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ABSTRACT

The possibility of creating in Canada a non-profit community information network (a set of linked data banks containing information for use by the general public) should be explored. A network to link together a set of data banks containing information for general public use would have the following merits: (1) By its effect on household decision-making, it would make possible a very great improvement in the efficiency of resource allocation. (2) A non-profit system would help to compensate for the deficiencies of the free market in providing adequate information to consumers. (3) Unlike all other proposals for the creation of data banks, its social and economic benefits are made available directly, and would not have to rely upon a process of "trickle down" before they could be realized. (4) Its benefits would be widely distributed among different age groups, different income groups, different regions and different cultures. (5) It could be built upon a number of component parts already existing in the public sector and in the voluntary non-profit field. (Author)

A COMMUNITY INFORMATION NETWORK

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CONTENTS

PART I

COMMUNICATIONS POLICY

"Communications is, after all, the means by which people interact across both time and space; it is the stuff of which society is made, a yardstick by which civilization is measured."

Science and Technology, "The Communications Revolution", April, 1968.

As the above quotation indicates, the well-being of Canadians is very directly related to the communication and information services that are available to them. The quality and adequacy of information flowing between various members of the general public in Canada and between individual or groups of Canadians and the institutions which serve them shape our society in many profound ways. Information is therefore a vital and powerful commodity, and the new communications and information industry which is growing so rapidly in Canada will have an influence that far exceeds the measured economic value of its output.

A vast improvement in the information services available to the public is required if we are to realize our social goals and the economic goals which serve them. The means by which we can bring about such improvement - both in methods of communicating and in methods of handling information - are to be found today in modern means of telecommunications combined with the storage and retrieval capabilities of computers. These twin developments make it possible to envisage information systems capable of containing vastly expanded and current information about all matters of concern and interest to Canadians -- information about consumer goods, educational and job opportunities, the services of governments and other organizations and even information conveyed between one person and another. These same modern means of telecommunication, which in effect constitute a new medium of communication, are serving to blur the distinction between the conventional communications media (print, radio and television), media which are essentially one-way communications, and information services which are two-way media of communications, or at least amenable to user choice. When, for example, a viewer can select from a whole library of television programs the one he

wants to see, and have it appear on the screen at the time of his choice, then the familiar concept of broadcasting disappears. Programming decisions need no longer be under the control of broadcasters -- each viewer can make his own. The distribution of television programs then becomes a service industry akin to lending libraries.

Such systems are already being developed, but it appears that little thought has been given to how they should be organized and coordinated to serve the public interest, and to what the scope and quality of their content should be. It is this concern which has prompted the present submission. The Cac believes that it is urgent that consideration be given to ways and means of realizing the greatest possible benefits for the well-being of Canadians from the developing communications technology and information services at an early stage. If the potential benefits of the new medium are not deliberately developed for use by individuals, then widespread public access to improved information and communication is unlikely to be realized. Instead, what is likely to happen is that the costly investments which will inevitably be entailed will result in improved access to information on the part of businesses, governments and other institutions in ways which preclude easy access by the general public. Were this to happen, then the result would be a continuation of the trend which has been developing over the past several decades and which has seen technological change in fields other than communications create a widening gap between what the individual was likely to know and what he needed to know in order to participate in our society as a person, as a citizen or as a member of the labour force and in order to purchase and use intelligently the widening array of available consumer goods and services. Technological change in the communications industry has now created the possibility of substantially narrowing this gap. At the same time, it has also created the possibility of increasing the benefits which can potentially be derived by society by virtue of the fact that improved information has its most pervasive influence and plays its most important social and economic role by affecting the well-being of individual Canadians. Accurate and timely information can be a vital element in determining where and how an individual decides to train and to apply his skills and efforts, in influencing family consumptions expenditures and, simply by helping persons to stay in touch with what is going on in their communities, in thwarting a sense of alienation bred by our increasingly complex urban environment.

This part of this submission is concerned with communications policy generally. Part II is concerned with the creation of a network of information systems for Canadians under non-profit sponsorship. Sufficiently large to be economically viable, this network would be dedicated to serving the needs of its users rather than those of the network owners or of the disseminators of information. The creation of such a network within a growing information industry at an early stage is not only likely to have very desirable social and economic effects in and of itself but it could also lead very directly to a reduction in the enormous costs currently imposed by the barriers which now exist between information and those who need to know, costs which are by no means confined to the individuals involved but which bear on society as a whole.

The revolution in communications technology is transforming the collection, storage, retrieval, transformation, analysis, and dissemination of information. To take each of these briefly:

Information Collection

The advent of computer storage facilities and remote terminals connected directly with the computer offers the promise of substantially reducing the time required to collect, sort and transmit raw data to a central storage place. This means that a larger volume of information can become available for use in a timely way than was formerly worth compiling and it also means that the continuous process of up-dating information can now be more quickly accomplished with the attendant benefits in the form of more accurate information than was previously possible.

Information Storage

Characters printed on paper have been the dominant form of information storage for several hundred years, and public and private libraries have been the central repositories of print-based information in our society. Today, however, libraries are only one among a set of specialized institutions which store and distribute information in many different forms, some by methods which are in turn being adopted by the libraries. Thus print, microfilm, microfiche, film, pressed records, electronic tape, punched cards, magnetic tape, discs, drums, and data cells are all information repositories.

The Retrieval of Information

Retrieval of information has been a particularly difficult and costly job for the average household or individual, whether measured in terms of time spent, or in terms of knowledge forgone through the inability to retrieve it in a timely way. Households too have been handicapped by the fact that some substantial part of the information relevant to their efficient functioning had to be retrieved from one-way channels of communication (radio and television) at times not of their own making. Books, periodicals, newspapers, films, television programmes, statistical series, commercial directories, catalogues and the various other stores of information may become, with the aid of the new technology, conveniently retrievable on request.

The Transformation and Analysis of Information

The role of computers in facilitating mathematical computations is well-known. It is only very recently that their potential role (when combined with telecommunications facilities) as a new medium of communication has received attention.* As instruments for transforming, displaying, sorting and analyzing information both quickly and accurately, computers have added the most significant dimension to the new communications technology. With respect to public information, they have potentially armed the citizen, the worker, and the householder with skills which are of very great value indeed. Thus, job seekers themselves can now sort out information about job opportunities which may have been entered by individual employers into occupational, geographical and other classifications; house-seekers can obtain listings of houses for sale or rent which meet their particular requirements; relevant pieces of legislation, such as the various forms of social security or educational assistance for which an individual is eligible, can be sorted out from other legislation; and market information can be analyzed by consumers to seek out products having particular characteristics or to find the lowest cost sources of supply.

The Dissemination of Information

One of the most useful but still amost totally unrealized possibilities of the new technology is the opportunity it creates for immediate feedback - for

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* See D.F. Parkhill, The Challenge of the Computer Utility, 1966, for one of the early books on the subject.

interaction between those who have typically been the disseminators of information or services, such as governments and business, and the people who have been the more or less inarticulate and apparently passive recipients.

The speed in two-way communication made possible by telecommunications facilities linking computers to users and by the high speeds with which computers can service users (several users may be serviced simultaneously without noticeable interruption to any one user), can set the stage for very great improvements. The possibility of virtually instantaneous two-way communication increases the speed and ease with which Canadians can indicate their satisfaction with the services they receive. Thus governments and businesses should be able to respond more quickly and effectively to the needs of citizens because these needs can be more quickly ascertained.

As already noted, the new technology will exert considerable impact upon the present mass media whose role should shrink significantly as listeners, readers and viewers are able to make their own selection from a wide range of choices at times suited to their convenience, and even to implement their own programs.

Probable Developments

There are many other aspects of the new technology which have significance for future developments in the field of public information -- the above list is not exhaustive but merely indicates some of the possibilities which now exist. The information problems of the public will, of course, not disappear with the application of the new communications technology, but the magnitude of their problems can be very greatly diminished. Whether this will, in fact, happen depends upon how the new technology is used. If it is used by existing institutions to defend their positions, little may be gained. If, on the other hand, it is used in such a way that the potential benefits it promises for all Canadians are fully developed, it could substantially enhance their well-being.

