that is demanded or needed by the variety of linguistic, ethnic, neighbourhood and special interest communities that exist in our large urban areas. The same holds true in rural areas. They are often dependent for news and public affairs on the large metropolitan centres. Their view of the world is expressed, or seen through the eyes of Toronto.

Yet, it is this kind of information that is essential for maintaining and enhancing a sense of community and cohesion amongst people. If there is a way of enabling people of common interests to communicate together, even though they may geographically be separated in a metropolitan area, then they are better able to feel a part of a community. If individuals or groups

can receive, when they desire, precise and detailed information of the debates and discussions of government on issues that affect them directly then their sense of alienation can be diminished. So there is a need for information that reflects the interests and concerns of the variety of communities that compose modern society, and the test of the new communications technology is whether the capacity for allowing this to happen exists.

There is another side to the question of how the technology can aid in participation. It is whether the new communications can provide a means for people to express their needs and concerns to government and other people. We are beginning to learn that one reason why government programs often fail is that they are designed to fit the perceptions of problems as seen by the planner, administrator or politician, not the perception of the problem as seen by the people who experience the problem. This results in programs that do not fit real needs and also engenders resentments and reactions by the recipients of the programs.

There is an obvious need for ways of communicating the needs and concerns of the citizen back to the decisionmaker. For example, rather than receiving a civil servant's memorandum, which often analyzes a problem to the nth degree of distortion, or undertaking the odd venture into the streets to "press the flesh", or receiving a citizens group in angry confrontation, the cabinet minister may find that a videotape of a citizen group discussing their housing problem gives him a better clue to their concerns. The capacity of the new technologies must be tested in relation to the need for this kind of information.

Keeping this in mind, we can now turn to look at the communication hardware that is available, and then see how this hardware could be used as a tool for citizen participation. The whole rationale for the paper can be very neatly summed up in two lines:

"The new communications environment is creating the new Canada. We'd better find out what kind of Canada Canadians want."⁹

Section II

Communications Technology and Its Potential

We can differentiate between separate systems of communication technology but only to a certain degree because inevitably they become extremely and complexly intertwined. These rather artificially separate systems are in order of importance and power:

1. telephone system
2. broadcasting system
3. cable television system
4. digital information relay systems
5. satellites
6. VTR - EVR
7. technology of print

A. Telephone and other related telephone or common carrier services:

The telephone is in Canada the major vehicle for personal communication. The accessibility to telephones is high--over 94% of Canadian residences have at least one telephone.

Since the telephone network is still evolving, current limitations do not necessarily measure its future applicability. Foremost, the telephone network is engineered to optimize selective, two-way private user-to-user communications and therefore wishes to preserve the integrity of voice communication. It therefore places secondary the solutions to interconnection problems, those of telegraph systems with telephone systems, of CATV systems with each other and with switched networks (telephones), and the exploration of microwave capacity, which in Canada it controls.

This gives the telephone companies enormous power and a high degree of control over all aspects of communications. The priority of telephone companies is necessarily 'the integrity of voice communications', that is, simply telephones. If citizen involvement and participation in government is to be promoted through the use of data communications systems for initial information flow, and of CATV systems for secondary information flow, then priorities must be given to the problems and potentials of these systems. If the telephone companies cannot assign these priorities then the control over the technology and equipment necessary for the stimulation of these networks should be given to a body other than the telephone company.

The telephone company can keep as its priority the basic telephone, and can further develop the potential of this vehicle for bringing people together as it is beginning to do: in a big city an individual calls a suicide centre, in New York, ghetto children use touchtone telephones and a programmed voice response system to learn mathematics, in Montreal, Sir George Williams University is using a similar method for language courses. The telephone has also made possible the "open line" or "phone-in" radio show

affording another medium of self-expression to tens of thousands of Canadians who lack the skills or the self-confidence to express themselves in writing or in public forum. These indicate that the telephone still has many potential uses, especially integrated with other media forms. The difficulty is to bring about balanced, comprehensive planning of its use in combination with other technologies.

The telegraph has a steadily declining role in personal communication with many of its former services now being taken over by telephone, telex and TWX.

The two teletype exchange services known as TWX and telex are offered in Canada respectively by TCTS (Trans-Canada Telephone System) and CN/CP Telecommunication.

Telex is designed primarily for message communication - the conveyance of generally unstructured information for personal action or record while TWX is better adapted to modern data communication needs. Both are teleprinter services providing connections only with other subscribers to the same system in Canada and the United States. The two systems are incompatible and interconnections are not at present available in Canada. Data Telex, on the other hand, is similar to telex but faster. Interconnection between all data telex subscribers is not guaranteed since standardization of terminal equipment has not been enforced.

The rapid expansion of computerized remote-access information systems and the new terminal devices developed by independent manufacturers using various combinations of transmission speeds, codes and media such as cards or tape has added a new dimension to the telephone network. Telephone circuits can accommodate these devices up to certain speeds, higher speeds require

independent circuits of greater capacity or use of microwave.

Presently, since voice traffic is statistically predictable while data is not, there results a situation of overloading the telephone circuits and downgrading voice service. The solution may rest in the creation of a second system to deal with the increasing demand for data transmission.

The development of remote multiple access data processing services or telephone data networks is recent and relatively experimental. Heavy users (the business community) of data communications over the common carrier network will undoubtedly rely more in the near future, on dedicated end to end digital transmission systems (computer to computer set up). The flexibility in usage is tremendous. At present, virtually all data that is communicated flows over the common carrier network or over leased lines that are physically integrated with the network: they range through keyboard to keyboard operation, card to tape, tape to tape, low or high speed facsimile, electrocardiogram transmission, human to computer via keyboards, computer to computer, or digital-inquiry voice answerback. In fact, the users concern is one of organizing his resources to make the most economical and effective use of available facilities and finding economical terminal equipment.

The telephone companies have marketed in recent years video phones which are designed for face to face communication. They have been offered as a tariffed item in downtown Pittsburgh since July 1970. However, until rental costs are diminished and equipment is refined, their growth is expected to be gradual.

B. Broadcast Undertakings

The influence of the telephone system is also felt in some areas of the broadcasting media. Broadcasting of any sort relies on microwave

facilities which are under the jurisdiction and control of the telecommunications carriers. Broadcast facilities at present cannot be brought to any area unless the telephone service has first been installed.

Unlike telephone and its related services, radio and television broadcast services are provided through an over-the-air transmitter. The group of frequencies used by a given transmitter is called a channel, and the amount of information it is possible to transmit through a given channel depends on the width of that channel, that is, the total number of frequencies available within the channel. Since there is an ever-increasing demand for "space" within the usable radio frequency spectrum, by the many different radio communications services (land-mobile - AM/FM - UHF and VHF television) each service must be content with the minimum channel width and number of channels.

