INFORMATION TECHNOLOGY AND SOCIAL CHANGE:

AN INTRODUCTION TO THE SOCIAL IMPACTS SUBCOMMITTEE OF THE CANADIAN VIDEOTEX CONSULTATIVE COMMITTEE

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1. Introduction

The Subcommittee on the Social Impacts of Videotex is a consultative group charged with anticipating the probable impacts of videotex on the Canadian community. Since its inception in 1979, it has commissioned research and engaged in discussions with the aim of determining the implications for ordinary Canadians of the widespread adoption of videotex. It is the belief of the Subcommittee that it is essential for citizens to be involved in determining how such new communication technologies as videotex are to be employed.

This paper is intended as the beginning of a discussion with Canadians on the future of communications in Canada. In our view it is essential for citizens to participate in determining priorities which will underlie those fundamental decisions of public policy which lie ahead.

2. The Canadian Videotex Consultative Committee

The Subcommittee's parent body, the Canadian Videotex Consultative Committee (CVCC) was established in 1979 to advise the Deputy Minister of Communications on the federal government's Telidon program. The goal of the CVCC is to obtain for Canadians, to the greatest degree possible, the social and economic benefits arising from a widespread implementation of videotex systems.

To achieve this goal the CVCC is to:

> Appoint working subcommittees in any functional areas and make recommendations it considers necessary to meet its general objectives.

Review the status of the Telidon program and make any recommendations it deems appropriate to the Deputy Minister.

Review videotex standards and assist and advise the Deputy Minister on objectives and actions so as to achieve standards implementation.

Review the possible impact of the evolution of videotex on the social and economic structure of Canadian society and make appropriate policy recommendations to the Deputy Minister.

Review the Telidon marketing and industrial strategy as it relates to world-wide videotex developments and where possible assist in the implementation of that strategy.

Consider all practical means for the appropriate dissemination of information concerning Telidon.

Not including the chairman, vice-chairman, or executive secretary, the CVCC is composed of twenty-five members who are appointed for two year terms. While members have been chosen with regard to their ability to contribute to the goals of the CVCC, the DOC has also ensured that there is representation from:

The broadcasting industry

The cable television industry

The telecommunications carriers industry

Civic groups

Government and para-government agencies

Information providers (including education)

Labour

The communications manufacturing industry

While membership on the CVCC is limited, six subcommittees and other ad-hoc working groups ensure that a broad representation of views is brought to the work of the CVCC. The Social Impacts Subcommittee is one of six currently constituted. The others are concerned with: standards, marketing and industrial strategies, legal aspects, education, teletext, and information providers.

The terms of reference of the Social Impacts Subcommittee are as follows.

> "In view of the fact that the use of Videotex systems may in time become as commonplace as telephone usage, the Subcommittee on the Effects of Videotex on Individuals and Society (our former name) seeks to anticipate the impact of this developing technology on Canadians. Specifically, our concerns are broadly based to include social, cultural, political, economic and other factors. The Subcommittee will seek to identify as they emerge philosophical and moral issues fundamental to the development of this technology and encourage an integrative approach to the solution of problems which are identified, for the benefit of all Canadians.
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> "In particular, the Subcommittee anticipates that among others the following issues will require its consideration:
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> 1. the need to facilitate and be responsive to public comment on developing issues in order to ensure that the introduction of videotex proceeds in a manner which is both acceptable and desirable to the public.
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> 2. the development of videotex systems which have the capacity to be truly interactive and can provide an opportunity for participation by Canadians in all walks of life. To do otherwise could increase the widespread alienation already experienced by members of our society.
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> 3. the technology must be developed so that the interests, needs and skills of differing age groups are satisfied. In addition the needs of other specific user groups (such as the handicapped) must be recognized.

4. the development of techniques which will effectively safeguard the privacy of individuals. Privacy must be considered paramount even when weighed against considerations of economic efficiency.

5. the impact on quality and quantity of employment. The introduction of videotex systems will affect work in a variety of ways. Attention must be given to displacement of workers, retraining, education and perhaps even to a reappraisal of the nature of work itself.

6. the issue of equity. Lack of access to videotex systems could create a new form of poverty.

7. the provision of adequate safeguards to offset the potentially centralizing tendencies of this new technology. Techniques should be developed to facilitate the use of the system by individuals as information providers.

