

SOCIAL ASPECTS OF VIDEOTEX SERVICES PROPOSED RESEARCH DIRECTIONS

**Social and New Services Policy Division
Broadcasting and Social Policy Branch
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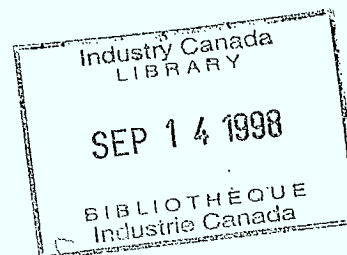
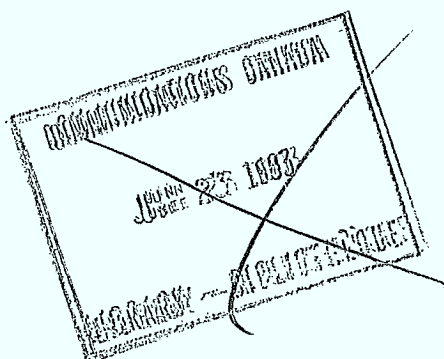
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Government of Canada
Department of Communications

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Ministère des Communications

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Introduction

As videotex develops and gains public prominence, important issues are raised about its implications for society. The Department of Communications has a two-fold role to play in the area. It must address the social implications of new telecommunications services as part of its general policy responsibilities; and it must ensure that the development of the Canadian videotex system (Telidon) occur in such a way that it contributes to the public good. This paper reviews some of the major social issues associated with videotex, and suggests several research initiatives.

Research about the social aspects of new services repeatedly comes up against three basic problems:

1. The broad nature of certain important issues, such as access, makes it difficult to define a researchable question, specific and non-rhetorical. It is essential therefor, to scale down the topic to focus on workable problems.
2. The after-the-fact nature of research which assesses the impacts of a technology or service is often too late to effect the development of policy, especially with capital-intensive hardware investment in place.
3. "New services" by definition may be only planned or at an embryonic stage of development, and not yet in place. Impact types of research, (such as employment effects) are speculative and must guard against limited credibility and usefulness.

Points (2) and (3) suggest that with new services, such as videotex/teletext, a valuable and timely approach may be one which utilizes research of types other than the analysis of impacts and which can encompass more than one scenario. As well the research should be structured in such a way that it can help to shape implementation according to the social impacts which may be desired instead of measuring simply what has occurred.

Videotex encompasses a wide range of applications, which can be broadly grouped into: information retrieval services, whereby users seek and access information through the system; transactional services by which electronic transfers of funds are made, for purchases or banking; and point-to-point messaging, such as electronic mail.

Certain social issues have particular relevance for a specific kind of service. For example, with a transactional service involving a transfer of funds, a pressing policy implication is vulnerability of the system, to computer crime and other system failures. The massive amounts of money banks pass among each other daily are a high-risk example where computer crime could be seriously disruptive to society. Messaging services for point-to-point communications also require attention to vulnerability, to ensure the privacy of content. With information retrieval, on the other hand, it may be important to promote the diversity of content available. Equity of availability of the system, for users to seek and access

information, particularly information of a public service sort, may be an issue.

A number of large issues regarding these new services generally are delineated in the following pages. For the purposes of analysis these issues can be grouped into two main types:

I. The Videotex system, and its operations

- (a) access
- (b) diversity
- (c) privacy
- (d) accountability
- (e) vulnerability

II. Secondary consequences

- (a) employment impacts
- (b) impacts on lifestyles
- (c) equity of availability
- (d) institutional impacts
- (e) autonomy

Some comment on each of these broad issues and research addressed to them is given in the following pages. It is argued here that "access" and "diversity" provide particularly good candidates for research at this point in videotex/teletext development. As issues, they raise tangible questions, some of which are important to the structure the system will take. They are particularly timely because information providers are now emerging, and decisions are being made (perhaps in an unreflective way), about the structure of the videotex/teletext system, which will bear directly upon the possibilities and economic probabilities for information provision. Research directed to these two issues can contribute positively to developments. The proposed research reflects this priority. The suggested topics are:

Input to the Information Utility: Terms of Access

Videotext Configurations: Options and their Implications
for Access Opportunity and for Diversity

Public Interest Databases and Means of Support

Community Information on Videotex: An Evaluation of the VISTA
Trail

Advertising and New Media

Data Banks in Canada: Type, Ownership, Control, and Access

Privacy and Videotex: The Canadian Context and Practices Abroad

New Information Services: The Question of Accountability

Videotex/Teletext: Security Considerations

Newspapers and Videotex

Research in these areas at this time should:

1. Examine the implications of emerging structures, means of finance and information resources for videotex/teletext and how they may fit with goals such as diversity, equity of access, and availability of public-interest information. Centralization and decentralization should particularly be weighed.
2. Study more closely the question of public-interest information (by government-supported and other non-commercial Information Providers). Such information is expected to be an important part of videotex/teletext systems.
3. Clarify the stage of development of certain areas, such as security, privacy provisions, accountability and employment health concerns, perhaps as background to more extensive studies.
4. Begin a programme of studies to anticipate and to monitor the institutional impacts we expect will occur as videotex develops.

Many governments are directing attention to societal effects of the new telecommunications services that seem likely to develop. Sweden has focussed upon vulnerability; the National Science Foundation in the U.S. is funding a large study on videotex. The "Nora Report",¹ a study done for the president of France, on "L'informatisation de la Société", provided a theoretical overview of the implications of "telematics", and stated broad goals for government. (The French word "télématique" was coined for the marriage of computers and telecommunications).