In order to better grasp some of the problems currently faced and likely to be intensified with regard to broadcast services, a brief overview of the radio frequency question will follow:

The radio spectrum is a national as well as an international resource and a license to use a particular frequency does not imply any ownership rights. Use of the frequency is limited and subject to specified conditions. It has been theorized, that the most economic usage of the spectrum would be realized by assigning frequencies to the highest bidders -- however among the weaknesses of a purely economic value approach to spectrum allocation would be the definition and treatment of essential services such as defence, emergency measures, air and marine traffic control, law and order, fire prevention and the list goes on ...

Efficient management of the radio frequency spectrum is vital to the development of telecommunication systems that will provide access to

services for the largest possible number of Canadians at the lowest possible cost. Its use can be encouraged for such purposes as regional economic expansion and the development of the North or to assist in the resolution of urban problems. Spectrum management involves much more than the allocation of frequency bands and the assignment of particular frequencies. Long-term planning and the establishment of related technical and performance standards should be a continuous process which needs to be supported by the monitoring and evaluation of performance to provide the feedback essential for revision of criteria, standards and plans.

Unlike the United States, there is presently no general shortage of frequency spectra in Canada. Nevertheless certain portions of the RF spectrum are filled up in some parts of the country as are VHF channels available for television or AM radios in large urban centres. The problem of sharing frequencies may grow rapidly in the next decade.

Today both UHF and VHF (ultra high frequency and very high frequency) are used mainly for television broadcasting. Up through the 1950's, TV signals went out over only the twelve channels of the VHF spectrum. However, believing that this assignment made for an inadequate choice of stations for most viewers, near uniformity of fare, little community or educational service, the United States, through its regulatory body, the Federal Communications Commission, opened up the UHF spectrum for commercial licensing.

Canada has not yet greatly developed the UHF spectrum having only one UHF channel in operation, channel 19 for educational purposes in Toronto. (although application for a new UHF station is now pending before the CRTC).

It must be pointed out, that ultra high frequencies are poorer signal carriers than the very high frequencies. UHF is handicapped in its

ability to provide reliable distant reception and in coping with obstructions in the path of the signals between transmitter and receiver. Furthermore a UHF station must install more expensive equipment than is required by a VHF station if it is to produce a signal of given strength and clarity.

The success story of UHF stations in the United States has been negligible: "in 1967, 133 UHF stations were in operation but only 44 showed profits, and of these, 42 had network affiliations. Thus, of 89 non-network UHF's only two (2) were in the black. In Chicago, one of the nation's largest advertising markets, 4 UHF stations have died".¹⁰

It has been difficult for UHF stations to invest in programming and to mount comprehensive and creative community service programming without being part of a network or government subsidized.

According to a Globe and Mail article in August 1971, application was to be made in early Fall 1971 to the CRTC for the creation of a third national television network by the fall of 1972. The first phase of the project would encompass the province of Ontario and aim at making possible 24 hour-a-day educational television to most Ontario residents. It was proposed that the network would broadcast commercially for only 45½ hours a week on prime time (5 p.m. to 11:30 p.m.). The remaining broadcast time - 80 hours a week - would be offered to the Ontario Educational Communications Authority and other authorized and local specialized services at a "nominal cost".

Radio and television are, of course, only two of the many users of the air waves. Others include shortwave and amateur radio, two-way telephone systems for private cars, all short-range two-way radio set ups, whereby a dispatcher maintains contact with one or more vehicles. Taxi fleets, delivery and service vehicle fleets, police and fire departments, airlines, government

and military, remote-control systems, etc. use mobile radio facilities.

In some areas, radio experiments are being attempted and encouraged. In Northwestern Ontario, a two-year license has been granted to Radio Kenowadiwin, a 40-watt mobile station operating from a panel truck which broadcasts to six Ojibway communities. The program is flexible and includes community news, general news of interest to Indians, Indian cultural programming and general Canadian news.

C. Broadband Cable Network

The new communications medium referred to as community antenna television is having a far-reaching impact on the social and economic structure of our society. CATV is "represented as the destroyer and as the savior of conventional television; as the force which splits audiences while enlarging them; as the bringer of distant television stations and the last hope for local television programming."¹¹ As of March, 1971, 342 CATV undertakings were in operation in Canada, 106 in Ontario and the national penetration percentage of cable makes Canada the most wired nation in the world. Cable television has grown rapidly in Canada since the larger urban cities are within reach of United States' television signals and thus become an easily accessible advertisement market.

Cable system operates by means of a sophisticated antenna equipped with low noise preamplifiers, copper co-axial cable with additional amplifiers from the tower (antenna) to the community pick-up. They transmit the entire offerings of over-the-air broadcasts to customers who contract to pay monthly fees. CATV signals are, on the great majority of systems, a one-way type of service, that is, one directional, and available only to persons connected to

the CATV cable. The standard system is built for 12 channels. The Canadian Radio and Television Commission has not yet increased the channel capacity. Several Canadian cable companies are technically and economically prepared to increase channel capacity once the CRTC alters its policy. There are many 20-32 channel capacity CATV systems in the United States and San Jose, California has an operational 42 channel CATV system.

Besides offering regular commercial fare from off-the-air broadcasting stations, cable systems offer local program origination. Most systems now have provisions for telecasting local events, time and weather and selected entertainment. Additional CATV gimmicks include an instant news channels, which is simply a system engineered between the Associated Press and a CATV equipment manufacturer to focus on an AP ticker.

In recent years, a few cable systems were designed and built on an experimental basis with "two-way" service. In actual fact, several hundred systems in the United States have limited two-way communications along portions of the trunk cable to provide for origination of programs in localities remote from the main distributing points. However, only recently has the possibility of two-way communications between head-end (distribution point) and the subscriber been considered.

The inherent potential of CATV systems stems from the economic advantages of multiple channels of transmission. It has the potential to spread throughout the community as the third wired system after the electric power cables and telephone lines, creating a highly efficient system of communication to every home and office.

A great deal of controversy has surrounded the forced marriage of common carriers and CATV systems. Telephone companies install, maintain, and own the microwave systems utilized by CATV systems. Because of the expense of utility pole construction and maintenance, it is almost always necessary for CATV operators to enter into a contractual agreement with the pole owner, ordinarily the telephone companies. In Ontario, Quebec and Manitoba, the telephone company owns and controls the trunk and distribution cable installed and the CATV operator owns only the amplifiers and the house drops. Contracts between the cable operators and common carriers call for payment of a large initial fee, often equal to the full cost of the materials and construction and then an annual rental for the use of the poles.