8. the need for sufficient untied funds from commercial information providers, as well as government, to support data bases of specific community interest.

9. the adequacy of data bases so that overall homogenization of society is not exacerbated. Systems that are developed must be responsive to geographical needs and sensitive to the social and cultural diversity of Canada." (Terms of Reference Social Impacts Subcommittee).

Since the formation of the Subcommittee, a number of additional issues and areas of concern have crystallized.

3. Communications and Canada

Communications have always played an important role in Canada. As a nation whose population is thinly spread over some 5000 miles, Canada has through its history been a leader in the development of communications equipment. A transcontinental railroad was completed in 1883 and a telegraph system followed soon after; a trans-Canada radio network in 1927 and a telephone network in 1932; a domestic communications satellite

in 1972; the first nationwide digital data communications system in 1973. Current developments in satellites, fibre optics, digital networks and Telidon, Canada's second generation videotex system, indicate that Canada will continue to play a leading technological role.

Communications issues are of central importance in the national policy arena and raise questions of federal-provincial rights and responsibilities, national sovereignty, and cultural autonomy. Canada has the largest per capita investment in communications technology of any country in the world. We make more telephone calls per person than any other nation. We have the world's most extensive cable system with which to deliver a vast variety of broadcast and non-broadcast services to the home and office. We expect that Telidon or a variant will ultimately be part of a broad public information network. Given this significance of communication to Canada and Canadians our goal is to ensure that in the building of an efficient and effective system, the legitimate needs and concerns of the eventual users of the system, the citizens of Canada are not over-shadowed by concerns for short-term profit.

4. Technology and Society

Videotex is but one of a large number of technological advances made possible by the development of microelectronics and related technologies. The use of these technologies will change Canadian society. New words and terminology creep into the language; new occupations develop and others atrophy; new industries grow (often very rapidly) and others mature and fade into the background. New

opportunities arise for styles of life and varieties of cultural creation and experience. In short, videotex is only one item in the "information revolution" which is taking place in Canada and the industrialized world.

We are presented with new opportunities and with new problems. The technologies which underlie the "information revolution" at once reflect our culture and reshape it. They do not evolve simply from their own internal logic but are heavily shaped by dominant economic and political forces. So it has been with the printing press, with electricity, with the telephone and so, in our view, will it be with the information technologies like videotex.

We are aware that it is difficult to predict the ultimate impact of the new technologies. We do not assume that technology alone will shape the future but we believe that the new technologies will be associated with fundamental shifts in Canadian society.

What exactly will be the nature of the change; who will be the losers and the winners; the place of Canada in a world pervaded by information technologies -- this and much more cannot now be completely known. However even as the technology is being implemented, "mid-course corrections" can increase the probability of achieving one outcome rather than another.

There is no evidence, at this stage, whether and to what extent the "information society" will be "good" or "bad". That it is technologically feasible is clear; that it is economically probable becomes clearer each day that brings announcements of new business in one or

another aspect of the information industry; that it will enhance or decrease the quality of life depends on our ability to understand the medium and upon the social choices made.

5. Videotex and Interactivity

It is our belief that the present version of Telidon is not so fully interactive as it could or should be. The newness of videotex and the fact that it is viewed on a television screen has led to the widespread notion that "two-way television" is being introduced.

The word "interactive" is usually used by those promoting the service. In fact, as presently constituted, interaction is limited to information retrieval from a central data base by means of a simple but time-consuming access process sometimes called a "tree structure" or "hierarchical" approach, using menu pages. At present Telidon offers the basic facility of an information retrieval system.

It is technically possible, and we believe socially desirable, that Canadians shape Telidon into something like the more fully interactive system outlined below. Obviously the interactivity cannot match that achievable between individuals meeting face to face, but our concern is that current field and market trials concentrate on a system with much too limited interactivity. Present Telidon applications may "lock us in" and preclude the possibility of future changes. A move to greater interactivity may seem some time in the future to be "too costly" and thus Canada will have missed an opportunity to take advantage of Telidon's full potential as a communications system.

We are confident that Telidon can achieve its potential both commercially and socially only by being fully interactive. That is, in addition to the basic facility, the following (some of which are currently under development) should be provided:

- input of information by users;
- terminal-to-terminal communication between users (direct or "store and forward");
- transactional services;
- loading of computer programs from a data base into a terminal;
- interconnection with other related services;
- management of closed user groups.