The Research Context

The Department of Communications is involved in three main avenues of research directed to social aspects of videotex. First, the Broadcasting and Social Policy Branch of the Department gives attention specifically to social aspects of new telecommunications services. Secondly, the Telidon program (administered through the Information Technology Branch), includes provisions for field trial evaluations, to accompany a number of field trial activities across Canada in which it is engaged. Current plans also include efforts to address social and institutional issues generally, and to encourage public awareness and debate about the new technology. Cooperation with Social Policy Branch is planned for these activities. Thirdly, the Telidon program will also support efforts of the CVCC (Canadian Videotex

1. "The Computerization of Society", a Report to the President of France, Simon Nora and Alan Minc, (Cambridge, Massachusetts, The MIT Press, 1980), pg. 9. Originally published: "L'informatisation de la Société".

Consultative Committee) and its subcommittees, one of which specifically addresses social issues related to videotex development. The CVCC subcommittee on the Individual and Society has delineated certain topics for attention similar to those listed here, with emphasis on the issues of access and diversity.² It plans a number of small contract research projects and a program to encourage public awareness. Co-operative planning and administration between the subcommittee and Departmental staff will occur, as social issues are addressed through these various channels.

In addition to broad social issues which are raised by the development of videotex, there is the specific matter of field trials and their evaluation for societal impacts upon participants and affected institutions.

Field Trials

For the most part, this paper treats large social issues raised by the development of videotex. At this time, however, there are a number of implementations of videotex, (Telidon, specifically), going on in field trial form across Canada. In most cases, these trials are characterized by small sample groups and very preliminary databases. Because of this, and because of the nature of field trials generally, it will seldom be proposed here to use a current field trial situation as a vehicle for research. Nonetheless, the field trials call for evaluation which includes some measures of societal impacts upon participants, as well as attention to technical success and consumer demand.

To date, "Phase I" of a project on the IDA field trial in Headingley, Manitoba has been completed. Phase I, conducted before the field trial began, focused upon the demographic profile of participants, their information and communications habits, and their information priorities particularly regarding community information needs. Phase II has been delayed, however, because the field trial itself is behind its planned timing.

Another field trial project planned and described here is titled "Community Information on Videotex: An Evaluation of the VISTA trial". This project will make use of a substantial database which is now being planned by

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2. For example, the CVCC sub-committee's list of nine topics consists mainly of a cluster of points related to access and diversity. Regarding access: system interactivity; opportunity for participation by Canadians in all walks of life; interests and needs of different age groups (and other specific user groups); equity (and lack of access); feasibility of individuals as Information Providers. Regarding diversity: responsiveness to public comment; databases to resist homogenization, and be sensitive to social and cultural diversity; funds for databases of community interest; safeguards to offset centralizing tendencies. Privacy and employment impacts were the other points raised.

an established community information organization in the Toronto area. It will occur with the field trial that is largest in number of terminals and most developed in database content generally.

At this early point in field trial development, an appropriate object of study is the field trial activity itself: specifically the emergence of Information Providers (how they come to participate in the field trial exercise; their patterns of activity and their organizations; cost of page production and other prices of participation they face, etc.).

This has been studied in a small project on IP activities and patterns, and a report has been produced with the title:

"Videotex: The Information Providers"

This study promises to be a useful description of current events and emergent patterns. It is hoped that it can be repeated after some time has elapsed, so that "longitudinal" comparisons will be possible. The study also provides an introduction to current activities for potential information providers, researchers and the interested public.

The Telidon program for field trial evaluation includes provisions for systematic data collection and analysis. There are also plans for the study of the impact and adequacy of content in the field trials, in terms of societal goals such as educational uses of the medium. Studies may include evaluation of public services specially designed for videotex. A federal Task force on the Nature of Service to the Public is now involved with videotex and its use for government services.

In field trial evaluations and later on market trial evaluations as well, a valuable role for the Department would be to foster systematic and consistent collection of data, not only on usage of databases (for which the "Telidon Aggregated Statistics Package" developed by the Department will be used), but also for information of market research and social research interest. A general survey vehicle, developed by the department and provided to field trial operators, could offer a core set of questions which would be useful to operators, and which could form the basis of valuable comparisons between trials if widely used. A project with Statistics Canada has begun, on "Content and Methodological Analysis of Telidon Field Trial Surveys", to propose effective means of treating field trial data. Also, the CVCC subcommittee on the individual and society is funding a contract to develop "Social Research Questionnaire Items for the Telidon Field Trials".

Approaches to social aspects of new services, then, can be grouped into research addressed to social issues generally, and research to accompany field trial activity. The latter includes evaluation, and the development of a general survey vehicle to foster consistent and compatible data across field trials. In the following pages, a number of broad social issues are delineated. These relate to both the system and operations of videotex, and to the secondary consequences of its development. Specific projects are described as means to address these issues at this time.

(In another vein of research, Broadcasting and Social Policy Branch is co-administering a project, with the research sector of the Department, which will focus upon content creation, and the creative community, in the new field of computer graphics. Videotex, and especially Telidon with its strong graphic component, is one application through which computer graphics may come before the public eye. The need to give attention to content, and to encourage content production in Canada, is a familiar theme in telecommunications policy. This study will investigate activities in Canada, prepare a library, and form links between participants in various aspects of the field. The title is "New Images/Nouvelles Images".)

1. THE VIDEOTEX SYSTEM AND ITS OPERATIONS

(a) ACCESS

1. The issue of access referred to here is that of terms of access to system facilities for input of material. Videotex services have been broadly grouped in this paper into information retrieval; transactions involving the transfer of funds such as banking and shopping; and private messaging. The access question pertains to all of these but is particularly relevant for information retrieval, i.e. who will have opportunity to be an IP (Information Provider).