The telephone system offers a switched service on a person-to-person basis. Yet, although it is highly developed and employs sophisticated and complex switching techniques, it utilizes pairs of copper wire whose spectrum capacity is far from that of the co-axial cable. (co-axial cable can provide 300 times the space spectrum of copper wire). The telephone lines are therefore suitable for handling voice signals and low-speed data type. Should the copper wires be replaced by co-axial cable, at least conceptually we would have a new system referred to as a Switched Co-axial Cable System and a giant step forward towards the Wired City. Yet neither in their present form or within existing regulations can the telephone system or the CATV system provide total communications.

Broadband Communications Network: Withstanding the present regulatory limitations, the rapidly evolving technology is leading in toward the switched co-axial systems which will surely shape a broadband communication network

capable of realizing the wired city concept that excites the imagination of both technocrats and theorists.

With the two-way feature added to a CATV system and by use of a centrally-located digital computer for assembling information, storing it, retrieving it, compressing it and reacting to it, an unlimited number of services could be provided. The beginning of a broadband communications network could provide a wide range of local services, ranging from emergency alerts, to coverage of electoral politics, to law enforcement.

In the United States, some towns and cities have already adopted a switching system that permits a local municipal authority to cut into all channels to broadcast emergency alerts. In Liberal, Kansas, the device is used to warn citizens of tornados and to broadcast descriptions of lost children.

In Olean, New York the cable system is being used to improve the efficiency of police work by installing a series of strategically placed cameras, monitoring 75% of the city's downtown area. The hookup is viewed by a single police officer at headquarters and serves not only as a crime-prevention device but aids in responding quickly to an accident and in overseeing traffic conditions. The cost to the city is about \$6,500 a year.

The local origination quality of cable, also referred to as community television, is providing the opportunity for a new dimension in broadcasting. The need of self-expression by community groups and the opportunity of reaching selective audiences or communities which would otherwise have very little or no access to an electronic medium is a very significant

development. Programming on community channels in Canada has included newscasts, religious and ethnic programs, local sports and cultural events, election coverage, political campaigns and debates scantily and selectively covered on broadcast stations, city council and school board meetings. The potential and in fact the application, is as varied as the initiative and creativity of those utilizing the media, and the potential multiplies on a two-way system.

An experimental switched co-axial cable system is presently in operation in the laboratories at Wembley of the British Post Office offering a limited number of services at the present time and it is intended to be installed throughout the United Kingdom over the next 20 years. On the other hand, the Dutch Post Office after studying the problem of integrating their television and telephone system into a common cable system, have concluded that this proposition does not make sense and have finally abandoned it.

D. Satellites

It has been the federal government's view that "satellite communications is of immense importance to Canada. The capacity of the communications satellite for carrying high quality telephone, television and data-transfer signals between widely separated points is peculiarly relevant to the geography and demography of Canada, both in supplementing terrestrial connections between urban centres and even more importantly by bringing telecommunications services to scattered and otherwise inaccessible communities, particularly in the north."¹²

Canada is a member of Intersat, the International consortium. Telesat Canada, responsible for domestic satellite communication granted contracts for the world's first synchronous domestic satellite communications system to be operative in early 1973 after launch of Telesat Canada's first Anik I in 1972. As outlined in Aviation Week and Space Technology, August 1971, long range plans for such a system include two major transmit/receive stations in the southeast and southwest, six regional stations for television reception that may later include a transmit capability, two far-north stations, mainly for two-way message service and 25 small remote television reception stations. Telesat is to be jointly owned by the government, telecommunications carriers and the public. The public stock offering is postponed until the system starts commercial operations in 1973. Estimate of capital requirement until such time is as high as 90 million broken down with the government and the carrier's purchasing 6 million shares at \$10 each and the remaining 30 million acquired from short-term government loans until the public stock is issued. Most countries have launched satellites, notably to provide for international communications, however, prototypes of domestic systems do exist. The impact of international satellites will increase since television will effectively overcome many of the language barriers that exist with almost every other medium.

Large scale domestic satellites do not appear to be economically feasible nor particularly effective. Although use of communication satellites for telephone service extension (circuit allocation) is economically solving some of the problems of terrestrial circuit overload, and educational satellite hook-ups is greatly improving information exchange, notably in the United States, domestic television satellites are not regarded in quite the same favourable light

by many theorists and technocrats. A domestic satellite launched by India to provide educational television service to some 2,500 villages has been regarded by many authorities as of absolute no use. The mere geographic scope of Canada and the high cost of building and maintaining both satellite and ground terminal stations may well prove to be financially untenable. Plans, presently include only two main relay terminal stations for the Canadian satellite, one in Toronto and the other in Vancouver. Television service to Northern areas would emanate from either of these two centres and may well rob the areas of greatly needed local or regional information links and simply increase the already overpowering one-directional south to north information flow.

Withstanding the disadvantages, mostly financial, the development of the fully-wired communication society, as mapped out on drawing boards is dependent on satellite utilization, along with the other partners, the telephone, the cable and electronic computer.

E. Computer

Computer usage is increasing on a daily basis and being adapted to new service areas at the same level. Computer population, according to the Hudson Institute, doubles every 23 years. The major recent breakthrough has been the capacity of computers to communicate with each other although there are still some difficulties to be ironed out related to the increased need of communications facilities. The communication links needed for computer to computer interchange can be ordinary switched (dial-up) telephone networks, private switched telephone networks (dedicated lines) or microwave links, necessary for high speed data transfers (wideband and broadband).

The telephone company predicts, in the United States, that by 1975 more than half of the traffic over their lines will be non-voice, that is primarily data.

Changes and refinements are affecting the computer communications area, providing greater versatility and simplification in their usage within the limit of the existing telephone network. Cost reduction will be a result of these changes making the technology accessible to a wider and more diverse population. At present, data communication transmission is in effect a monopoly because of the common carrier's control over use of telecommunications.

The computer is generally understood to be a rapid and obedient servant in making mathematical calculations. The average consumer is less aware of its powers of memory, or its ability to sort out vast masses of information, and its ability to "learn" in the sense that it is asked to remember the pattern of demands by a particular user. It can automatically remember the interest of that user and in the future give him the kind of thing he has been asking for in the past. It stores not only numbers and logic, but enormous quantities of printed and graphic material.

What are some of the ways these talents of computers are utilized today which results in achieving not only greater productivity of personnel, and time allocation, but improvements of information channels?

Besides industry and business, governments are heavy users of computers. However, their use in government is still primarily in administrative applications, such as payroll, inventory, etc. There does not appear to be much examination of how computers can be used to improve information flow between departments and agencies or between government and the people.