While it has not been possible to conduct extensive research on the planning for investment in public information systems in Canada, the explorations that have been made, together with evidence from the U.S. where innovation is more advanced, suggest that the

new technology is not likely to be used in a fashion which will allow its full benefits to reach the public. It appears, for example, that most systems now in existence or being developed for public use are fragmentary and incomplete in their coverage; that in many important areas little thought has yet been given to how the new technology should be used; that the "feedback capabilities" of all systems are being inadequately explored; and that, in many cases, narrow and unnecessarily centralized control may tend to emerge. Moreover, among the total resources being devoted to research and development of information systems, an inadequate proportion appears to be going into the development of systems for use by the general public.*

In short, both planning and development for the new methods of communication reflect, to date at least, a lack of determination and imagination in exploiting the potential benefits of the new technology in the public interest. The forces of competition, nonprofit research institutions, and governments are among the principal sources from which such initiatives might have been expected to flow. But none has yet provided satisfactory assurance that the large potential capabilities of communications technology will be closely and effectively harnessed to serve the needs of people rather than institutions. Indeed, there is every indication that the public may receive only such benefits as "trickle down" to them from systems created for other purposes. Under the circumstances, the Consumers' Association of Canada has developed a proposal which is designed to explore and take advantage of these capabilities, a proposal contained in Part II of this submission.

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*The great bulk of computer-based operating information systems are functioning in business, government or research environments and public access is inhibited by their design if not prohibited by institutional regulations. Of the remainder, those that have come to our attention consist for the most part of small-scale profit-oriented ventures essentially of an advertising nature. Other examples are the job opportunity data bank developed by the U.S. Department of Labour and successfully operating in Baltimore, and a computer-based listing of adult education opportunities in the Metropolitan Toronto area. The latter is distributed however on printed pamphlets through public libraries, and it has not been possible for the organizers to make satisfactory arrangements for the public to have more convenient access, such as by telephone.

This section of the submission is more concerned with the question of public participation in the search for and development of a viable communications policy. The CAC would like to see greater public discussion of such questions as the following:

- What is the meaning and what are the merits of two-way as opposed to one-way communications capabilities?

- What is the best method of moving quickly to install two-way communications capabilities where these would be desirable?

- Will the private sale of devices for home use which partially qualify the one-way character of television channels, such as EVR, delay public investments in two-way channels?

- Is there any merit in further extending or protecting one-way broadcasting and cable television systems in Canada?

- Is consideration being given to minimizing the private costs of home terminals and other means of access to information services so that widespread distribution of these services among the public will be possible?

- Is consideration being given to combining telephone and television communications channels and terminals?

- Is consideration being given to the social implications of a possible set of rate structures for communications services which are not based on geographical distances?

- Is consideration being given to the ease of access to communication and information services by those who wish to contribute information?

The significance of these matters for the future structure of Canadian society is obviously very great. The public is badly in need of information about the considerations which are involved and about the ways in which they may effectively participate in the decision-making process as those new capabilities are developed.

These questions involve both communications and information, subjects which cut across all levels of government -- they also cut across the responsibilities of virtually every government department. Effective intergovernmental and interdepartmental coordination

has not been established and even the cabinet committee structure at the federal level does not provide a suitable focus on these subjects. They are not centred within the field of interest of any single committee but impinge very directly upon the work of all committees. Furthermore, the lack of a public agency having terms of reference sufficiently broad to deal with the subject of communications and information is matched by the absence of voluntary associations specifically concerned with the broad implications of the new technology. Those voluntary associations and citizen groups whose main interest may lie elsewhere but who nonetheless could be expected to have an interest in communications do not appear to have developed an effective presence in the policy-making process. In the circumstances, Canada is lacking, in both the public and private sectors, an adequate body of informed and disinterested opinion as to how the new communications technology should be developed to serve the public interest.

We commend the Minister of Communications, Mr. Eric Kierans, for soliciting detailed information prior to policy formulation, but we are greatly concerned by the absence of widespread public participation in the Telecommission studies. Private industry can never be regarded as adequately representating opinion outside the government sector. Public attitudes and aspirations about the future shape of Canadian society must also be regarded as important inputs into the formulation of the communications policies which will so profoundly influence our society. We are aware that the general public is neither informed nor articulate on the subject of the new communications technology at the present time. We nonetheless believe that the Government should move quickly to inform the public of the alternatives which are possible, and the costs which are likely to be associated with different choices. This being done, we would then like the Government to solicit the opinions on communications policies from an informed public prior to formulating its own position. We would, in short, hope that a "green paper" might precede any forthcoming "white paper". In this connection, we would like to commend the Minister for the document "Communications Canada" issued in June of last year. It contains a lucid and well-ordered setting forth of alternatives in a particular area of the communications policy field, the relationship between common carriers and data processing services. We hope that an early product of the Telecommission will be

the publication of other such documents in a language and format which make the issues readily understandable to the general public.

To summarize our position, the following points have served to influence our conclusions:

1. It would be difficult to overemphasize the crucial significance of communications in determining the nature of our society.

2. The new technology created by the marriage of computers and telecommunications facilities creates opportunities which can vastly enhance our communications capabilities and improve the quality of relevant information available to the ordinary person.

3. The new technology is in the process of creating a new medium of communications, a powerful successor to print, radio and television.

4. The new medium will have effects extending far beyond the communications field and will lead to changed practices in many areas. In particular, it is potentially capable of making all our institutions more responsive to the needs of the persons they serve. However, its full development for this purpose may be strongly opposed by those having a vested interest in maintaining these institutions as they are today. Where their interests are allowed to prevail, the new technology will tend to be used defensively. Such defensiveness is likely to give rise to serious resource misallocations and to impose unnecessary social and economic costs.

5. The subjects of communications and information have now become inextricably entwined by virtue of the development of the new technology. This fact has not been widely perceived. The complexity of the technology, the speed of its development, and the speed with which it is demolishing conventional boundaries between subject matter areas may be in large part responsible for this lack of understanding. Among other things, our institutions are not structured to deal with the problems which have been created.

6. Highly significant decisions -- decisions affecting in a very substantial way the kind of society which Canada is to be in the future -- are being forced upon public policy makers by the pressure

of private interests before an articulate and informed public opinion has been developed.

7. The Telecommission Studies of the Department of Communications and the federal government policies which are derived from them will play an extremely important role in determining how the technology is to be used. The CAC suggests that the following principles would seem to be fundamental to the development of satisfactory public policies:

- The needs of persons, of citizens, and of final consumers, the raison d'etre for social and economic systems, should be the major focus of policy.
- Natural monopolies and large scale enterprises being common in the communications industry, deliberate action to foster widespread public understanding and effective participation of the public in the process of public policy formulation should be a continuing concern; as soon as the studies of the Telecommission have been published, the Government should actively solicit the comments of the general public and to this end members of the Department of Communications should make themselves available to interested members of the public to assist in gaining an understanding of the issues involved.
- Intergovernmental and interdepartmental coordination and cooperation being vital to satisfactory policies, explicit commitments to such action should be followed by continuing efforts to make these commitments truly effective.
- Social control over the developing communications industry should be firmly established and exercised by the coordinated application of competition policies, regulation, and government ownership where appropriate. Revised and up-dated competition policies are essential where competition is to be relied upon.
- Those who control the communications facilities should not be permitted to control the information stored and carried by them.
- To ensure that concentrated market power over the information content of systems does not develop, control over the content and operations of systems should be vested in non-profit, community-based organizations.
- The government agencies which are responsible for regulating the industry should not also be

responsible for promoting its health.

- The special characteristics of information as a commodity should be considered ("more for you means no less for me") and taken into account in policy formulation. In particular the exclusionary rights which are currently vested in copyright holders must be reconsidered, as well as the difficulties of information producers in collecting appropria revenues.
- There should be, on the one hand, a willingness to use powers of prohibition or taxation to prevent investments which are not in the long run best interests of the public, even though profitable to their developers. On the other hand, there should be a willingness to give special encouragement to those investment initiatives which give promise of being highly productive socially, even though less than adequately productive to induce private investment.
- In particular, steps to establish a community information network in Canada should be taken.