It should be noted that access is a word often used for several distinct subjects. One is "user access" to the system, which is referred to here as "availability of the system", for clarification. Also, the terms of access to specific databases, which are the subject of a project described below, are important and affect the diversity of information available to users.

Here, "access" refers to the terms by which a party can make use of system facilities for input, to offer information retrieval services, transaction types of services, or for any private uses such as messaging. (Besides actual terms of access, the economic conditions for information provision will limit access opportunity also. This is discussed in the following section on "diversity", for information providers).

As videotex develops, many foresee in Canada the eventual emergence of an "information utility"--a public telecommunications medium through which a range of informational services are offered to a community's residents. Already, questions are being raised about terms of access, as the first implementations of such a system are proposed or tested. For example, at recent CRTC hearings, where certain new services were treated peripherally, several intervenors focussed upon this question, and the related matter of separation of content and carriage by cable operators. It can be expected that such access questions will be raised wherever the leading edge of implementation occurs.

Particularly given the department's involvement in the development of videotex, via Telidon, it is important to address this issue at this time. Accordingly, a project is proposed titled:

"Input to the Information Utility: Terms of Access"

The research proposed would primarily examine the regulatory environment governing access to telecommunications facilities. Telephone companies, cable companies and broadcasters would be considered in both their present

federal and provincial regulatory contexts. Proposed legislation and major policy recommendations should also be examined. The purpose of this portion of the study would be analysis and clear explication of terms of access to telecommunications facilities as they now exist in Canada and are likely to develop in the future, including recommendations as appropriate.

Secondly, access to an "information utility", in the sense of a system of informational services, will be taken up. Many videotex systems, already begun or as we envisage them, have a system operator who performs some indexing and possibly storage functions, and who may also be the operator of actual facilities. By contrast a French model plans that eventually a carrier will provide switching-only functions, with no indexing or videotex system management. Where any system operator with management functions does exist, its decision-making for terms of input to the system becomes important. Even basic system functions like indexing and routing may create special positions of privilege, such as being on the first page viewed in a "yellow pages" type of information search. The system operator may make decisions which affect the equality of conditions for those who wish to put their information in the system. On the other hand, preferential treatment may be desired for certain content providers, such as public service information providers.

The question of control over content by system operators also arises. For example, are contracts to be made with information providers for content standards, similar to provisions against misleading advertising? Prestel in Britain has seen the need to produce a lengthy code of ethics. Comparisons with other countries' videotex experience, and with other media, would be appropriate, as the structure of "information utilities" in Canada is in formative stages only.

Attention to these matters is consistent with the Department's concern for social implications of the "information society" generally, and in particular with goals for the development of videotex which have foreseen widespread access to the system.

Widespread access, however, can be constrained not only by contractual terms but also by economics. System structure and means of financial support for services are critical and set up economic probabilities which in large part determine who in fact will gain access to the system. This in turn determines the diversity of information providers whose services the users of the system will be able to use. These points are taken up in detail in the following section on "Diversity".

(b) DIVERSITY

A critical area for the Department to attend to at the present moment concerns the implications for access opportunity and for diversity which will follow from various configurations of videotex/teletext. Currently, system structures with significant differences are being uniformly referred to as "videotex systems". Even in field trials, structures will vary: BCTel plans a host computer, Bell plans a host computer plus several "3rd party" databases, MTS will provide only an interface to IP (Information Provider) databases. In France, Teletel plans to phase out host computers, and envisages that a new class of "concentrateurs" will provide switching, each to a select group of IP's. Bell's long-term plans may similarly provide only a switching function to IP

databases. These differences are seldom apparent in discussion, yet they mean very different conditions for input to the system. (Other social issues are affected as well. A decentralized structure may be preferable from a privacy point of view).

Whether or not a system has a host computer; whether or not this host provides "windows" or conduits to 3rd party databases; whether or not there are many small IP's or only a few large ones, who may under certain terms aggregate smaller IP's (under an "umbrella") -- these are structural questions that will affect what the user will find in the system years from now. It would be of great benefit to examine systematically the major possible structures of videotex systems, and the economic probabilities they create for IP entrance.

Secondly, means of finance also demands careful attention at this moment. The idea of "advertising" (defined very broadly as any supplier-paid page availability) is growing as a probable means of finance for many databases. This will have important results for both access opportunity and IP diversity.

To take one illustration of the kinds of effects that are of interest: If it is common for users to use databases free of charge, how does this affect the "cottage industry", "every-person-a-publisher" kind of philosophy that has also been voiced in looking to the future of videotex, (and voiced quite often to the public)? Let us suppose that a large photography company has prepared professional databases of information about photography for hobbyists, and that it provides use of this database free of charge. What happens to the small publisher notion -- who will wish to use his or her smaller database, paying to do so? Who will know if it happens to contain ingenious information, when the use of the large database is probably reinforced by promotional advertising in other media? (The large company could easily advise customers to "See Page 999 for Free Information", in its TV or print ads.) Perhaps there is no problem; perhaps the large database will inform the user of the smaller one.

As the above example illustrates, "advertising" with the new medium may not be merely promotional-pages. Sponsorship of information on a topic related to the supplier's commercial interests could be common. This has implications for credibility and responsibility, taken up as the subject of another project.

Related to means of finance is the question of specific means of payment by the user, either for use of the system or for access to specific databases. This is still very much undecided at present. Various options are possible. For example, pay-per-page was the means used in the Prestel system. Subscription to services, insensitive to amount of usage, is another possibility. In between is a means of payment similar to the purchase of a print magazine -- the user pays for first access, and this sum gives access to the database contents perhaps for a month at no further cost. There is also the question of payment for time used on the system. These options for payment have been left aside for the moment by industry participants, and in the field trials no payments are required from users. Some options have implications for social issues such as privacy -- for example, a subscription basis may mean much less recording of customers' use of information, for billing purposes.