It is perhaps in the field of education that the greatest amount of experimental usage of computers has taken place - computerized instruction and data retrieval system are two main areas. Media libraries with highly advanced systems of audio and video transmission are operative in both the United States and Canada. A Connecticut school division operates a 'Dial Access Information Retrieval System'. Simultaneously, by means of this system, the dialing of a mere three digits, a student listens to the Kennedy-Nixon debates; an elementary teacher views a biological phenomenon with the class; an English Department Head presents a videotape on micro-teaching techniques during his departmental meeting; a high school social studies class views video segments on the urban crisis; an avid physics student listens to present day scientists discuss the impact of ionic devices, etc. ...

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Developments being made in miniaturization, eg. microfilm; microform and microfiche are greatly improving the non-electronic method of communication - that of the printed page. At Laval University, Quebec, the coupling of micro-film technology with a closed-circuit information retrieval system makes it possible for a faculty member to request information on remote areas from the Documentation Centre and examine the results of the information retrieval operation on a TV monitor.

Law enforcement agencies and courts are turning to computer technology to better serve the citizen. In Kansas City, an on-line computer or data bank linked to a St. Louis computer and by microwave to the FBI computers in Washington, provides officers on the beat feedback within minutes of stolen vehicles, known dangerous criminals and persons wanted. According to the Kansas City Police Department Annual Report, initial cost was a little over one million

dollars, the operational cost is \$84.11 per hour. This computer system appears to be not only protecting the officers and thus improving morale, but helping to maximize the efficient operation of the department.

Many a citizen, policeman or lawyer has commented on the bad management of court schedules due mainly to the limited human skills in entering and cancelling pertinent information. Computers are being used to index cases until such times as they are completed. It also controls variables - such as testing persons involved in court cases and keeping track of recommendations of professionals - (doctors, social workers, parole officers, etc.). Computers are also used for jury management and to maintain lists of persons on probation on a national basis.

The RCMP has recently announced plans for a centralized data bank on stolen cars in Canada which will be available to all law enforcement agencies. Such a system will not only increase response time of policemen to citizen's needs, but will greatly aid in freeing support and/or administrative personnel which in some instances accounts for up to 70% of costs and manpower.

It could be pointed out at this time that although computers provide a valuable service, they also carry enormous threats.

The American government is currently facing a debate on the invasion of privacy related to the FBI Army subversives file known as 'rap file'.

This debate is significant since detailed and categorized information about masses of people is becoming a saleable commodity and there is no lack of interested buyers for information about credit condition, socio-psychological characteristics of the populace. One main and legitimate concern has been the increased mobility of data bank information, especially if it is erroneous, in this rapidly evolving electronic era.

The question may not be so much one of invasion of privacy but one of the ability of this improved data communication system to reinforce the powerful.

All governments are presently studying the possible safeguards, be they of a statutory, regulatory and mechanic or electronic manner.

In the fields of health, computers relay electrocardiograms for analysis and diagnosis. They also monitor heart conditions and have been instrumental in combatting Arrhythmia. Computers could be used to maintain records of drug needs and supplies available, for diabetics, epileptics, etc. and could include an analysis of cost factors.

Highway planning and designing is benefitting in Los Angeles and Washington D.C. from computer consultation, computers are used to outline possible models, incorporat^{ions} such factors as - cost, environmental influence, water shed, labour, population trends, agriculture, expropriation questions, etc... Traffic control is completely automated by computer in San Francisco with the BART system.

The State of Washington has installed a computer in the legislature which now contains the entire revised code of Washington. It is utilized in every phase of bill drafting including abstract amendments to statutes. Legislative members receive daily computer tabulated accounts of pending bills and their present status. At the end of each legislative session the computer provides a categorized list of all bills and statutes.

The public and legislative members can view on monitors any of the information stored in the computer. The possibilities of automated law

searches has been well-received as indicated by a survey the computer centre conducted amongst sitting legislative members: the average amount of money and man hours saved was \$173.15 and \$31.48 respectively per search.

The Toronto-Montreal-Vancouver stock exchanges rely on dedicated computer communication to keep abreast of market fluctuations. The Bank of Montreal will shortly have a computer system for internal use only, which will keep a record of all branch transactions. Major airlines, including Air Canada, rely completely on a central computer bank in Montreal connected to all Air Canada reservations offices in the country and have thus eliminated the geographic reservation factor. All flight schedules, meals, etc. are planned in Montreal, on a national basis and results in decentralized control from a central control point.

These are but a few of thousands of uses presently being made of computers and it appears that as technical improvements, and adaptations of computer technology come about, computers will have a greater and increasingly favourable impact on the country's social, cultural, political and economic activity.

It should be added that the technology and the accompanying hardware has not always preceded a consumer need. In fact, most often computers are designed to meet specific needs such as in the case of banking or airline requirements wherein these companies demanded efficient systems to avoid heavy financial drains and thus generated a need sufficient enough to command experimentation and model designing to meet these needs.

It should also be repeated that the potential of any of these systems is highly dependent on the control by one large profit-oriented institution. At present, none of these systems could operate without the grace of the local telephone company. For the purposes of citizen involvement and participation and of creating a more open and democratic society, there would seem to be no valid reason why control over some parts of the system, especially those necessary to expedite a two-way flow of information should not be under the control of a citizen-oriented organization which would allow these systems to become priorities within their own frames of reference.

F. Hardware or Equipment

To date the focus has been to identify, examine and exemplify the main components of present day communication systems.

There are also major advances being made in the capacity for individualized communication equipment to be produced. The equipment can produce "canned" programming for playback either directly through a standard television set, or on a CATV system or other types of closed-circuit system. Several different methods of "canning" are now available or in an advanced stage of development.

Videotape recording equipment (VTR) is now manufactured by most major firms and the 1/2 inch models are relatively inexpensive and easy to operate. Their portability has made them the ideal tool for the realization of community programming whereby citizens become the film crew, the players, the audience, and the setting or studio is the community itself. Experiments to this end are being attempted across the country and the results, the tapes are being shown on CATV and closed--circuit systems.

The new information processing technique developed by CBS and known as Electronic Video Recording (EVR) uses miniaturized film coiled in cartridges which can be inserted in a converter unit connected to the antenna terminals of a television set. The sealed cartridge, which threads and rewinds itself, can carry 25 minutes of colour programming, up to 60 minutes of black and white programming or if books are filmed at a page per frame, 500 average length novels.

The equipment is also easy to operate and because on one hand there are not film processing costs, the EVR cartridges are considerably more economical than conventional film. It can be used in education, as a home study, a management and training tool, and any number of other uses besides those of film today.

Besides CBS, a dozen other companies have announced their entries into the video-cassette field. EVR is being marketed mainly for industrial and educational uses.