The Consumers' Association of Canada, with the endorsation of the Vanier Institute of the Family, the Canadian Federation of Agriculture, and the Canadian Association for Adult Education, has already placed before the Government of Canada a proposal for the exploration of a community information network containing the major categories of information needed by Canadian families - information on consumer goods and services, on employment opportunities, on government programmes, on education opportunities and on other matters of direct interest to them.*

Such a system would need to be deliberately developed, and certain principles embodied in it:

- it should be non-government and non-profit
- it should be organized in such a way that it remains sensitive to the needs of its users and in particular to those users whose resources are most limited in relation to their needs
- it should contain information which is as factual and unbiased as possible

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*The investigation which preceded the formulation of this proposal consisted of a series of discussions in which members of the CAC and interested experts from Canadian government, industry and universities participated, as well as many persons who became interested simply as potential users of such a system. At an early stage Computel Systems Limited of Ottawa prepared a document for the Consumers' Association of Canada on a computer-based consumer information system.

- it should make available information in both French and English
- it should be as independent of public funds as is consistent with making it accessible to all
- it should involve widespread participation on the part of the public in both its design and operation
- its control in respect of content and operations should be delegated to participating communities whenever possible so that the interests of those most directly involved in its use and operation will be best served.

THE CONSUMERS' ASSOCIATION OF CANADA BELIEVES THAT STEPS TO ESTABLISH A COMMUNITY INFORMATION NETWORK IN CANADA SHOULD BE TAKEN WITHOUT DELAY. THE ASSOCIATION FURTHER PROPOSES THAT A NON-GOVERNMENT, NON-PROFIT AGENCY BE ESTABLISHED TO SERVE AS COORDINATOR AND CLEARINGHOUSE FOR ALL EXISTING AND PLANNED INFORMATION SYSTEM WHICH MIGHT BE LINKED IN SUCH A NETWORK. THE ASSOCIATION IS WILLING TO ASSUME APPROPRIATE RESPONSIBILITY ON THE BASIS OF CONTINUING STUDY AND DISCUSSION.

It is our hope that the Department of Communications will play an active role in support of such a clearinghouse and in the establishment of a non-profit community information network.

PART II

1. Introduction

This section of the submission of the Consumers' Association of Canada to the Government of Canada was prepared in response to an invitation to contribute to Study 5(f) of the Telecommission. The Telecommission itself was established by the Minister of Communications to elicit information about the developing communications industry in Canada prior to formulating policy. It sponsored more than fifty studies conducted by industry, government and university groups and six closed conferences attended by experts and representatives of interested organizations. To our knowledge we are the only voluntary non-profit organization representing the public interest in communications which participated in a study.

The general terms of reference of Study 5(f) were "to identify national information services in the public interest which could be supplied by large remote access data banks and to develop and analyse possible institutional arrangements for their development, implementation and operation." These general terms of reference were supplemented by specific terms of reference requesting identification of these systems. Conceptual designs of possible systems were also requested, as well as some discussion of the benefits and costs of establishing particular systems.

Participation of the Consumers' Association of Canada in Study 5(f) arose out of the Association's interest in a community information network, a set of linked data banks containing information for use by the general public. We believe that the creation of large scale data banks for the public should be given priority over the creation of large scale data banks for any other purposes on the grounds of the net social and economic benefits which may be expected to flow from them.

Our interest in large scale computer-based communications systems for the general public was first expressed in a proposal presented to the Departments of Consumer and Corporate Affairs, Communications, Manpower and Immigration, and National Health and Welfare in June 1969. The proposal, which was endorsed

by the Vanier Institute of the Family, the Canadian Federation of the Family, the Canadian Federation of Agriculture and the Canadian Association for Adult Education, called for an early exploration of a community information network in Canada.

The past year and a half has seen the initiation or expansion of many small public information systems operating in virtual isolation from each other. Information Canada has also been established in the interval and has opened for first of a number of proposed Enquiry Centres. That agency has also commissioned a study concerning Citizens' Advisory Bureaus, the promised publication of which the CAC looks forward to with great interest. Finally, the Canadian Computer/Communications Task Force has been established under the Department of Communications. In the light of these fast moving events, the proposal of June 1969 now requires modification. An early exploration of how best to initiate a community information network remains a research matter of urgent concern. But if such a network is to come into being in Canada, research now must embrace and be accompanied by action. The establishment of a clearing house to service the needs of planners of public information systems, and to serve the public in seeking out systems to meet their needs, is an essential and immediate component of that research. The potential benefits of the new technology will otherwise become hopelessly fragmented and dissipated. The Consumers' Association of Canada therefore proposes the immediate establishment of a community information network clearing house under CAC or other non-profit sponsorship. In this initiative and in encouraging the establishment of a community information network, the Association seeks the support and cooperation of Federal and provincial governments.

2. The Case for Large Scale Data Banks for the General Public

As Part I of this submission pointed out, the net social benefits associated with the improvement and expansion of information services for the general public in Canada today are unlikely to be equalled by the expansion of information services in any other field. Since benefits in all other fields must ultimately reach the public in order to be realized, they therefore constitute indirect rather than direct routes to achieving benefits. In addition, the needs of the ordinary

citizen, unlike the needs of business, government, and research institutions, have long been overlooked or neglected and a social pay-off, unequalled elsewhere, can be expected from making up the deficiency in this field.

Individual and family decision-making, whether it be about consumer goods and services, jobs, or the utilization of educational opportunities, is at the core of the economic system. That these decisions should be made with maximum knowledge of the alternatives available to the individuals and families involved is more important, in social and economic terms, than that efficient investment and production decisions be made by businesses, governments and research institutions. As long as household decisions are failing to express individual preferences clearly because of inadequate or inaccurate information, then the decisions of other institutions are likely to be even more imperfect. The raison d'etre of these institutions is, after all, to service the needs of the individuals and families in our society. Imperfect decisions on their part add unnecessarily to dissatisfaction and social tensions. Politically, socially, and economically, there is much to be gained by improving and expanding information services for the general public and much to be lost by their continued neglect.

But there are other reasons, perhaps of even more concern to the Department of Communications in the short run, which argue in favour of expanding and developing large scale data banks for general public and household use before going on to assist in the development of any other large scale data banks. These reasons are technical and dynamic. They are related to the way in which the social benefits of improved public information are to be realized, and the process through time of developing telecommunications facilities in Canada. If Canada is to have a national computer-and-telecommunications network, as some have suggested, then it would seem sensible to begin by defining a body of information which, across a broad spectrum of subject matters, has an essential unity in the way it should be organized and handled.

The development of a network in which the needs of users for simple, standardized, and low cost access and entry methods would, in a natural and not a contrived fashion, impose certain essential and desirable conditions

from the outset would seem to be an ideal starting point. These conditions would constitute the direct technical effects which might be expected to flow from a decision to develop large scale data banks for the public. Desired indirect effects on other data banks and information systems are also likely to be maximized by the initial choice of public data banks. It is probable, for example, that a better-educated public is going to express growing interest in certain kinds of technical and scientific information and that the competence to use such information will become increasingly widespread. Thus the need to have many kinds of information structured for public access will grow. It will be possible to meet this need at an early stage if some of the conditions for structuring systems for public access have been discovered and developed in the course of the prior creation of large scale data banks deliberately designed for public use. A set of public data banks of information useful to households would also have the advantage, politically, of being non-discriminatory as between industries, regions, and political jurisdictions. *

3. A Community Information Network

Reasons for This Type of Network

(a) The growth of an idea

In the course of an exploration of the present sources of consumer information in Canada and the methods by which this information is disseminated, the idea of a community information network was born. One of the reasons for this shift in focus to a large general purpose system was the realization that the

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*Other major factors which argue in support of giving priority to the creation of large scale data banks for general public use have been discussed in Part I of this submission and will not be repeated here. In total, they would appear to force upon any competing proposals for the creation of large scale data banks a substantial burden of defence in demonstrating that their net benefits will be realized, be greater, and be appropriately distributed.

implications of the new technology make it impossible to discuss information services without considering the entire communications environment. (See Part I). The new technology can in effect convert many forms of communications, and in particular mass communications, into information (or entertainment) services accessible at the convenience of the user.

But technology is not the only reason for taking a larger perspective on information services. The way in which information is perceived and classified has an important bearing on its potential usefulness. Viewed in the perspective of family needs, relevant information spans a range of subject matters that is very broad in conventional terms. Data banks that appear to have little in common when viewed in the light of our present perceptions (consumer services, social services) can be closely related from the point of view of families. The needs of organizations with more limited terms of reference have shaped our information services to date, leaving gaps and inconsistencies as far as families are concerned. They have also shaped our present perceptions of information systems, perceptions which ignore the fact that apparently diverse information systems have a unity that is entirely legitimate and that should be strengthened if the interests of the general public are of primary consideration. Viewed in a broader perspective, data files and data banks that are now quite separate need to be juxtaposed for family use. Other data banks need to be created. Rather than proposing a small consumer information system which might merely add to the complexity of existing information sources, we propose a broader community information service as outlined below.