A fourth question, and one related to both structure and means of finance for videotex/teletext systems, is that of information supported in the public interest. Community information is one example among many. We must consider how non-profit undertakings in the public interest can be accomplished. We must also explore the question of who will make the choices to support public interest undertakings. This relates to system structure: whether there is a centralizing body or not, for example.

These structural/financial questions urgently need to be considered. Choices are being made now with little apparent reflection (particularly in the public or policy realm) upon the probabilities for access and diversity in IP provision that will follow from what is put in place. To the user the entirety of IP databases appears as a whole: diversity, and the inclusion of public interest material, will influence attitudes to the entire system so that it is in everyone's best interest to examine these matters.

2. It is proposed, then, that a priority research project be a study of:

Videotex Configurations: Options and Their Implications for Access Opportunity and for Diversity.

Such research must respond to the concerns emphasized above:

- system structure (or "architecture")
- means of finance, and method of payment
- "public interest" undertakings and their support

(The question of advertising is large enough that a proposed research project would take this question up alone, as described later on. Similarly, "public interest undertakings and their support" is put forward as a separate topic below.)

A project is planned as part of the University Research program next year. (A useful background project would consist of a computer simulation of the economics of videotex under varying conditions: telephone vs. cable, central computer vs. "3rd party" databases, etc. Such work would provide an economic basis on which the project proposed here could build, and consider the implications for access which would result from these various structures.)

The CVCC subcommittee on the Individual and Society has similarly identified system structure and its implications for diversity as a priority research topic. It is undertaking a project to develop "scenarios based on the extension of IP opportunities to the broadest citizenry possible" — i.e., beginning with the goal of "every person an Information Provider", the study would consider technical, institutional and financial possibilities, and constraints, in the fostering of this goal. The title of this study is: "Opportunity for the Videotex Information Provider Role".

3. A major point in IP access and diversity concerns the inclusion of "public interest" information in videotex/teletext systems. There is a large policy question regarding public-interest kinds of information, that needs to be addressed eventually: the matter of how and to what extent such databases should be supplied and financed.

Already, in the field trial stage, this question has come up. Field trial operators and commercial IP's have realized the need for the inclusion of such databases, and various mechanisms have been devised. Bell Canada has offered pages for community information; VISPAC's president has broached the idea that commercial IP's donate database space; an "umbrella IP" has been formed for community information in the Toronto field trial; a community information analog to VISPAC³, "CIPAC"⁴, has formed, and will itself be a member of VISPAC (for which Bell has offered to pay); support will be sought from DOC and Bell, to provide a database for the Toronto trial. These developments, show that such public service databases have a recognized place in a videotex system. However their long-term participation, and means of finance, is an unclear area, and merits attention now.

A study on Public Interest Databases and Means of Support will explore a number of aspects of this subject. It will include:

(a) for typical cases (in a variety of urban settings):

- costs of creation and maintenance of an on-line system;
- range and cohesion of public interest Information Providers (— is there a centralizing service, etc.);
- current means of finance;
- capacities of associations or institutions currently supplying public interest information;

(b) alternatives for means of finance, such as user payment; cross-subsidizations; government and other institutional support.

Essentially, such a study would clarify questions, which would be further pursued with the aim of formulation of a policy position.

4. A related study is planned as field trial research:

Community Information on Videotex: An Evaluation in the VISTA Trial

This study will build upon the community information initiatives noted above which have developed in the VISTA field trial planning stages. The Community Information Centre of Metropolitan Toronto is central in this initiative, and hopes to produce a major "umbrella" database made up of information from a large variety of sources.

Such a well-developed database in this major field trial would provide a valuable opportunity to study the use of community information. The Centre has planned to use external evaluation researchers, and it is proposed that the department co-operate actively with the Centre in planning for such research, and fund such an evaluation when the trial is fully operative next year, as a University Research project.

3. Videotex Information Service Association of Canada.

4. Community Information Service Providers Advisory Committee.

This project is put forward as a major research focus in the field trials. It offers a well-developed database, in the trial with the best sample and largest number of terminals and with the most extensive package of databases in the videotex system. In such circumstances, the use of community information can be effectively studied. Furthermore, the project helps address the general question of public interest databases and their support and should receive a high priority.

5. Given the importance of means of finance for diversity in content, it is proposed to examine: "Advertising and New Media". This topic spans videotex/teletext, plus home video and other new means of delivering content to users and viewers.

The advertising industry is one which wants to move quickly to exploit new technologies. Regarding videotex/teletext, one U.S. forecast predicts \$2.7 billion of advertising will be directed to viewdata, teletext and other electronic media by the end of the 80's through consumer home services (cited as at-home banking, teleshopping, self-instruction, directory services, video games and entertainment). Little advertising support was seen for the new media for the next two years, but growth would carry sales to \$500 M by 1985 with 6 M homes projected on-line. This relatively small audience was viewed as particularly attractive to advertisers because "it includes up-scale households with as much as 30% of the nation's disposable income".⁵

Advertising may propel the use of the medium, but will have social repercussions, in the kind of content found on the system, (as commercial broadcasting has shown).

A recent book on Prestel has focussed on the commercial role of advertising for videotex.

...At root, the question is -- do the economics of public videotext systems require massive exterior subsidy, or can they be sustained on the basis of customer revenue? and, if desired and needed, what is to be the nature of that exterior subsidy, its rules, influence, extent and expression?⁶

A further concern is raised by the development of new forms of advertising suitable to new media, particularly where the advertising message will not be an insertion into other messages. Rather the information which the user is seeking contains within it a promotional element. The relation between the information and the "advertiser" who pays for the information to be available may be an unobtrusive one -- as in the photography example earlier and in Qube's "Infomercials" described below. What kind of questions does this raise for credibility or responsibility? These are particular problems for videotex/teletext, because the user may see the system as a whole, so that a few discreditable sources of information may seriously affect the credibility of other IP's.