As with videotape recorders, some minor efforts are being made by the major developers of cassette hardware to co-operate on standardization, reducing the problems of incompatibility. Cassettes will also play back magnetic videotape through a standard television set and will have two audio tracks either or both of which may be selected during playback to accommodate stereophonic or dual language programs.

G. The Technology of Print

In this age of electronic media diffusion and instantaneous communication, the printed media still plays a very important role. The printed page can be cast in such a way so as to, on the one hand, convey complicated information in a series of ideas and on the other hand, can be cast in another way so as to convey basically the same information to an illiterate - and all of this can be done very cheaply.

The technology of print is continually being improved - "in 1960 an offset printer could only cast 14 lines of type per minute - seven years later it was possible to cast 15,000 lines of type per minute"¹⁴. The technology of electronic photocopying has brought mass distribution of printed material within the price range of almost anyone. The newspaper industry has produced paper which is very cheap and able to be recycled to produce more newspaper.

And, the newspaper concept remains a very simple one for people to work with - with a typewriter, a pen, paper and either a press or photocopier people can easily produce the information that they feel is important and can produce it in a format which is traditional and readily acceptable by the entire society.

H. Future Trends and Forecasts

What is the communication forecast for the next 20 years? What components are necessary to the development of the communication city of the future?

As previously outlined, the basic components of the Wired City have been with us for some time. They are: a switched telecommunications network from coast to coast for voice traffic, twx, telex, telegraphs, data transmission and a limited amount of facsimile reproduction, a broadband cable system (CATV) capable of bringing 25 or more channels, and the computer communication systems, linked to one another and to the two other components.

Brenda Maddox in a booklet entitled, "Communications: The Next Revolution", outlines the basic trends in the development of technology this way - "Before very long, information theory will have been brought to its logical conclusion in public communications; there will be a single unified network for all kinds of messages ... separate systems for telephones, telegraph, television and data transmission will disappear. Information will flow through the network as on-off digital signals and appear as pictures, sound or print according to the choice of those sending and receiving it". This is the essential fact about the future of communication technology. It will cease to be an arrangement of separate systems working with limited connections. It will become a total integrated, interdependent system, utilizing a variety of media, opening up a variety of new uses.

Elements of the Wired City of the future are already existing and the perfecting and increased use of these elements can be classed as 'realistic futurism'. Besides examples supplied through this chapter, it can be added that an initial form of teleshopping is done today in San Diego, and in Houston, Texas an electronically fortified walled housing development offers total security to homes cabled to a central computer. By means of electronic sensors on doors and windows and panic buttons, police can be summoned instantaneously.

Daily advances are being made in the telecommunications field. Accepting that revolutionary communications changes are in the offing a sustained effort must be made to foresee the social and economic impact of new technology and to plan as far in advance as possible.

While the technology will continue to be tested and improved, the implementation under present standards of the market will remain contingent on factors of cost reductions, improved methods of fabrication and the development of large markets. So far, the implementation has been little guided by "public interest" standards or policies, other than CRTC rulings relating to American programming, and CATV local origination.

A total communication system or fully wired city would imply that the number of services that the system could provide would be limited only by the imagination and pocketbook of the subscriber. Such a system could accommodate services as:

1. Advertising
2. Alarm (burglar, power failure, fire, etc.)
3. Banking
4. Facsimile data services, newspapers
5. Emergency communication
6. Communication between subscribers and computers
7. Meter reading (utilities)
8. Distribution of radio programmes
9. Shopping from the home
10. TV (origination and distribution)

11. TV (stored movies, available on demand)
12. Educational television
13. Telephone
14. Computer aided instruction
15. Delivery of mail
16. Voting
17. Extending urban services to rural areas
18. Crime detection and prevention

But it is not just a matter of delivering services more effectively that is important. It is also a question of how these innovations will work to improve the democratic process. To that question we now turn.

Section III

A Public Communication System

Having described and analyzed the current use and future potential of communication technology, the next step is to determine how the technology can be used to improve communication between public and the government and stimulate increased involvement by citizens in public policy-making. There are several aspects of the new technology which make increased involvement and better communication possible.

To begin with, the media has been demystified. No longer need the facilities for transmitting information be controlled by a small elite of media owners, professional broadcasters, advertising executives, and government information officers. With the new communications system of multiple channels and easy to use equipment, the ordinary citizen can be involved as a participant

in the production and dissemination of information through a communications network. The 1/2 inch VTR camera is to information transportation what the Ford Model T was to automobile transportation for the average citizen. Thus one result of the new technology is that accessibility to the media has increased.

Secondly, the new communication systems can deliver a wide range of service in a more efficient and rapid manner. The system increasingly interlocks different media in an interdependent fashion. The co-axial cable, tied into the computer, vastly increases the capacity to provide services that have an information content. It makes it possible for the information to be transmitted to a large number of people, thus breaking the monopoly of information.

Thirdly, there is now an effective and efficient system for the storage, dissemination and retrieval of all types of information. This allows people to be more selective and specialized in their choice of information and makes available data, statistics and research to the public.

Finally, the new technology can provide a form of two-way communication between people and groups that can assist in developing community cohesion. There is an argument for direct human contact - face to face relations - but this is not always possible. In both large urban areas and isolated rural areas, there needs to be a medium of exchange. Many of the older institutions, such as the church, no longer are able to play that role. Electronic communication may provide the means.

The question is how to translate these opportunities afforded by the new communications technology into operational services and facilities serving the public interest. Like most new technologies, those in communication

have a potential to be great assistance or to be damaging and destructive. On the negative side, the power of this technology could be used to simply serve the commercial market or be used to give government officials more effective techniques to manipulate opinion and shape the behaviour of the citizen. To counter this there must be a basic decision to use the new technology to serve public interests by expanding the flow of information and giving access to the media.

The establishment of a Public Communication System is one way this can be achieved. A Public Communication System would mean that the Government of Ontario would set up the necessary institutions to insure that the new modes of communication are made available for serving the needs of a more open, democratic process of government. It is a system that is designed not to provide entertainment, to sell products or provide more effective shopping services. It is designed to provide information, and to enable people to communicate better with each other and with people who are making decisions.

There are several essential elements that would form part of this Public Communication System. The first of these is a system of community broadcasting. This would be a broad-based system consisting of community radio, community newspapers, community television both over cable and over the air transmission.

The community television concept is presently seen as the prime means of giving citizens access to the media, and is now in a trial stage in many communities in North America.

Community television is basically people deciding what programs should be made and on what subject. Ordinary citizens do the scripting

filming and editing, and are responsible for making sure that the program goes out. Community television is television about real people and real concerns and done by those people with the concerns and not by professionals on their behalf.