An ideal Telidon system would have the following characteristics:

a. The system would be transparent. A system is said to be transparent when its internal structure is designed to make its use natural to users, so that they can access the functions of the system without knowing precisely the nature of its workings. Transparency does not mean that systems details are forever hidden from users. On the contrary, when people want to find out about how the system works so that they may more easily participate in its improvement, they should be able to do so. A transparent system allows the user to do what is wanted without undue restrictions. Transparency is also a factor of accessibility and acceptability in the sense that it favors a comfortable "intimate" relationship with the system. The user can thus exploit the resources of the system in a particular way without being hindered by technical and human intermediaries. The provision of codes and alphabets allowing multilingual messages is also a factor of transparency.

b. The system would be fully interactive. Interactivity should be designed for the following:

- user<->databanks: this is the level of interactivity allowed by most current videotex trials.
- user<->information providers: for orders, enquiries and general transactions.
- user<->user: for messages and teleconferencing.
- user<->users: for community communications bulletin boards.
- user<->software: for processing of data, games and education.

- user<->distant computer: for interconnection and access to other data banks.
- user + (terminal intelligence)<->(central computer): for downloading and local execution of programs.

c. The system would be symmetrical. By symmetry is meant the possibility for each user to send and receive messages to all the other points of the network. In an ideal system, all users would be able to purchase equivalent transmission and reception capabilities. Production of messages should not be the preserve of communications professionals, it should be possible for every user.

d. The system would be accessible. Access to the system would be widely distributed geographically, that is, available to individuals from all socio-economic groups in all parts of Canada.

e. The system would be designed so as to allow for the eventual integration of different home information systems (present and future) including videotex, teletext, domestic processing systems, etc. Interconnection standards would be developed to allow access to and from other systems and data bases.

The new technologies have the potential for increasing the sense of alienation and powerlessness which afflicts many in our society. Alternatively they can be configured in such a way that social interaction can be increased and facilitated.

The system should be structured to promote interaction and to move away from a model of citizens as passive consumers of entertainment, sports, political debates, etc. Means for ensuring effective user feedback must be built into large public videotex systems. It should be possible for interest-based networks of, for example, chess players to develop.

Videotex can be the town hall of the future, tomorrow's community bulletin board, a communications outlet for those who choose not to or are otherwise unable to go to a central meeting place. For the geographically isolated, those immobilized by weather, for the aged and

the handicapped, the use of a fully interactive system could profoundly transform and enhance life both in the private and the public spheres. Every technology offers new possibilities for choice, even as it constrains choice. However, never does a technology guarantee a particular outcome - there always remains room for variation due to individual or group initiative. A "fully interactive" system may be necessary for, or at least encourage social objectives such as widespread accessibility, but technical interactivity is not in itself sufficient to ensure that these objectives will be met. Some barriers to equitable access not completely addressed by technical design include existing disparities of wealth and education, language and cultural differences, ownership and control of media. To overcome these barriers may require deliberate intervention such as: government regulation, statutory access rights, legislation, fiscal policy, support for citizen's advocacy groups and non-profit information services, publicly owned communication/information organizations, or enquiry commissions.

Such actions, together with an appropriate technical design and informed public participation at all stages of development, would help ensure that many foreseeable problems can be avoided early rather than having to correct them when full-blown. In this way the chances of achieving the full benefits offered by videotex will be greatly enhanced.

6. Privacy

Much has been written on the emergence of an information society and the future of personal privacy. Privacy has two aspects. It refers to being left alone when solitude is desired. It also refers to

being able to control access to information about oneself. Having privacy in both connotations is thought to be important to an individual's sense of self, of identity.

Two directions are possible for information society service. It can be provided either through a network of terminals or through a number of separate units which may or may not be capable of intercommunication. The former approach allows for the greatest development of Telidon's potential but it also carries with it the greatest threat to personal privacy. The latter approach ensures privacy but restricts the system's interactive and communication capabilities. The network approach is the one which is currently most widely favoured.