There is another reason why a larger perspective is justified and indeed desirable. It arises from the economies of scale which may exist in various aspects of system operations. The precise nature of the economies of scale in a public information system would need to be determined, but our own early explorations led to the conclusion that a data base of sufficient scope and interest to generate a high volume of enquiries is essential if the cost per query is to be kept low.

Finally, the legitimacy and necessity of thinking in very broad terms about information systems and data banks which is imposed by these considerations is further strengthened by the desire of Canadians to preserve national systems rather than to become the northern end of a number of different U.S. systems.

The failure to explore the possibility of creating such a network in the hope that the public welfare will be as well served by the many independent and diverse initiatives that characterize the information industry today would be a course entailing potentially high social costs. We do not believe that the economic characteristics of information itself or of the information industry merit such an optimistic course as a wait-and-see stance would imply.

(b) What is meant by a community information network?

The idea of a community information network was briefly outlined in the CAC proposal of June 1969.

"A community information network serving the needs of Canadians would necessarily contain information of several kinds:

-- up-to-date and factual information about consumer goods and services, e.g. housing accommodation, new and used cars, consumer credit;

-- information about job opportunities and job seekers;

-- information about services available from governments, voluntary agencies, and other organizations, e.g. counselling, social services;

-- information about education opportunities and sources of financial support for students, e.g. pre-school facilities, adult education courses;

-- other information of a community nature."

The network could also contain information which one individual wanted to convey to another. All information on the network would be as factual, unbiased, and up-to-date as possible.

Such a network might also serve as a gateway to or provider of a range of direct services, such as educational courses, entertainment, news of recent and forthcoming events, and various forms of counsel such as legal aid, first aid, and consumer advice, as well as information about self-help techniques. Appendix B lists some potential data files and data banks which might be linked in a community information network.

The network would acquire information from a variety of sources, depending upon the subject matter. Government information, for example, would be available from its source. Much consumer market information is already available, albeit widely scattered. Sellers, to whom a listing on the network may have the same effect as advertising in acquainting potential buyers with the products, can in most cases be expected to contribute information about individual products and services voluntarily. Where this is not done, the information could be collected by the network operators from points of sale of the product or service or from network users, although this would be a more expensive and inconvenient procedure. Comparative product information would be an automatic by-product of the network, although its usefulness could probably be enhanced by including product test results contracted for from reliable and independent testing associations.

The extent of coverage of all types of information, and the detail which is included, would be a function of users' interests. Items for which information was no longer requested would presumably be purged, and the network would also be responsive to new or increased demands for information on other items.

(c) Who would use it?

In addition to the individuals or families who would be its major users, the network would have other customers. Much information of interest to governments, businesses, educational institutions, research organizations and others would be available either on the network or would be generated by it. The pattern of enquiries and changes in this pattern would be of interest to governments and other organizations and this desirable feedback function should be undertaken, provided the privacy of individual users is ensured.

(d) How would the network be used?

Access to the network would be readily available in a variety of locations, as would opportunities to put information on the system. These locations might include libraries, shopping centres, citizens' advisory bureaus, offices, and homes (via mail, telephone, video displays, teleprinters, and ultimately perhaps photocopying from video displays). Where volume or other characteristics warranted, computer storage would be utilized. Privacy of access would be maintained and no record kept of the particular source of individual queries.

Similar forms of access would be available to institutional users. Governments, agencies, professional counsellors such as doctors, social workers and lawyers, business concerns, farmers, teachers, research institutions and other organizations would also have the choice of a variety of access and input locations. The principle of privacy of access, however, might not be unqualified for this category of user.

An illustration of how such a system might work is available today in the results of a project undertaken at the Ontario Institute for Studies in Education.* A computer-based directory of continuing education opportunities in the Metropolitan Toronto area has been compiled and is available in printed form in public libraries and other locations. This directory, composed of information which was formerly widely scattered and almost impossible of collection by the individual student, now makes it possible for any member of the public -- a housewife interested in improving her skills and returning to work, a new immigrant, an unemployed worker, an employee trapped in a dead end job, or someone who simply has an interest in learning more about a particular subject -- to discover quite easily the range of opportunities open to him as a mature student in the city of Toronto. Furthermore, such variables as the time the course is taught, location of the school where the course is available, the cost, and any course prerequisites are also available. The information which has been compiled is also available to educational planners and to student and manpower counsellors, and a set of computer programmes has now been developed for their use and for the use of other

*Project IRIS

communities who may wish to create such a directory in their own area. The community information network which is visualized here and outlined in the diagram on the following page would be made up of many such data files containing practical and useful information for individual and family use and decision-making.

(e) How much use would it get?

The number of individual users of a community information network is limited only by the size of the population and the potential of the services for enquiries from those outside the defined community. The frequency with which any one individual would access the system is unknown but is of course closely related to the amount of the information carried on it, its usefulness and the cost of accessing it relative to other sources. Knowledge of its existence is, of course, essential to its use. The utilization of some existing small systems appears to be limited by this factor, (see Appendix A), and hence does not provide an accurate indication of the use which may be expected of a larger, more visable system. Utilization will also be a function of users' acceptance of the system and their ability to use it easily and conveniently. There is good reason to believe that a non-profit system, specifically constructed with untrained users' needs in mind, would be at least as heavily and perhaps more heavily utilized than any other type of system.

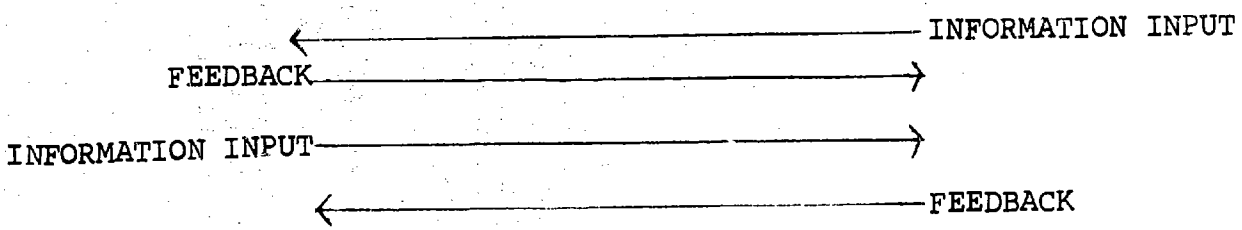
(f) What should be the characteristics of such a network?

Its prime characteristic should be its user-orientation, its ability to serve the needs of those seeking information. The needs of organizations disseminating information dominate the organization and operation of existing information services, within the limits set by the public's toleration of this situation. Thus government information services have tended for the most part to serve the needs of particular government agencies, manpower information services to serve the needs of business, the great bulk of available consumer product information to come from those having a vested commercial interest in the subsequent sales of those products. The needs of disseminators have virtually determined the content of newspapers, radio and television. While there are some notable and welcome exceptions in the form of items and programmes which nicely

A COMMUNITY INFORMATION NETWORK

A POTENTIAL DESIGN

USERS	SERVICE CENTRES	ACCESS	DATA BANKS	CONTRIBUTORS
Individuals and families	Home telephones	Direct	Consumer information	Businesses
Organizations	Television sets	Operator-assisted	Government information	Governments
	Other home terminals		Job information	Employers
	Public telephones		Events	Voluntary agencies
	Citizens' Advisory Bureaus		Education information	Educational institutes
	Shopping centres		Other	Individuals
	Libraries			Others
	Employment offices			
	Community information centres			
	Offices			



match particular users' needs and interests, an automatic mechanism to ensure this matching has been absent. This is in contrast both to the market place in general and to the voting booth, where user rather than producer control is at least built-in, however imperfectly it may work. The very substantial degree to which media content is immune to user control (except by extremely roundabout processes) and is subsidized by disseminators of information thwarts desirable and efficient resource allocation in much of the information industry. User-controlled information systems are urgently needed to remedy this imbalance if an information system is to be created which is truly useful to the public.