Community television can ensure the citizen's right to be informed and can give the citizen the right to inform. Communication becomes a two-way street, and feed-back becomes built into the medium. Community television has become an important tool in the fight for a true participatory democracy.

This concept and its implication is a reality. Different kinds of experiments in community television have been introduced in Vancouver, Fredricton, Toronto. In Winnipeg, the Institute of Urban Studies and other groups have been engaged for the past two years in a community TV experiment and the show that people can and want to have access to and control over a medium for self-expression. This autumn, with the assistance of the Manitoba Provincial Government, and the Federal Government, a community channel was set up on the cable system and used to explain the new form of urban government to citizens, give over 160 candidates air time to explain their position and enable citizens to express their views. A preliminary evaluation of this experiment showed that this community channel helped to supply basic information on the election which otherwise would not have been available, and become a means of allowing many groups in the city to express their interests, ideas and concerns about the new city government.

Community television can operate through either the cable or over the air on a micro-wave system. Each of these will be examined in turn with a slight digression to discuss the video-tape equipment necessary for the success of either system.

CATV, when it began was an adjunct to the existing commercial broadcasting system - it provided television in areas which had poor or no reception of the regular broadcasting system. But now even based just on existing technology, its potential for becoming a major communications medium in its own right is readily evident. The ruling by the CRTC that cable operators must provide local programming was a major step in making community TV possible.

The CATV factor is one of the factors which go to make up community television - the other factor is the method used to make the programs and to put them on the cable. That factor is the 1/2 inch portable video-tape recording equipment - perhaps the most exciting technological advance in terms of people and the expression of their needs.

This equipment is a completely portable, battery-operated VTR system that can be carried and operated by one person. It consists of a hand-held video camera (with a zoom lens and a built-in microphone) connected to a shoulder or back-carried video recorder. The video recorder is used both to record picture and sound, and to play them back on a monitor, or with an optional attachment, on a regular TV set.

A community, using this simple equipment, can make tapes and have them immediately shown on a CATV system. If they want to edit the tape, put things in, take things out, or put several tapes together, they would require playback recorders. With two of these machines you can run two tapes, and

electronically transfer part of one on to the other. The entire system, mentioned so far, could be had by a community for approximately \$3,000.00.

Groups in many parts of Canada have been using this equipment and have been quite successful at producing and showing video tapes.

But portable 1/2 inch VTR equipment has also many other constructive community uses. It is useful as a tool for community organizing and community research. In using VTR with community groups over the past two years, the Institute has found that it gives community organizations a sense of confidence in themselves, enables them to present ideas and proposals to government officials, and supplies information to small groups and community gatherings.¹⁵ It fills many vital roles in the community and if it is made available to more groups, undoubtedly further uses will be discovered.

Community television, through VTR, however is not limited to just the cable system and the entire concept is not limited to television but extends to radio as well.

Low frequency, low-power radio and television stations could be set up, especially in rural areas, where there is no cable system. The construction of these could, with a change in CRTC regulations, be conceived and carried out by communities themselves. They could be put up for a nominal cost and could be connected into a regional information and resource centre such as is discussed below.

Community radio stations similar in concept to community television are yet another way of providing essential information especially to the residents of large urban centres. The crisis radio stations service

could be extended to information programs on housing conditions, health centres, etc...complemented with telephone contact referral.

Community radio or TV is a way of providing particularized information exchange. With the new developments in cable casting, it is possible for one geographical area of the city to be isolated on the cable system, so that information relevant to that area can be distributed and discussed. Minority groups can use the system to present programs in their own language or deal with issues of special interest to them. Community TV or radio becomes a modern version of the meeting hall.

When you provide people with access to a TV camera or a radiomicrophone and let them collect and disseminate their own information then you eliminate the filtering out processes which happen when information goes through clogged channels of government and the mass media. Such facilities are a key element in the Public Communication System, and they would be managed and controlled through community-based corporations or communication councils.¹⁶

A second important element is the community information centre. These centres show some similarity to the Information Canada concept but would be different in operation. The major differences between the two would be the types of information disseminated, and the methods through which it is collected and disseminated. The community information centre, located in different communities, would deal with policy relevant information, information on demand, and information through all types of media. There would have to be a two-way flow of information.

If government wants people to become involved in the processes of government and if it wants people to shape decisions according to their own goals, then it must make available to the people, information necessary to

realize those goals, not just announcements of decisions already taken.

Government must also be willing to accept information from the people, information as to what they want, and how they think it could be achieved.

This two-way flow of policy relevant information in the type of thing that Information Canada should be attempting to do. Information Canada offices however have become bookstores selling rather expensive books which are mostly irrelevant - especially to any citizens groups wanting to improve low-cost housing in a certain neighbourhood - they want the type of information and data about housing alternatives that is available to the official who makes the decisions and they want it in language that they can understand. They also want a means of conveying that information back to the government once they have used that information to choose an alternative that more closely meets their wants and needs. Information Canada should be providing an access route through which people could relay information to government and should not be spending its time collecting that information and interpreting it, before sending it on to government in the form that they feel is most relevant.

The community information centres would, through use of various media, let people compile their own information to be transmitted to government, let people tell government which information they wish to have transmitted back to themselves, provide the storage and co-ordination centre for information on all types of media and for the dissemination of information over all types of media. It would be complete with large computer data banks, video, audio and printed matter data banks, video-tape and printing equipment. The centres

would provide a storehouse of equipment that people can use.

It could provide 1/2 inch videotape equipment, newspaper printing facilities, tape recorders and the technical advice and training on how they should be used. People could collect their own information about government plans and policies by means of interviews and discussions, they could tape municipal and metro council meetings, and put pressure on government to allow the provincial legislature to be taped on VTR.

All of these tapes and printed material could then be catalogued and stored in the community information centre. Then a community group seeking information on a particular subject could look up the subject, say from a council meeting, view a tape, read an article, run off a copy, edit it down to a desired length, and show it locally at the centre, at a community club or church basement or over the cable system. Once they had finished with it, that tape could be erased and left free for the next group to use.

These centres could be set up as parts of institutions which already have communications equipment. The community colleges, regional high schools and some universities might be the place to locate the centre. The centre would provide the wherewithal for people to communicate by means of community television or radio, community newsletters, or neighbourhood newspapers.

The community centres are thus a very important element as they provide a central focal point for the obtaining, co-ordinating and disseminating of information.

A third element to the network is the organization of the way government provides and receives information. Providing citizens with access to communication systems to collect, translate and disseminate information about themselves to the public and to government must be accompanied simultaneously with government's use of these communication systems.