5. Videonews, Mar. 26, 1980, p.3.

6. Winsbury, Rex, The Electronic Bookstall, International Institute of Communications, (London, England: 1979).

Home video is also a medium that advertisers are considering in terms of an informative/promotional content mix. A blend of a promotional element with other palatable material, such as hobby-related lessons, which use a particular product, has been predicted for videodiscs. The Qube 2-way cable system in the U.S. has devised the term "Infomercials", to describe a low-key blend of information and commercials, where a show will "flow into informal commercials so it won't interrupt the rest of the content."⁷

Finally, in the cable-TV satellite programming services growing rapidly in the U.S., advertising is often a means of finance. It is usually mixed with other support, fees from cable operators, in what is referred to as "paid-for" programming (--- distinct from "pay-TV"). These networks tend to specialized programming, offering advertisers "target audiences", similar perhaps to magazine specialization. A number of "vertically programmed" channels, where an entire schedule relates to one theme such as children's programming or news, are being encouraged by partial advertising support, thus increasing content diversity. The suggestion that advertising be used on new cable-satellite channels in Canada has already been raised (by the report of the CRTC Committee on Extension of Service to Northern and Remote Areas, Satellite Distribution, and Pay Television).

Advertising and new forms of advertising, then, are possibilities for videotex/ teletext, for home video, and for new cable channels. For some of these media, government may regulate the use of advertising. It is important to remember the casual way in which advertising in the form we know it established itself in radio,⁸ and the profound effect this has had on broadcasting in ensuing decades.

A study will be done on:

Advertising and New Media.

From a social policy perspective, such a study should cover:

- (1) The effect of advertising as a means of finance upon diversity of content and upon access opportunity.

What would be likely impacts of commercial support? Is diversity likely to be increased, or decreased? How is opportunity to supply material on the system affected? How is the availability of the media to users affected? Where these new media have been considered in terms of user-pay finance, how does this compare to the commercial situation?

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7. Wicklein, John, "Wired City U.S.A.: The Charms and Dangers of Two-Way TV"; in Atlantic Monthly, February 1979, p. 37.
 8. As a broadcasting historian tells it, AT&T had a notion for a "telephone booth of the air", by which a company could purchase time on the air, and fill it with programming plus any promotional messages. (AT&T thought of radio as "radio telephony", because of its monopoly position for telephony.) The customer-supplied programming didn't work out; reluctantly, the AT&T station provided programs, and the customer purchased time for its commercial messages, in between. Erik Barnouw, A Tower in Babel: A history of broadcasting in the U.S. to 1933, New York: Oxford University Press, 1966, pp.105-107, ("Phone Booth of the Air").

- (2) New forms of advertising. What new forms of advertising are envisaged, and their implications?

Particularly, where appropriate, what are implications for credibility and responsibility, when information and promotion are combined ("informercial-ly")?

6. A final subject of research related to diversity of information resources available to users is currently underway as part of the 1980-1981 University Research program. The title is:

Data Banks in Canada: Type, Ownership, Control and Access.

A proposal was received on this subject from researchers at Simon Fraser University, Department of Computing Science. Though basically of a directory nature, as they have defined it, the project will create a directory of databases in Canada with a specific orientation, to provide a framework from which social impact studies of information utilities (such as videotex) can be usefully derived. To this end, the directory will include a number of socially-oriented indicators, and will develop an "information flow" framework, describing patterns in database use.

The directory and accompanying report, then, are meant to serve as background to assess changes in variables of social concern, as well as to survey available databases. For example, indicators of interest relate to homogeneity and diversity of content, to human aspects such as labour intensivity, and to availability of databases to users considered in terms of educational, economic or cultural background.

(c) PRIVACY

Privacy has been one of the most raised issues regarding computer communications generally. Three concerns predominate.

- (1) "right-to-know": at issue is the individual's awareness of and access to information stored about him or her;
- (2) "secondary use" or "derivative use" of records: information collected and stored in one database may be used by other parties (or other databases);
- (3) "timeliness": is there an appropriate time after which information stored should be erased? Will an event which occurred in 1970 still be on record in 1999?

Points (1) and (2) are addressed by individual privacy rights, which are treated in Canada, as far as government files are concerned, by the Human Rights Act, Part IV. "Right-to-know" is also partially addressed by "freedom-of-information" legislation, which opens government files to public view. A bill is now before the House.

Privacy was studied extensively by DOC, with the Department of Justice, by a joint Task Force on Privacy and Computers, which produced a major report in 1972. An interdepartmental committee was set up at that time, co-chaired by

DOC and active for several years. (It focussed upon the protection of privacy of individual records in federal government data banks, a matter included in the Human Rights Act assented to in July 1977.)

A significant current initiative in the study of privacy began in February of this year, when the Government requested that Privacy Commissioner Inger Hansel conduct "a study with respect to the use of the Social Insurance Number and the implication of such use for the privacy of individuals". Of particular relevance is the matter of:

whether or not the Social Insurance Number is used as a data linkage device and, if so, the extent and implications of such use; (terms of reference 4(c))

This is in essence a vehicle for examination of secondary use (or "derivative use") problems posed by computer communications. The range of users of the SIN who are to be considered in this study is wide, including both private sector and public sector organizations.

Another major current effort in the study of privacy has come from the Ontario government, whose "Commission on Freedom of Information and Individual Privacy" has undertaken 17 research publications, treating general issues, and also very focussed research topics. The Science Council of Canada is funding research (of a more psychological sort) on privacy and the individual.