The accumulation of massive data bases concerning individuals from communications networks can present serious threats to current notions of privacy. Data which might previously have been considered to be non-sensitive can now become quite sensitive, because the correlation of such data with other information can lead to accurate and detailed profiles on individuals. Since such data bases can easily be transferred between systems, issues of data security and thus information privacy become complex and difficult. A great deal of personal data could be collected in the course of providing services through the network: medical information in relation to health care delivery; financial information in relation to business activities; legal information in relation to the provision of legal services; and educational aptitude, ability, and performance information in relation to the provision of instruction.

Some questions which must be addressed and, we hope, constructively

answered are: What types of controls would be imposed on the collection, use, distribution, and protection of personal data bases? What are the rights of individuals to be kept informed as to the content and use of personal data records? What provision will be made for error correction? How will security be guaranteed? What rights will government agencies or private organizations have to obtain or exchange personal data with other agencies or organizations? What will be the government's information access power in the case of national emergency?

We feel that studies should be carried out to identify present and possible future problems in relation to privacy and to provide Canadians with information as to the trade-offs which may be necessary. In fact if the privacy issue is not adequately dealt with to the satisfaction of the Canadian people, it may become the single greatest impediment to the implementation of fully interactive systems, including Telidon applications.

7. Public Awareness

We are at the threshold of an information revolution and we are in the transition to an information society. The problems and opportunities inherent in this massive transformation have as yet not been dealt with in Canada to the same extent as other countries such as Sweden, France, the UK, and Japan. Public awareness of the issues raised by these changes must be increased. Governments, the media, educational institutions, and citizens' groups have a vital role to play.

Videotex, as the first information technology expected to be widely

available and used by the public, is an important first stage in the information revolution.

The information revolution will affect our cultural institutions, will challenge certain of our basic values, and will influence key elements in our styles of life. There is much of value to be gained through the technology. The challenge will be to distribute the gains equitably while reducing and mitigating the unfavourable consequences. Participating in the public debate about how the new technology can be made to serve our collective needs is both our democratic right and our responsibility as citizens.

The Subcommittee views promoting public awareness and participation as a prime task. Citizens must be made aware of the new technologies, their likely impacts and the role that Canadians and Canadian industry can play in future developments. Citizens must state clearly and vigourously their needs and desires concerning the information society. All of this is to be done in a swiftly changing technological and political context where foreign governments and large multinational companies are committing vast amounts of money and manpower to ensure their place in the high technology market place of the future.

As a subcommittee of the CVCC we can act as a liason between governmental authorities and citizens' groups. We continue to sponsor and participate in seminars, and meetings and we have prepared a series of brief position papers. But we see this as only preliminary to the broader-scaled dialogue which must now commence.

8. The Subcommittee's Role

The mandate of the Subcommittee is evolving as developments are taking place with respect to Telidon. At present, we are the only voluntary group charged by the Government of Canada to examine the social impacts of videotex.

The work of the subcommittee is special in many ways. To us it represents a commitment of time and effort based on our recognition that we are the only group currently established to look to the public interest in the rapidly developing area of the information society.

Our Subcommittee has what may be termed a "social process" orientation. A "systems" orientation places the emphasis on efficiency. In the case of videotex, how is the system put together? It is easy and comfortable to use? Is the data appropriate? Accurate? Up to date? Does the system save time, money, tedium? Will the billing system work effectively? Will the record keeping system be foolproof? How can the system allow individuals or organizations to meet their goals?

A "social process" approach looks at impacts in terms of a larger culture: political, organizational and family institutions. The emphasis often is on power - who has it, who keeps it, who wants it - who benefits from it and most importantly for videotex, who has control over how the future is evolving.

While it has been said that "everybody's business is nobody's business", the committee has a mandate to be continuously aware of

and alert others to the social impacts of videotex. It may, at times, seem as though we are at odds with technology, with videotex and Telidon itself. Since we see our constituency as the citizens of Canada, we think it essential to enlist the help of all who think they may have something to offer.

The subcommittee has prepared this paper as an introduction to who we are, what we are trying to do, and our position and thoughts in a few areas. We would like to hear from our readers: If you would like further information on Telidon, material on the "information society", and/or would like to become part of a network of Canadians interested in the social impacts of videotex and information technologies please write or telephone to the address you will find below.

Our intention is to find out the level of interest in these developments, to cooperate in understanding the impacts of videotex, and in general to act as a catalyst for recommendations which will ensure that all Canadians at all income levels in all regions of the country have the opportunity to have a say in both the definition and the implementation of Telidon and the Information Society.

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