A simple step is to provide radio, television coverage of legislative or house committee debates. Radio is used in Australia to broadcast all Parliament sessions. Television is used in special sittings of the United States' house committees. Government debates can be made available through community resource centres by having these sessions recorded on video tape or in cartridges. These carriers, radio stations or community channels, can carry either live or delayed coverage of the proceedings. In effect what is needed is a modern form of electronic Hansard.

Audio-visual techniques (audio tapes, VTR, cassette, film) could illustrate the services various departments perform. Research and special studies, related to government programs in areas such as urban renewal, housing innovations, zoning regulations, insurance schemes, health care, highway planning and allocations, etc. in addition to the wide range of municipal services, can be made available the same way. The Institute of Urban Studies, for example, prepared twenty-four video tapes where officials at different government departments explained what they did and what programs were available, to the citizen. They provided basic information about government that very few people

have heard or seen before. It illustrates the fact that the packaging and presentation of government information can be enhanced through the use of new communication techniques, and the dissemination of such information greatly improved through the facilities of a public communication network.

Application of computer technology

The use of computer technology is essential to the workings of a Public Communications System. Computers could provide efficient relay of information among the various community information centres, and provide the necessary storage, cataloguing and classification of legislative information. The availability of computer time would mean that a citizens group would be able to utilize the same data available to the transportation planner and perhaps arrive at alternative plans or proposals. It is a way of equalizing the position of official and citizen and breaking the monopoly of information that is too often held by those who occupy positions of power and influence.

Education and Training

The community resource centre will house a magnitude of information on citizen needs, demands, request lists of government programs under study and the reactions they stimulated, etc. which the government as well as the individual citizen and citizen group, can draw upon. The announcement of a new program or policy announcement can be transmitted through the community communication systems and be accompanied with historical recaps of the processes which led to the government decision taken from the resource centre files. Public feedback on the implementation can be immediate, delivered through the community communication systems and monitored by government.

To make this work effective efforts must be made to help government personnel and the public at large understand the underlying principles and advantages of a two-way government-public communication system. Training should include familiarization of the new technology as delivery systems, instruction in its use, and methods of utilization. This could be provided through the community information centres, especially if they are attached to community colleges or schools.

The Medium of Print

The technology and potential of print must not be neglected in this new public communications system. Print is still a very widely acceptable medium and one which is extremely flexible and economical.

The impact and potential of community newspapers both for organizing communities and for transmitting to communities needed information in a very simple and concise method makes newspapers a vital part of any communications system.

Community newspapers could use the facilities of community information centres which would have simple-to-use printing and layout facilities so that these newspapers, pamphlets and circulars could be totally written, designed and disseminated by the people. It would enable all kinds of groups, young people, ethnic groups and citizen organizations to pursue their ideas, and advertise programs, present information which may not be suitable through the electronic media.

The Mass Media

There is an important role for the conventional media to play in the operation of the Public Communication System and there should be co-operation between the community facilities and the existing media.

The existing mass media can provide facilities, training and advice. They can provide air time or newspaper space for community - initiated programs or ideas. There can be a sharing of responsibilities for discussion of public topics. For example, the metropolitan dailies might print a series of articles on problems of housing. They could then be discussed over community radio and TV with feedback to government on the issue through the community information centre.

The idea of a Public Communications System should not be seen as an exclusive, self-contained network of people and facilities. It is a system that would be integrated into what now exists, with the addition of special structures, such as a community TV channel or an information centre to fill a need that is not presently met. There might be a different mix in different communities and a different degree of integration between new and existing facilities in different communities. The right blueprint for the system would have to be worked out through a series of tests and trial and error experiments. The critical fact is that government see the need to create such a system and add those elements that are presently missing.

The System in Operation

How might such a system, if it were in existence, operate. Here is an illustration of how the systems would function in a specific instance.

The problem is a river pollution problem in a localized neighbourhood which contains a definite minority group. A small citizen's group has become concerned and wishes to gain more information, inform more people and have a say in shaping the policy of government on this question.

The Information and Resource Centre

- The group would go to the centre and borrow some 1/2 inch portable VTR equipment.
- Use the centre's information and data storage facilities to find research on similar type pollution problems elsewhere, find transcripts or video tapes of federal, provincial and municipal government discussion on river pollution, to find names of government members and civic leaders who are active in the fight for pollution control in the city and especially in the area, and to find proposed government plans on the subject of river pollution.
- Once their case has been totally prepared, the facilities of the centre would be used to send documents, videotapes and proposals to the proper government authorities.

1/2 Inch VTR Equipment

- The equipment from the centre would be used to document the conditions on the river and to tape interviews with concerned residents. This would be done in English and in the ethnic minority language.
community TV
- VTR would also be used to prepare a program from the research and government policy information already gathered. This would also be done in the two languages.
- The two tapes would be put together to form a program which would be disseminated in two languages to the area residents.
- Following larger area involvement, meetings and policy decisions, a tape on pollution conditions, area feelings and proposals would be sent to the appropriate government authorities.

- The equipment could also be used in the community as a tool for the organization and stimulation towards action of the residents.

Community Television and Radio

- The VTR documentation and research tapes could be played over community television in the two languages, in an effort to mobilize as many people as possible.
- The information and resource centre would supply the feedback mechanism through which people could respond to what they see on the community channel.
- When the final tape of documentation and proposals was completed it would be played over community television to let people see what had been sent to the government.
- Community television could also be used to show the large group discussions and meetings where proposals and policy were worked out as well as to document any discussions with government officials.

Newspapers

- The offices of the centre would be used to print out, in two languages, the same material as was being presented over community television.
- This newspaper could be used to present a more varied supply of opinions on the subject and to solicit support by means of petitions.
- People could be made aware of the issues on both sides and could respond accordingly.

Neighbourhood Development Corporation

- Through the use of these media the concerned people could come together to form a corporation to deal with government officials, get a grant from the government and contract out the actual pollution control work along policy lines worked out between the government and the corporation.
- When all of the pieces were put together you would have:
 - people knowing what government was doing and its feeling on this particular subject
 - government knowing what people were doing and their feelings on this particular subject
 - people using facilities of a computer in the resource centre to gether and sort out research and related material
 - people involving other people through their access to and control over certain media
 - media serving people and acting as a tool for participatory democracy
 - language barriers being overcome on the same media and language barriers to government being broken down
 - people receiving, through the resource centre, complicated government information in a form they could understand
 - people coming together to act on their own behalf and meeting government halfway with policies and proposals

- government being aware of and responding to the needs of the people in the manner in which the people feel is best suited to their particular needs.

Many other uses could be projected and visualized. There are probably many uses yet unforeseen that a Public Communication System could supply. The above example shows how the technology can vitally aid in the more effective operation of a democratic style of government. The usefulness of the system is relatively easy to demonstrate. What is far more difficult is to implement such a system. That is a task for present policy makers, a task that will now briefly be examined.