The CVCC subcommittee on the Individual and Society wishes to consider privacy provisions relevant to videotex. Also regarding videotex specifically, Bell Canada has contracted research to survey material on privacy in this context, and it is understood that the legal subcommittee of the CVCC will address the question as well.

More generally, numerous foreign government and other international organizations such as the OECD (which has a draft treaty for data protection and privacy) are addressing the privacy issue.

In sum, the privacy issue is receiving attention from a number of directions. Therefore it is suggested that our own attention to this issue be a small-scale project, to provide an up-to-date integration of these various sources of work on privacy, and to clarify questions that relate to videotex. Secondly, a project suggested here would make a comparison of relevant privacy rights and practices (such as those adopted by industry standards) between Canada, the U.S. and other countries. Questions of interest would include the extent of our own initiatives in comparison with other countries, especially the U.S. with which our data communications are so closely tied. The kind of approach taken to privacy is also of interest. For example, in the U.S., legislation is proceeding sector by sector, with separate Acts for medical information records, for financial information, etc.

The proposed title for such a study is:

Privacy and Videotex: the Canadian Context
and Practices Abroad.

It should be noted that privacy related to videotex is important in two senses: the privacy of information content, (as in banking and messaging), and also privacy of records kept for billing for the use of information services. These records may reveal considerable information about an individual.

Privacy is also closely related to two issues considered below, for which other research topics are put forward. One issue is vulnerability of the system. Privacy can be extensively invaded, if security of the system should fail or be penetrated. The other issue, accountability, takes up the question of the use of information collected for billing by a videotex system operator. The sale of such usage information is in fact a case of "secondary use" of a databank, a privacy concern.

(d) ACCOUNTABILITY

It has been pointed out earlier that videotex systems may take a number of configurations: host computer, host with "windows" to 3rd-party databases; use of 3rd-party databases alone, etc. Cable or telephone line may variously be used. It would seem, however, that there are two functions of an "information utility" sort which will remain constant: management of access to the system, and collection of usage information for billing. The question arises: is the operator of a information utility (i.e. a public videotex-type system) responsible to itself alone for decisions regarding these functions? If there is an accountability to the public interest, how would it be put into place?

Telephone companies are quick to point out that, regarding terms of access, they would function as common carriers, eliminating the need to worry about decision-making for access. Nonetheless, means of indexing and routing may favour certain parties and a system operator may well provide a master index; it is not clear that an arbiter of fairness will not be sought by information providers.

Whether or not management of access raises a question of accountability, it is certain that the use of billing information does so. Already in the Qube system in Columbus, Ohio, market researchers have been eager to purchase usage data for Qube's subscribers. Many people would consider the sale of such data an invasion of privacy. Certain measures can be taken to protect privacy, such as use of data in aggregation only, restriction on kinds of re-use to which the data would be put, etc. The question here is: who is the decision-maker in such cases? The videotex system operator has collected usage data from all subscribers which is now a valuable information commodity; to whom is it accountable, for use of this information?

It seems possible that the issue of accountability could become an important one in the public's view, and it is political by nature.

It is proposed that a project be undertaken on,

New Information Services: The Question of Accountability.

This could perhaps be done by a single researcher, with legal background and/or experience in public-interest advocacy. The researcher would give

attention to the question of how accountability might function, if information utility types of systems develop to supply homes with information retrieval and with access to transactional and messaging networks.

The question of accountability is a general one for computer-communications, whether accountability is paid via the federal CRTC, provincial boards, local levels of control, etc. All such mechanisms are themselves ultimately responsible to the "public interest", or the public. Closely related to accountability, then, is the question of public familiarity with the issues. The CVCC subcommittee on the Individual and Society wishes to organize a forum for public awareness purposes. It has been suggested that timing this event with the "Videotex 81" Conference in Toronto in May 1981 would be appropriate.

As a lesser priority for the Department's attention, a project assessing:

Public Familiarity with Computers and Issues

would be valuable. This could be approached via survey techniques taking care to vary age and educational background, as the educational system has been rapidly increasing the use of computer courses. Such a study would suggest: 1) the kind of "computer literacy" levels building in our society; 2) types of people (in terms of age/sex/education) who are most computer-literate, or least computer-literate; and 3) most importantly, the level and quality of public awareness of computer technology's potential (positive and negative). The study should consider implications, for public reaction to policy, and for informed public input into policy debate.

(e) VULNERABILITY

Like any computer communications system, videotex/teletext systems are vulnerable to system failures of various sorts. Some are catastrophic, such as fire, or terrorism. Labour disputes present a less violent threat, but could be extremely disruptive (if, for example, a Bell Canada strike affected not only telephone service, but electronic banking, information retrieval, etc.). Of more pervasive concern, and with proven examples of system vulnerability, is computer crime. This raises the question of the adequacy of security measures put in place in a system, and the adequacy of possible security measures that the state-of-the-art permits.

One expert has recommended bluntly that, until we have developed security measures of sufficient strength, electronic banking, stock exchange, and political elections should not be handled by videotex-type systems.⁹ Any efficiency gains, in his view, are minor compared to the risks.

A project will be undertaken, as an initial examination of:

Videotex/Teletext: Security Considerations.

It would ask such questions as: What kinds of measures are being used for similar computer communications systems? How adequate are these believed to be? How costly is improved security? What is the effect of different system structures -- videotex vs. teletext, host computers vs. decentralized

9. Osborne, Adam, Running Wild: The Next Industrial Revolution, (Berkley, Ca.: Osborne/McGraw Hill: 1979).

databases, etc.? Like certain other studies suggested here, a relatively small research project is envisaged at this time, to clarify questions and issues in the area.