The user-orientation of the community information network would manifest itself in a number of ways. Reference has already been made to the matching of information in the network to the public's expressed interest in it. Maximum effort would be made to provide factual and unbiased information, thus reducing to a minimum misrepresentation and "puffery". Both in language (French/English) and in the technology which is utilized the convenience of the user would receive prime consideration. Places and methods of access to the network and forms of output should reflect users' preferences.

Standard and simple operating procedures to enter and access information would characterize the network. Although in the early stages of its development operator assistance would probably be essential for all users, at a later stage some users would probably find direct access more desirable and less costly. Such economies of scale as exist would be exploited to provide minimum costs per inquiry.

Finally, to ensure maximum responsiveness to users' needs and to prevent development of an undesirable concentration of power in the industry over a wide range of services, decisions in respect of the network's contents and method of operation would be deliberately delegated to the smallest possible unit. This unit may be a family, a neighbourhood, a municipality or a region, depending on the particular issue. Under such a system, the presence of a non-profit network interested in preventing a concentration of market power in information handling and committed in its own policies to avoiding this could well have a significant demonstration effect on the industry as a whole. The nature of the new technology probably enhances the possibility of

achieving this objective. The role of the sponsor of the network would be to help communities to initiate and develop the information content and the mode of operation most suited to individual needs. It would also assist in compiling information which, because of its national implications, no one community might have sufficient resources to do on its own.

(g) How can such performance characteristics be achieved?

Neither governments nor profit-seeking organizations are well-suited to operate a network having the above objectives. Profit-seeking organizations, given the dominant mode of resource allocation within existing media, are all too likely to gravitate towards serving the needs of the major institutions disseminating information. Nor is it clear that a predominant commitment to shareholders will lead to maximum benefits for users in an industry where economies of scale may exist and where concentrated market power could develop. The CAC proposal of June 1969 suggested that "ownership and control of such a network would probably best be vested in the hands of a newly-created, broadly representative non-profit organization with . . . a broadly based membership drawn from all regions of Canada, with membership fees of minimal amount . . . this form of ownership is preferable to government ownership and control because . .

- very direct participation in the network by its users would be substantially more difficult in a government-owned enterprise. It is only by the direct election of the governing body that the individual systems will be able to develop the flexible, sensitive and participatory nature which is crucial to their ultimate usefulness;

- it may be more difficult for governments to disseminate some kinds of information, e.g. product test results which show one product to be superior to another, than it would be for a more specialized organization which had obligations only to its users;

- no single government in Canada embraces within its jurisdiction all the activities affecting any single citizen, i.e. it is difficult to establish which level of government might best operate such a network and difficult to conceive of the three levels which affect every citizen devising methods which respond as quickly and effectively to changing needs as the proposed systems must respond."

(h) What would it cost?

No attempt has been made to estimate the overall magnitude of the development or operating costs of such a network although they would undoubtedly be somewhat less than the sum of the costs of the many separate and fragmented systems of less than fully efficient scale which are likely to develop in its absence. This is not to suggest that all public information services would necessarily be marketed through the network, but merely that at least one coordinated enterprise of minimum efficient scale should be developed in Canada. Rough estimates of the costs of subsections of the network may be made by comparison with existing systems. Information about some public systems is contained in Appendix A, but the Telecommission studies, when published, will undoubtedly produce much more comprehensive data.

One cost element which is of particular concern and which is difficult to calculate is the skilled labor input into system development. The acute shortage of trained, able, and imaginative people is such as to make this a steeply rising cost element if the industry grows as predicted. The network concept is a particularly useful method of economizing on the use of this labour. By linking different systems of large scale data banks, increased specialization is possible, and scarce skills are used to best advantage across various systems rather than being employed exclusively at any one time in the development of individual systems.

(i) How would such a network be financed?

One of the features of the proposed network which requires further study is the complex question of how it should be financed, specifically the question of whether it should generate revenues from its users or whether it should be indirectly financed through public funds. A network of the type proposed has the potential of generating very substantial revenues from its users. But information is a strange commodity. As many holders of copyright know to their cost, it is very difficult to capture revenue from all users. Yet information acquired by non-paying users is certainly not devoid of social and economic value. This raises a very real question of whether a community information network should utilize such copyright protection as is available by the practice of exclusionary techniques, or whether it should not encourage the free exchange

of information once it is acquired from the network. This in turn raises the issue of whether the concept of profitability should be one for the enterprise as a whole or a broader concept of profitability for society as a whole.

Apart from the fact that non-paying users derive benefits from the information network, there are many additional reasons why the concept of profitability for society as a whole is the appropriate measure to use for such an undertaking. Useful information has many direct and indirect benefits. Direct benefits, such as those which lead to better decision-making and to financial saving, are likely to be perceived by the individual and to result in his willingness to pay for them. Many of the indirect benefits, however, are collective and are either not perceived by the user or are not perceived as something worth paying for. For example, a better-informed public can result in savings in many activities such as the administrative costs of government programs. This roundabout realization of benefits however is unlikely to be capturable through user charges. Finally, a substantial portion of the proposed information base would deal with government programs. Free distribution of this information to users may well be desirable, and the public sector involvement which this implies requires other measures than financial profitability to assess its value.

For all these reasons, it is the net social benefit rather than the direct financial profitability of the network as an undertaking which is relevant. Thus, it is quite appropriate for some amount of public funds to be used to support the operation of the proposed network.

The question remains as to the financing of the balance of the funds which will be required. Should these be raised by direct user charges, by private contributions or should the network be entirely financed by public funds? Or should the formulae used be some combination of all three sources?

Direct user charges have the merit of providing a guide to resource allocation which is more finely tuned than the free distribution of public services and which compels a greater degree of responsiveness to users than would public funds. User charges also provide a source

of revenue which is independent of general tax revenues and the problems of allocating priorities between competing government programmes which is entailed. However, a major problem raised by this method of financing is the limitation on access which is thus imposed on those with greatest need and most limited resources. Some of the most significant social and economic benefits potentially available from improved information may not be realized if special measures are not devised to provide opportunities of access to information to all who need it. There is no reason to suppose that such measures could not be devised given the determination to do so. User charges could, for example, be modified through intermediary institutions which would make data freely available to their members. Private funds to finance the operations of the network could come either through personal voluntary contributions directly to the network, or through United Appeal contributions to collective community charities. This latter payment mechanism, however, may well raise problems in respect of lack of responsiveness to user needs and of competing program demands which are similar to those implicit in public funding.

While the CAC has not at this stage come to any definitive view as to which of these several methods of financing operating costs would be the most preferable, it is convinced that development costs, on the other hand, should be predominantly borne by governments if the enterprise is to be non-profit as proposed. The sale of equity in such a corporation is no only unlikely to capture substantial development funds if this equity brings limited dividends but, more importantly, small annual fees appear to be a more appropriate mechanism to ensure that ownership is widely held and continuously renewed. Such fees however are unlikely to generate substantial capital sums. The remaining alternatives appear to be government grants, grants and contributed efforts from other organizations, and debt financing from both the public and private sectors.

The rationale of government participation in operating costs has already been set out, and applies with equal force to development costs. There is an additional reason for government participation in development costs, however, which is related to the economies of scale inherent in such a network. Information systems are typically characterized by high fixed costs and low variable costs per query in their early stages, and it is only as the volume of use grows sub-

essentially that the average costs per query falls. The undesirable concentrations of market power which can result from high fixed costs, among other reasons, must be set against the benefits of widespread distribution which result from low access costs. Thus a new enterprise faced with falling average costs as output rises may often, if given special assistance in development, produce economic and social benefits for a growing number of users which are in excess of those which will be reaped by its owners. Since in a non-profit system there is no incentive not to pass on these falling costs in reduced prices, public revenues contributed to development costs which permit scale economies to be developed are likely to be quickly returned to the general public in the form of reduced prices for information services. Thus initial development costs would in all probability and quite appropriately be borne predominantly, if not entirely, by governments.

(j) How would it be related to other systems?

The network would have a wide range of relationships with other information systems, at home and abroad. It would be quite unrelated to some systems, would be competitive with others, and would be complementary to still others. It might also be a supplier to or a purchaser from other systems. Parts of the network could also be identical to parts of other systems. The proposed network would, for instance, be likely to have a competitive relationship with certain other forms of consumer services both foreign and domestic, to be complementary to government information services, particularly the enquiry centres operated by Information Canada, and to carry product information which up to a point is dentical with that collected from manufacturers by governments for the purpose of expanding sales of Canadian goods in foreign countries.