Section IV

Policy Directions for the Public Communication System

A Public Communication System can be of great service in enabling the citizen to play a more direct and responsible role in decision-making, and provide a more effective delivery of government services. It can be one of the major tools in forging a system of government that is able to cope with the needs and concerns of people in the last one-third of this century.

It will not be used for this purpose, however, unless critical policy decisions are made soon. If there are not basic guidelines established, certain regulations set, and actions taken in the immediate future to make the Public Communication System a first priority then the technology will have its use dictated purely by market considerations and many of the opportunities it

affords, thereby lost.

To begin the introduction of a Public Communication System, the provincial government must start working towards proper integration of the different modes of communication, insuring compatibility in equipment and provision for future developments. Presently, the federal government, through the CRTC and DOT, provide some regulation - related to standards and licensing. The province has an important role, however, in determining the rate of advance of the technology, the kinds of investments that should be made, particularly in rural areas, and the public uses that should be made.

This raises a serious question of who should have responsibility for management and control of development. The telephone companies presently are the strategic centres of policy making, yet their interests are biased. This suggests that the provincial government must work out its own formula for development and through persuasion or otherwise, have the telephone company and other private sector actors such as cable companies, accept the timetables. This indicates that a serious effort is now required to work out with the private communication sector accepted guidelines for growth and advance of a communications system. It also requires the integration of plans with federal agencies and other provincial governments, before the already apparent trend of isolated decisions being made by separate jurisdictions is allowed to continue. As difficult as it is to reach agreement across jurisdictions on common problems, the effort must be made.

A similar need of policy decisions involving the private sector is required in establishing rules regulating access to the technology. If community groups are to have a freedom of expression, they must have some

guarantee of access, without prior censorship. They also need the wherewithal and resources available to make it a meaningful right, such as was recommended in the idea of the Community Information Centre. This requires policy in regards to rules of libel, responsibility, and a decision to begin using fees now paid cable companies and the telephone companies by users to support community use of the medium. It also involves the acceptance of notions of community control over some of the facilities, such as the Communication Information Centre and a willingness to work out areas where government officials share responsibility and power of decision-making with community groups.

Policy decisions will have to be made regarding the way the government provides and packages information. Data now confined to the eyes of the civil servant should be made available for use by citizens. Meetings of the legislature, committees, local councils, should be transmitted on television and radio and video tapes kept of the proceedings and made available.

Provision also should be made for the plug-in of community information to government offices and cabinet rooms. A flow of video tape information into Queen's Park is of little use if the people there are not prepared to use it. Most government officials are still print-oriented, witness the amount of paper produced each year, so education and training in the new forms of technology should be introduced. The usefulness of receiving community-based information for planning programs must be demonstrated, and familiarity of the equipment demonstrated. This could be started first in one or two departments on a trial basis. For example, agencies dealing with

pollution or regional planning may be outfitted with an extensive technology for providing and receiving information. From this trial effort an assessment can be made of how the information of government can be applied on a wider scale.

A policy of experimentation and demonstrations in public uses of communication should be introduced. Communication Information Centres should be set up. A series of experiments in community television and radio should be introduced. Experiments can be introduced in the delivery of various services. Only through actual testing will the capabilities and potential be fully explored.

It would be premature to begin establishing large-scale programs before some appraisals can be made on a test basis. This was perhaps the mistake of Information Canada. It passed from concept to large-scale implementation - before the concept could be tested on its validity. To develop policy in an area as full of unknowns, as there is in communications, flexibility should be the watchword. Policies have a tendency often not to work as expected. There must be, therefore a period of careful advance, accompanied by evaluation and assessment.

Obviously there should be someone in the government responsible for developing a public communication system, some organization that works on policy ideas, negotiates with the private interests and provides support and direction to experimental projects. One suggestion is that a Provincial Communications Commission be established. It could be composed of members of government, private sector, educational institutions and community organizations. It would have responsibility for formulating policy ideas, working out strategies for the implementation of the technology and initiating

experiments in government and in the community on how the technology might be used.

A commission or any other mechanism is useless, however, if there is no commitment to the idea that policies are needed or changes made. It has been shown that the new communications system can have a profound effect upon the way government operates. It is a technology which has the potential of solving some of the basic problems of citizen estrangement and alienation from their government system and can be a major factor in giving people a greater degree of involvement in the making of decisions. It can help bind people together in a society which tends to fragment and isolate individuals. It can lead to policies and programs that are designed to meet the problems of people, as the people see the problems.

It can only do these things if there is a desire by those who now hold political power that they be done. Policies to develop a public communication system will not come easy. There are many powerful, vested interests which will oppose efforts to develop an open media access, freer information, more involvement. Thus, difficult political decisions in the use of communications will have to be made by the present government if it is to be serious in its efforts to build a democratic system able to effectively respond to a society in a constant state of change.

Footnotes

1. Richard R. Fagen, Politics and Communication (Boston: Little, Brown and Company, 1966), p. 3.
2. Plato, "The Apology" in the Last Days of Socrates.
3. Ben H. Bagdikian, The Information Machines, (New York, Harper and Row, 1971), p. 2.
4. Ben H. Bagdikian, Ibid., p. 1.
5. R. D. Brunner and J.P. Crecine, "The Impact of Communication Technology on Government: A Developmental Construct" - a paper presented to the American Political Science Association, September 1971.
6. R. D. Brunner and J. P. Crecine, Ibid.
7. For a discussion of this, see Karl W. Deutsch, The Nerves of Government (New York, The Free Press, 1966).
8. See Sydney Verba, "Democratic Participation" in Social Intelligence for America's Future, Bertran M. Griss (ed) (Allyn and Bacon, Boston, 1969). pp. 126-159.
9. Department of Communication, Telecommission Report on the Seminar on Access to Information, (Ottawa, Information Canada, 1971) p. 49.
10. Ralph Lee Smith, "The Wired Nation", in The Nation, May 1970.
11. "Report of the Special Senate Committee on the Mass Media", Queen's Printer, 1970, p. 213.
12. The Instant World, A Report on Telecommunications in Canada (Ottawa, Queen's Printer, 1971) p. 62.
13. Van Ftergratis, "Information Retrieval Systems", Radical Software (New York 1971); Volume 4.
14. Ben H. Bagdikian, Ibid, p. 95.
15. See R. Kuropatwa, Roosevelt Park: An Evaluation, The Institute of Urban Studies, 1970.

See also Jocelyne O'Hara, An Evaluation of Windsor Park Information and Resource Center, Institute of Urban Studies, 1970.

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16. National Film Board, Challenge for Change Newsletter, Community Cable TV and You, February 1971 - for discussion of Community Television Charter Boards.

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