II. SECONDARY CONSEQUENCES

The previous section of this paper has dealt with issues raised by the videotex system and its operations, and these issues suggested a number of research projects which can suitably be undertaken at this early stage of development. Research may help to shape developments along socially desirable lines. The present section, however, deals with "secondary consequences", in an uncertain future. Because of the nature of these matters, few specific research proposals will be found in the following pages. It is impossible to predict either the impacts of videotex, or the extent to which videotex will develop, and the kinds of specific services that will emerge. Rather, a number of issues are identified here more with the purpose of formulating a framework, to consider the kinds of social consequences that videotex may have, and in which to place future research projects.

(a) EMPLOYMENT IMPACTS

The employment impact of videotex, computer-communications, or the "information society" generally, has attracted a great amount of attention. Last year, a study contracted by the Telecommunications Economic Branch of DOC overviewed the literature in OECD countries on the impacts of computer-communications on employment, and not only found no consensus among the many works reviewed, but also noted a disturbing weakness of empirical base.¹⁰ Arguments foreseeing negative employment effects and positive effects were both plentiful. A smaller DOC study, on videotex and the Canadian labour market specifically, reached similar conclusions about the uncertainty of any employment-impact assertions.¹¹ Informetrica, a research company, investigated (for DOC Telecommunications Economics Branch and for the Cable Television Research Institute jointly) the feasibility of research on macro-economic impacts of new communications technology -- which includes labour effects as indirect "rents" as well as direct impacts.

Because of the uncertainty of this topic at present, especially in relation to videotex/teletext, and because of the amount of attention it already receives, it is not put forward at this time as a subject of proposed research.

10. In fact, the researcher concluded that he was "struck by the relatively poor factual base on which the present debates are conducted", and found the controversy to be largely ideological and political -- cautioning the reader, therefore, to be well aware of the source of forecasts. The Impacts of Computer-Communications on Employment in Canada: An Overview of Current OECD Debates, Z.P. Zeman, project leader, report, IRPP, Montreal, Nov. 1979, (for DOC Telecommunications Economic Branch).

11. "Videotext and the Canadian Labour Market: Some Potential Effects", CANECS, May 1979 (for DOC Broadcasting and Social Policy Branch).

One possibility for future research would focus on re-training in specific occupations. Retraining is a key aspect of the job displacement effects new technologies are expected to cause whether or not the net effect on labour is an increase or a decrease. It might be of interest to examine current rates of re-training in a selection of industries, and how this re-training is done. The possible use of videotex as a Computer-Aided Instruction (CAI) tool increases the interest of such a project. (CAI is developing particularly in retraining applications).

A more specific and immediate kind of impact upon employment is health strain. The job of inputting information for videotex/teletext is subject to both eyestrain and to possible radiation effects. Manufacturers claim the next generation of terminals for inputting information will eliminate much strain. Nonetheless, health side effects are common to jobs using video display units (VDU's) intensely, and problems may remain. Some investigations in this area have already begun in Britain; for example, newspaper unions have taken up the topic of viewdata and health effects.

It is suggested that events be monitored as they develop in Canada, and that a small scale project undertaking a literature search and investigation into events abroad would be useful:

Videotex and Health Concerns.

It would be of value to be aware of current developments elsewhere while the industry is in its early stages in Canada, so that health and employee problems can be minimized. The CVCC subcommittee on the Individual and Society has also expressed concern about this matter.

(b) INSTITUTIONAL IMPACTS

Videotex development will include transactional services such as electronic funds transfers, (EFT); messaging such as electronic mail; and information retrieval services. Given this sweep of anticipated new services, a broad range of present services and institutions supplying them are likely to be affected. Banking and other financial activities may be substantially altered by EFT; the Post Office will be critically affected by electronic mail; the traditional roles of carriage vs. content providers will be altered. Information retrieval services will change the form of newspapers and other publishing, and will alter their financial base.

Information retrieval services will also impact heavily upon service sector industries which now primarily act as an intermediary between a customer and a source of information. For example, if travel agents, or referral services, function simply to pass on information required by a client, there will be little need for such intermediaries when users access databases directly. However, an industry will not be passive as videotex develops, and will adjust its services. To the extent that it intensifies the element of human thought in its service, or optimizes information culled from a number of databases, the usefulness of the service remains, and the service is enhanced from the client's point of view.

Effects upon institutions can be broadly grouped as 1) competitive effects where a new service can substitute directly for another service, and 2) complementary effects, where one service encourages the use of another, or enhances it. Which of these will occur is impossible to predict, and will depend largely on institutional responses in the formative years to come. A more indirect but highly significant effect is 3) erosion of the financial base of institutions that now supply information. For example, revenues from actual sales to readers cover only 20% of the economic needs of a newspaper; the rest is supplied by advertising. If classified ads are common on videotex, they not only provide a service competitive with one section of a newspaper. More importantly, they will erode a 36% share of the newspaper's advertising base, which allows it to provide other information services by a form of cross-subsidization.

A study will focus upon newspapers, as an initial examination of an institution impacted by videotex development.

The "Electronic Newspaper" is one implementation of videotex that is currently highlighted, particularly given the involvement of newspaper publishers in Canada in the early stages of videotex. IRPP (Institute for Research on Public Policy) has begun a jointly funded study focussing on the newspaper in a videotex environment.

As noted above, newspapers depend upon advertising for some four-fifths of their financial base. Yet with videotex, we expect that stock information, weather, sports information, classified ads, and so on will be stripped away from an omnibus information vehicle like a newspaper, into separate databases. Also, major parties using newspaper advertising now, such as department stores, could possibly create their own pages and even databases to be accessed directly by users.