Perhaps its most important role with respect to other systems though would be that of "yardstick". As a deliberately consumer-oriented system, it would be expected to establish satisfactory standards of service and of factual information content, which competitors would find necessary to meet or surpass. As a positive method of standards-setting, in the information field, a user-oriented network might prove more attractive and efficacious than the regulation and prohibitory legislation which are today virtually the only methods used to prevent misrepresentation.

(k) What institutional factors would affect its development?

Much of Part I was devoted to a discussion of existing institutional arrangements which might hinder the development of such a system. In brief summary they are:

- the lack of government agencies having appropriate terms of reference to deal comprehensively with the problems of communications and information for the public, problems which are now inextricably linked by the new technology,
- the constitutional distribution of powers,
- inadequate public participation in the policy-making process,
- the existence of concentrated market power in the communications and information industries,
- inadequate and ineffective competition policies,
- out-dated industrial property laws,
- the lack of a conceptual framework for evaluating the benefits of information services,
- the sales of information tied to the sale of products or services,
- a relative neglect of the needs of individuals compared to the needs of the organization,
- the defensive stance of national economic policy for Canadian industry as opposed to an offensive stance focussed on superior performance,
- the tendency to define economic goals narrowly in terms of measured growth as defined by existing national accounts measures, which militate against household decision-making receiving adequate attention.

(l) How would the development of a community information network affect existing institutions?

The network would probably have three major effects. It would make information which is now being collected and disseminated to a narrow public more widely and quickly available. It would take information which is now available only from widely scattered sources, collect it, and make it available at the convenience of the user. Finally, it would increase the degree to which factual and unbiased information is available. What effect would this have on existing institutions?

The initial effect would probably be to allow a more economic and hence extensive use of existing output and to permit a more effective delivery of services by government and other institutions. By providing an additional source of information about the needs and requests of the public, as well as aiding directly in their decision-making, it would provide a guide to new output. Its ultimate effect might be a better informed public and improved social and economic systems which could respond more readily and flexibly to the needs of those they serve.

(m) What would be the role of government?

The relationships between a community information network and governments would be diverse. In addition to establishing the overall climate in which the development of such a network might take place and coordinating the social control policies which would apply to the network as well as to other information systems, governments might undertake specific activities in connection with the network. Cooperation between the network and government information systems and data banks would be desirable. Governments might also use the network as a source of information, as well as providing information for it. As an outlet for government information, the network might enhance the efficiency of government information services and the administration of other government programmes. Governments might also serve as channels for some of the operating funds for the network, and assist in research

and development costs. Some specific suggestions for government action in the short run are outlined below.

(n) What steps need to be taken to create a network?

There are two steps which should be taken immediately if a community information network is to come into being in Canada. The first step is the establishment of a clearing house to service the needs of existing public information systems and the public seeking to use them. The second step is development of a research design to explore fully the idea of a community information network.

A community information network clearinghouse would build upon the information which has been collected by the Consumers' Association of Canada and others with respect to existing public information systems. It would make this information available free upon request to interested parties and would encourage coordination in development of information bases, methods of input and access, and plans for expansion or creation of publicly-oriented systems.

This voluntary coordination will only be successfully achieved if the clearinghouse can command sufficient expertise and resources to make its services attractive. The Consumers' Association of Canada is now seeking funds for the design and operation of such a clearinghouse, to be operated by either a newly-created non-profit, non-governmental association or by the Association itself. Cooperation and support from the Department of Communications of the Government of Canada is sought.

The second essential step towards the realization of a community information network is the development of a project design. A preliminary outline is attached to this submission as Appendix C. The Consumers' Association of Canada is not at this time seeking funds to pursue this roughly defined set of projects but is seeking expert assistance and advice from the Department of Communications for the development of a fully articulated framework of projects which would include the clearinghouse.

(o) The role of the Government of Canada and the Department of Communications

As will be clear from the foregoing discussion, the responsibilities of governments are many and varied in the communications field. At the present time the Department of Communications in particular bears a heavy share of the burden. This submission alone contains many requested directed towards this Department. They are, in summary,

- that the results of the Telecommission should be published
- that the Department should make every possible effort to assist interested members of the public in informing themselves about the issues raised in these studies
- that public opinion on communications policies should subsequently be actively solicited
- that government policy formulation on major issues should await this expression of public opinion
- that a community information network should take primary place among the large scale data banks that are potential candidates for government assistance on the basis of the high net social benefits which may be anticipated from its development
- that recognition be given to the desirability of coordination of information services for the public
- that a commitment of resources to a clearinghouse for public information systems be considered
- that expert assistance and advice be made available for the development of a fully articulated framework for research and development of a community information network.

PART II SUMMARY AND CONCLUSIONS

The possibility of creating in Canada a non-profit community information network (a set of linked data banks containing information for use by the general public) should be explored.

A network to link together a set of data banks containing information for general public use would have the following merits:

- By its effect on household decision-making, it would make possible a very great improvement in the efficiency of resource allocation.

- A non-profit system would help to compensate for the deficiencies of the free market in providing adequate information to consumers.

- Unlike all other proposals for the creation of data banks, its social and economic benefits are made available directly, and would not have to rely upon a process of "trickle down" before they could be realized.

- Its indirect benefits in the form of experience and initiative generated among those who work on it are at least as great as those associated with the creation of any other data bank.

- The early creation of data banks for public use is likely to speed the widespread installation of a two-way communications capability in Canada with the desirable social effects which this would have.

- Its benefits would be widely distributed among different age groups, different income groups, different regions and different cultures.

- It would be an essential base and tool for citizens' advisory bureaus.

- It would serve as a positive mechanism in the market place to provide a yardstick against which competing domestic and foreign systems could be assessed by the public.

- The improvements in public information which it could make possible would reduce the costs of other government programmes.

- It would improve the efficiency of the market place by complementing competition policies.
- It would provide a vehicle through which essential elements of standardization could be assessed and introduced.
- Its creation need not await the resolution of the privacy issue because the data on the system does not consist of records of individuals. Privacy of access for individual users is sufficient.
- It could be built upon a number of component parts already existing in the public sector and in the voluntary non-profit field.

The immediate need is for a clearinghouse for public information systems now being developed or planned in both the private and public sectors.

The initiative in establishing such a clearinghouse which is being undertaken by the Consumers' Association of Canada and with which other organizations are being invited to collaborate should receive cooperation and support from governments.

APPENDIX A

Some Existing Public Information Systems in Canada

Introduction

Beginning in 1968, information related to existing or planned systems was gathered and files. In May and June, 1970, all the previously accumulated data plus further material garnered through formal in-depth interviews was analyzed by a research assistant whose services were made available through the Department of Consumer and Corporate Affairs. The format for the analysis is seen in Table 1 where the results of replies are given. Altogether 19 organizations are included. In addition, the assistant interviewed other knowledgeable people (e.g. social workers, lawyers, a radio commentator, a senior systems analyst, a publisher, etc.) These people were able to suggest some areas where information gaps exist. They also pointed out other important techniques of information dissemination.

For purposes of analysis, organizations were divided into three categories, public, private (profit), and private (non-profit). Those organizations whose main function was to provide data to the public were deliberately chosen. Larger firms whose sophisticated systems were designed to fill internal needs were excluded. Also excluded were communications companies (e.g. Bell, IBM, etc.) Descriptions of several additional systems were obtained but time did not permit their being incorporated in the study.

Some Common Features of Existing Systems

Table 1 shows many features common to the organization. Most striking is how users are served - (Q. 7). None of the organizations surveyed allowed the user direct access to the files. While the desire for secrecy and confidentiality was an important motive, a more important factor was the general feeling that raw data to the untrained eye would border on the dangerous or useless.

Hence, for systems surveyed, assistance in interpretation was believed to be needed.

The remarks of the Chief of the Technical Information Service of the National Research Council about his operation sum up this feeling.

> "Information involving specific data, product sources, articles, abstracts, etc., can be handled quickly by a library, a documentation centre or a data bank and it generally can be transmitted readily by telecommunication circuits, if necessary, directly from computer storage to the enquirer. The T.I.S. enquiry is quite different. It involves a technical appraisal of a technical problem, a skillful search by an informed specialist of a wide variety of information sources, an information selection of the relevant information, a professional opinion as to its application in solving the problem, and, sometimes, technical assistance in applying it."*

This feeling seems to permeate most government operations even in cases where the data is not of a politically sensitive nature. Those outside government, particularly information staff members can with justification regard their roles as being that of "...skillful search ... informed selection ... professional opinion ... and ... technical assistance." Thus even when political sensitivity and profit are set aside, controlled access seems still to be regarded as necessary through paid, though not necessarily professionally trained, intermediaries in the systems surveyed.

In this latter connection it is interesting to note that only one organization relied exclusively on volunteer staff. The presence of special trained staff - i.e. those with prior training needed to do the job at hand (e.g. lawyers, social workers, etc.) - was not confined to any particular type of organization.

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*R.E. McBurney "Technical Information for Industry", An address to the Symposium on Technical Information, Laurenco Marques, July 1, 1968.

It is also interesting to note that the social service information centres of Montreal, Ottawa, and Toronto all employ either university or community college graduates from the field of social work. These professionals and technicians are used exclusively to answer enquiries. Any volunteer staff are used mainly in supporting roles. This practice developed from experience with using volunteers on the telephone.

Another interesting feature is the service provided (Q. No3). Most of the organizations surveyed provide a combination of "information only" and "referral". Those providing advice use professional staff. A few organizations will act as complainant's champion and pilot his complaint through the jungle of officials. But very few are actively engaged in political agitation and only one can properly be said to be involved in social animation.

A related aspect is the way the information is provided (Q. No.8). The element of personal contact varies but still reflects an aversion or at least a shying away from impersonal exchange. Few provide computer print-outs and these are usually internal communications. There appears to be ambivalence about advertising, since a full scale promotional campaign may make the service more impersonal.

One consequence of this is that of all the methods of attracting users (Q. No.6), the highest rating is for referral. Advertising as we normally think of it is virtually non-existent. The government seems to hide its on-going programmes and the social service agencies have no funds. Generally, advertising takes the form of public service announcements on radio or television, donated advertising time or space, special telephone listings, etc. The contrast with the profit-making firms is striking.

Regarding information storage (Q. No.10), almost all maintain libraries or catalogues, most use card files, but relatively few use computers. While information can be stored readily (depending on the volume) in print or on cards, retrieval poses problems (e.g. simple wear-and-tear) when volume rises, even assuming that each user has his own copy.

Generally information was provided free of charge by the source (Q. No.11). Sometimes funds had to be paid, either as a fee at a records office, as a "fee for services rendered", for library books, etc. All organizations had to produce their sources a little (e.g. collect it yourself (19)"). Some re-organized data received from outside sources.

Not surprisingly, information on development costs (Q. No.12 and No. 13) is sketchy, partly for reasons of organizational strategy and partly for reasons of accounting procedures.

Operating revenues, (Q. No.14 and No.15) are for the most part identical with general revenues. Because of the variety of services provided from a quick reference to a detailed reply an "average cost per call" is somewhat ambiguous.

Finally, coordination (Q. No.17) took a variety of forms. Some government departments use a common classification system although they use a slightly different format for presenting their information. Some organizations use completely different classification systems but maintain close and strong liaison. Some organizations prefer to isolate themselves.

Some Suggested Needs and Warnings

Most people contacted seemed to feel that a data bank of comparative consumer data containing only durable products information would not likely be extensively used.

One person suggested using computers in an educative problem-preventing programme. The example given was a brief explanation of family law. A lawyer contacted felt this could easily be done.

A body of background information could be made available to the general public and this information should be beyond "how to buy", how to collect", "where to go", etc. and get at "how to avoid unpleasant consequences".

One oft-repeated warning was that information could be presented in many forms, from comic book to computer print-out. The format chosen depends on the needs of the audience.

Another impression received was that people dealing directly with the public, particularly in public agencies, would be willing to participate in an information support system. The system would be used to support technical or professional staff by providing them with much needed, factual, up-to-date information.

Our review indicates that a promising base does exist for expansion and development into a user-oriented information network in Canada.

TABLE I

A questionnaire designed to provide information about a number of publicly-oriented information systems, planned or in operation, in Canada today.

RESUME OF 19 REPLIES

June 17, 1970

Please check all items which apply to your system

1. Name of organization

a) address_____

b) city_____

c) type
(i) public (i.e. government) (6)
(ii) private - profit (4)
(iii) private - non-profit (9)

d) contact_____

e) phone_____

f) date of initiation_____

g) reason for starting_____

2. Type of information

a) consumer (14)

b) business (8)

c) agriculture (2)

d) government (7)

e) jobs (7)

f) scientific and technical (4)

g) education (5)

h) news and events (1)

i) other (please specify) recreation (2)

3. Service provided

a) help in defining problem (8)

b) information only (11)

c) advice and information (9)

d) referral (15)

e) professional counselling (3)

f) advocacy of changes or modifications in laws or administrations practice as a result of experience with client's problems (5)

g) other (Please indicate) social animation (1)

4. How many enquiries are received per week?

a) when the service was first initiated

0-50 (3) 201-500 (1) 1001-2000 (1)

2001-5000 (1)

b) now 0-50 (2) 51-100 (2) 101-200 (2)

201-500 (2) 501-1000 (2) 1001-2000 (1)

2001-5000 (1) 5000 + (1)

c) projected

5. Who uses your service?

a)	business	(13)
b)	farmers	(3)
c)	educators	(10)
d)	social workers	(7)
e)	government agencies	(12)
f)	general public	(14)
g)	job seekers	(5)
h)	consumers	(11)
i)	senior citizens	(6)
j)	low income persons	(8)
k)	other(please list)	
	extension workers	(2)
	immigrants	(1)
	lawyers	(1)
	foreign visitors	(1)
	researchers	(2)

6. How are users attracted?

a)	advertisements	(12)
b)	word of mouth advertising	(13)
c)	referrals	(16)
d)	proximity (e.g. neighbourhood services)	(7)
e)	other (please indicate) government regulations, special promotions; special telephone listings;	(2 ea.)
	court of last resort; published own material; workshops, cupboard door.	(1 ea.)

7. How are users served?

a)	direct access to information files	( )
b)	access through an intermediary	(19)
c)	if (b), is the intermediary -	
	a volunteer	(4)
	a paid worker	(18)
	specially trained	(9)
	not specially trained	(14)

8. How is the information provided?

a)	person-to-person	(15)
b)	by telephone	(15)
c)	in print	(15)
d)	teletype or computer print-out	(5)
e)	optical display	(1)
f)	if d) or 3), by remote terminals	( )
g)	other (please specify) Directory, seminars and conferences	(1 ea.)

9. If remote distribution points (terminals) are used, where are these located?

a)	on user's premises	(2)
b)	in supplier's premises	(10)
c)	in other facilities such as -	
	libraries	(2)

shopping centres ( )
neighbourhood centres (1)

d) other (please specify)_____

10. How is the information stored?

a) print (e.g. catalog) (15)
b) card files (11)
c) microfilm (1)
d) microfiche ( )
e) computer tape, disc, etc. (7)
f) other (please specify)_____

11. How do you obtain the information in your system?

a) volunteered by suppliers (14)
b) purchased from suppliers (5)
c) provided free by public agencies (15)
d) purchased from public agencies (2)
e) collected by yourselves (19)
f) produced by yourselves (9)
g) other (specify please)_____

12. What was the magnitude (approximately) of your system development costs?

a) $ 0 - $ 1,000 (2)
1,000 - 10,000 (2)
10,000 - 100,000 ( )
100,000 - 1,000,000 (1)
over $1,000,000 (1)

13. How were these developed costs financed?

a) privately (7)
b) with government assistance (1)
c) by government grant (1)
d) other (please specify) general revenue (5)
United or Community appeal (3)
University grant (1)

14. How do you finance your operating expenses?

a) direct user charges on a subscription basis (5)
b) direct user charges per enquiry (3)
c) from other operations of your organization (2)

d) from government grants (2)
e) other (please specify)
general revenue (6)
contributor or listing fee (4)
United or Federated Appeal (3)
private research grant (1)

15. What is the approximate operating cost per enquiry of your system?

16. How many people do you employ in:

		Total	(a+b+c)
a)	data collection and processing	0 - 5	6
		6 - 10	1
b)	data retrieval and client service	11- 25	2
		26- 50	2
c)	other functions related to your information system	50+	2

17. Is your system developed in coordination with any other systems?

a) yes (11)
b) no (8)
c) If yes, please specify. The "no's" include some operations which have strong liaison contacts for purposes of information exchange.