This financial shift would affect the kind of information readers have available to them. Particularly, the question of editorial information is of interest. Currently with newspapers each advertisement cross-subsidizes the preparation of content such as editorial material. Editorials are a cornerstone of the newspaper tradition, but not a cornerstone at all in terms of generating income. What means of finance would be appropriate -- user-pay; some new means of cross-subsidization; institutional support? Would government be required to take a position?

As planned, a study on

Newspapers and Videotex

will begin with a study of the economics of the newspaper industry; discuss the impacts of videotex (with concurrent new technology, such as satellites), upon the industry structure and upon the institution of the newspaper; and extend into policy issues. The impacts section will include such questions as the erosion of the advertising base which currently supports newspaper production. Policy questions will include the role of government as an Information Provider or as a source of financial support for information; social issues important to videotex in general such as access, diversity in Information Providers, and implications of new forms of advertising for responsibility in content; and broad matters related to the

newspaper in electronic form, such as a shift into a regulated telecommunications environment, and the question of ownership in the industry. Questions of ownership and control may become even more critical as newspapers move to electronic form. The project, then, will address socioeconomic impacts of videotex on the Canadian press, and also provide a vehicle to consider a number of social issues important in videotex development generally.

(c) IMPACTS ON LIFESTYLE

It is possible that videotex services may alter our lifestyles substantially. There has been speculation in recent years about the "transportation/telecommunications tradeoff", whereby patterns of travel and location of homes are altered as people substitute electronics for physical presence. This touches only one dimension of changed lifestyle. To raise a few others, means and patterns of education may be altered. Leisure activities may change, both as new pastimes are offered in electronic form, and as, perhaps, "information society" hobbyists increase. By this idea, people use computers and the communications network to create content for fun and possibly for profit if others make use of their creations. This is the "every person a publisher" scenario for videotex. With increased leisure-time use of computer communications, particularly a new era of games, it is likely that our traditional distinctions between leisure, work, and education may be blurred.

To the extent that an "information utility" develops, supplying homes with information retrieval services and with access to a transactional and messaging network, our communications patterns and our daily activities will certainly change. Pessimists foresee the age of the "electronic hermit", communicating by networks, shopping, and generally carrying out life's functions without leaving the home. Optimists suggest that people will use the time saved by the conveniences of electronic services to engage in social activities they really enjoy.

It is impossible to predict impacts upon lifestyle or even to anticipate the kinds of specific services that will emerge, or the extent to which videotex will be part of our lives. For the moment, lifestyle effects in field trials can be monitored, but it must be kept in mind that these preliminary experiments can hardly be predictive.

It is possible that in at least one field trial a study will be done that will address lifestyle impacts specifically. All field trials, however, and any further market trials, will include questionnairing of participants to assess effects upon habits in seeking information, in personal communications, and in shopping, local travel, etc., as appropriate to the trial situation.

The general survey vehicle that may be developed by the Department, referred to in the introductory section of this paper, could help to assess these kind of responses in a consistent fashion across different trials. Such information is of value from both market research and social research perspectives.

(d) EQUITY OF AVAILABILITY

Depending upon how the development of videotex proceeds, the equity of availability of services to individuals may become an issue. At one extreme, access to an information utility may become virtually essential for an individual to function in society. On the other hand, services may be highly discretionary, offering a kind of luxury convenience service, or a service only necessary to a certain elite of "information workers."

At this point, it is impossible to know to what extent videotex will become operative and what specific services it will include. Means of finance is critical, both for the likelihood of videotex development, and in terms of availability of services to users. Extensive use of advertiser support may foster a system that is widely diffused and with much free information, for example. The extent to which public-interest information uses videotex is also relevant to the availability issue. If government uses videotex as a means to disseminate information or to offer services to the public, equity of availability to different income and language groups is immediately raised. (Both these topics, means of finance and public interest information, are taken up in studies proposed in earlier pages).

The CVCC subcommittee on the Individual and Society is undertaking a study on "Videotex Availability to Users", to consider, at this early stage of videotex development, how equity of availability of videotex services could become an issue, and how it might be addressed if this occurs.

(e) AUTONOMY

The term "autonomy" is used here to refer to concerns of independence and self-interest at both a regional and national level. It includes, then, the interests of national sovereignty and intends to capture also regional interests that emerge. Two concerns should be monitored: the adequacy of local/regional/ domestic representation in content, and the location of economic benefit as the industry develops. Eventually policy moves may need to be considered if expectations at national or regional levels are not being met.

The autonomy issue is implicated in two studies described above. The project on Videotex Security Considerations, and particularly the study on Databases in Canada: Type, Ownership, Control and Access must both address the fact of southward "transborder data flow" in our data handling patterns in Canada. The latter study will naturally include indications of the extent of U.S. ownership and management of Canadian databases, which is of concern from a sovereignty point of view. (Transborder data flow problems are being studied specifically by experts elsewhere, and this is not intended to be a focus topic of our research). This study will also indicate domestic patterns in data handling of interest at the provincial level.

At this early stage of videotex development, no specific research project is put forward.

In a more speculative vein, discussions have occurred with representatives from the Centre for Culture and Technology (Marshall McLuhan's media studies centre in Toronto) about the possibility of a University Research project on

the Canadian Cultural Implications of Videotex/Teletext, which would be a theoretical piece, drawing upon the perspectives in studying media and its impacts that brought the centre world reknown some years ago. Such a study may be appropriate, as it expands the department's focus in research to a broad, cultural level (extremely difficult to comment upon, and thus often neglected); as it may take up matters of cultural sovereignty concern; and as it may lend support to the continuance of McLuhan's tradition, at a critical time in its history.



SOCIAL ASPECTS OF VIDEOTEX
SERVICES : PROPOSED RESEARCH
DIRECTIONS.

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