18. Are there other aspects of your system that you would like to mention?

19. Can you suggest other people and/or systems that we should know about?

APPENDIX B

SOME POTENTIAL DATA FILES AND DATA BANKS

The following lists of subject matter areas are designed merely to suggest the range of information which could be organized and made available through a community information network. Neither the lists themselves, nor the examples of the characteristics about them which might be relevant, are intended to be exhaustive.* Furthermore, the characteristics listed do not necessary reflect the most important aspects of particular products or services. The diversity of products and services in each list was too great for such precision. In contrast, an operating system would be designed to provide precisely those details about each product and service which are considered most relevant by the users.

SERVICES

ADULT EDUCATION
Apartments to rent
Appraisals
Art Galleries
Automobile insurance
Baby sitting
Banks
Beaches
Better Business Bureau
Budgetting services
Bus schedules
Camps
Child health clinics
Churches
Consumer Credit Counselling
Dating
Day care services
Dental services
Dietary advice
Disability services
Discount stores
Drop in centres
Drug information and services
Drug stores open
Dry cleaners
EDUCATIONAL OPPORTUNITIES
Emergency services
EMPLOYMENT OPPORTUNITIES
Entertainment
Fire insurance
First aid
Foster care

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*Certain major categories of services, under which many sub-categories would exist, have been capitalized. These are defined as data banks, in contrast to the remainder which are conceived of as data files. No attempt has been made at this stage to assign each data file to a particular data bank. Such assignment should probably occur as a product of experience with classifications as perceived by users.

Garages
GOVERNMENT INFORMATION
Hairdressing services
Handicrafts
Home improvement companies
Homemakers
Hospitals
Hostels
Hotel accommodation
Household cleaning
Household help
Household movers
Houses to rent
Job placement
Life insurance
Legal services
Libraries
Marital counselling
Mechanics
Medical services
Metric equivalents
Mortgages
Motel accommodation
Movies
Music lessons
Musical performances
Mutual funds
Nursing schools
Nursing homes
Nursing care
Nutritional information
Physiotherapy services
Psychiatric services
Postal services
Public parks
Poison control
Real estate agents
Repair services
Restaurants
Retail outlets
Rooming houses
Schools
Service stations
Ski areas and conditions
SOCIAL AND SPECIAL SERVICES
Special Housing services
Special schooling services
Sports events
Stock brokers
Tips, e.g.
    for older people
    for food buying
    for low income families
    for cooks
    for child care
    for used car buyers
TELEVISION PROGRAMMES
Trade practices
TRAINING PROGRAMMES
Transportation schedules
Tourist homes
Travel agents
Trust companies
Tutoring
    services
    financial aid
Undertakers services
Universities
    counselling
    courses
Utilities
Voluntary agencies
Warnings
    buyer beware
Weather forecasts
Welfare services
Zoos
etc.

CHARACTERISTICS

Location
Price
Financing available
Special features
Buying advice
Hours of service
How to do it yourself
Etc.

PRODUCTS

Air conditioners
Automobiles
  new
  used
Binoculars
Cameras
Carpets
Cleaning agents
  bleaches
  detergents
  soaps
Clothes
Cosmetics
Dryers
Drugs
Encyclopedias
Fans
Farm machinery
Film
Food
Freezers
Fuel oil
Furniture
  new
  used
Furs
Garden plants
Grass
  seed
  sod
Hearing aids
Houses
Insecticides
Irons
Mattresses
Milk and milk products
Musical instruments
New products
Nylons
Orange juice
Paint
Refrigerators
Sales
Sheets
Sports equipment
Stoves
Television sets
Textiles
Toasters
Toys
Washing machines
Etc.

CHARACTERISTICS

Make
Model
Style
Size
Price
Distributors or Dealers
Date listed
Buying advice

Desired Information
Mailed information
Availability of financing
Product test results
Name and address of manufacturer
Special features

Instructions for use or care
No. in stock
Grades, standards (voluntary or mandatory) or specifications
Trade mark
Etc.

APPENDIX C

A PRELIMINARY PROJECT DESIGN

The overall project might take the form of a carefully designed set of studies, each building upon the results of the previous one.

Phase I - Clearinghouse for Existing and Planned Systems

Phase II - Feasibility Study (See details page 49)

The objectives of this phase would be:

- a study of the legislation affecting the use of communications technology in national information networks, the various organizational structures and possible contractual relationship among a network's owners, its input sources, and its users, and the appropriate sponsorship for an operating system.

- identification and description of a range of data fields that might be made accessible to a system's users, identification of an appropriate agency for managing the collection, analysis and up-dating of the information, the identification of a suitable test population of users, input sources, and data for demonstration of the system's feasibility;

- an investigation of the various methods and costs of using communications or data-transmission facilities and a variety of input-output devices, including telephone and voice answer-back units, dial-access television, etc. including specification of the general system for a demonstration of the defined data base, using remote access, time-shared computer facilities;

- an assessment, in light of the above, of the economic feasibility of an interactive mode remote access community information network.

Phase III - Demonstration Project

The objectives of this phase would be:

- to set up an appropriate system demonstration;
- to study the response of users in this demonstration;

- to move toward establishing appropriate sponsorship and management for an operating system.

Phase IV

The objectives of this phase would be:

- to establish an operation system in selected locations;
- to expand data banks;
- to establish sponsorship.

Phase V

The objectives of this phase would be:

- to establish a national network of operational systems.

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Phase II - Feasibility Study - Details

a) Systems Study

A survey of the present state of computer and communications technology, to include

- review of computer input and output devices now on the market, to determine their suitability and cost, as well as a review of the characteristics of any such devices now in the development stage, or developed but not yet marketed, including in all areas their compatibility with existing communications channels, e.g. telephone, etc.;
- a survey of the technical and financial arrangements which might prevail between the systems operators and the telecommunications companies with respect to technical matters;
- general specifications of the kinds of equipment which would be most suitable for a demonstration (and for the initial system);

- a survey of the likely operating difficulties to be encountered including system failures, gaps, inaccuracies or other inadequacies, along with details of the system's design which will cope with these problems;

- how best to obtain the opinions of users (feedback monitoring) as to the accuracy, adequacy and usefulness of the information so as to enable prompt shifting of emphasis and content as required.

b) Data Base Study

The study of what information a system should carry would include:

- defining an appropriate data base for a demonstration, for a market test, and for an operating system;

- examination of the characteristics of items in the data base to determine which characteristics should be included on the system;

- surveying how this information is to be obtained, and what portion, if any, will be volunteered and therefore can be collected at relatively normal cost and what information must be purchased;

- considering how accuracy and timeliness can be ensured and in what areas timeliness will be vital;

- establishing general guidelines as to the criteria for determining what information the system should carry.

c) Legal Study

This study would include:

- an investigation of the contractual relationships which would exist between the system's organizers, its users, and those who contribute information to it, as well as the definition of access and of rights to contribute information to the system;

- an investigation of the contractual relationship which would exist between the system, the computing facilities and the telecommunications companies;
- a consideration of the possibilities of patent and trade-mark protection for some aspects of the system;
- consideration of the appropriate organizational structure and procedures for a new non-profit organization whose major purpose would be the operation of such a system as is proposed.

d) Economic and Financial Study

This study would include:

- an investigation of the economics of time-shared computers, and other information storage and handling equipment;
- an investigation of the costs of using the facilities of common carriers for data transmission, and the costs of telephone equipment and other terminal equipment;
- an investigation of the costs of various methods of billing users;
- a study of appropriate pricing practices;
- a study of the costs of information, of the cost of collecting information by telephone or other means of communication, of coding these items for computer storage or other forms of storage, and using remote terminals as output devices;
- an estimate of the probable financial viability of the system at various stages of development.

The Consumers' Association of Canada, founded in 1947, is a non-profit organization whose purpose is to protect and promote the interests of all Canadians as consumers. This purpose is pursued through the activities of local associations in ten provinces and through the publication of CANADIAN CONSUMER, a national bilingual magazine published six times a year. The national office is located at 100 Gloucester Street, Ottawa. At the present time, CAC has 63,000 members, and its membership is growing rapidly. Since its inception, the Association has been actively engaged in efforts to improve the quality and distribution of consumer information.