Document for discussion at the
CAIS 1983 Conference

CANADIAN INFORMATION ISSUES/
L'INFORMATION AU CANADA

Contents

CAIS Information Issues Committee

March 23, 1983

1. INTRODUCTION

This is a document for discussion by the CAIS Board, Chapters, and membership. It was prepared by the CAIS Information Issues Committee which was created by the Board in Spring 1982 with a mandate including: "to identify issues and developments relating to public and private information industries and information science, and to bring these to the attention of the Board and membership". The Committee gratefully acknowledges material and responses received from the organizations listed in Appendix 1, in particular the considerable and helpful material supplied by the Department of Communications.

For the purposes of this document, information issues are questions, problems and concerns relating to the information sector of the economy. This sector of the Canadian economy is outlined in the publication "The information revolution and its implications for Canada".[1]

2. THE PRINCIPAL ISSUES

2.1 The information technology revolution

Information technology ('IT') refers to methods of information storage, retrieval, processing, and communication. New methods are typically associated with microelectronics and related developments in communications and computers and their applications. A short list of illustrative examples includes mainframe-, mini-, and micro-computers; telephone, micro-wave, cable, fibre optic, and satellite communications; copy machines, word processors, facsimile transmission, electronic mail and other office automation developments; videotex, videocassette, videodisc, data base and value-added network services.

The information technology revolution has been described as follows by Kenneth Baker, Minister for Information Technology, United Kingdom:

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1. The information revolution and its implications for Canada, by Shirley Serafini and Michel Andrieu. Ottawa, Department of Communications, 1980. Supply and Services Canada catalogue no. Co 22-28/1981E, price $4.95.

> "Information Technology (IT for short) is the fastest-developing area of industrial and business activity in the western world. Its markets are huge, its applications multitudinous, and its potential for increasing efficiency immense. Without doubt, it will be the engine of economic growth for at least the rest of the century. Britain's economic prosperity depends upon the success with which we manufacture its products and provide and exploit its services. This is the message that must be got over to everyone in this country - the general public, school children, as well as industry, trade, and commerce."[1]

In the already cited report entitled "The information revolution and its implications for Canada", Serafini and Andrieu note that between 1931 and 1971 the proportion of Canadian workers in information-related occupations rose from 21 per cent to 40 per cent, and that the transition continues at a rapid rate. They go on to outline potential benefits and problems associated with the implementation of information technology. Their main thesis essentially agrees with the quotation above from Kenneth Baker. They go on to show that other countries such as Japan, France and UK have more aggressive programs than Canada for establishing these countries as leaders in the production and use of new information technology. They conclude that Canada needs to do more in this direction and that "Canada has the basic strengths to emerge a winner from this revolution. If we build on these strengths, the information revolution can represent a great opportunity for the future of this country".[2] The same theme is taken up by the Science Council of Canada in its report "Planning now for an information society: tomorrow is too late".[3] The theme is reiterated by the report of Labour Canada's Task Force on Micro-Electronics and Employment:

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1. "British Library conducts new technology research" by Pamela H.B. Graddon. Bulletin of the American Society for Information Science Vol. 9, No. 1, October 1982, p.19.

2. "The information revolution and its applications for Canada. Op. cit., p. 105.

3. Planning now for an information society: tomorrow is too late. Ottawa, Science Council of Canada, 1982. Supply and Services Canada Catalogue No: SS22-1982/33E, price $4.50.

> "The precondition for our microelectronic boom is an environment conducive to growth: appropriate support for research and innovation, incentives for the development of the high technology industry, and social receptivity. This would lay the foundation for a prosperous Canadian-owned, managed and operated industry which would in turn, create new employment. Stated unequivocally, given our present high rates of unemployment, expanded job creation through micro-electronics is not only necessary but imperative".[1]

It is clear from the above that the principal Canadian information issues of today centre around the information technology revolution. The central issue itself can be encapsulated in the question: How can Canada maximize the benefits of the ongoing implementation of new information technology and minimize any negative aspects?

2.2 Economic development

Successful and well-paced implementation of new technology promises improved productivity, competitiveness in the face of foreign competition, renewed growth and therefore employment, improved balance of payments, and a higher standard of living. Failure to implement the technology and/or unsuccessful or poorly paced implementation promises the reverse, together with poor industrial relations and the social unrest which tends to accompany high levels of unemployment and a stagnating or declining economy.

While government must itself implement new technology within its own operations, the private sector is needed to play its full part in the necessary implementation. In this situation, much of the orientation of public policy has to be to create an environment in which successful, well-paced implementation of new technology will take place beyond direct government funding and control. Major environmental factors include the level of R&D (Research and Development) within Canada, the appropriateness of regulatory and legal arrangements, and the maintenance of satisfactory international transborder data flow arrangements.

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1. In the chips: opportunities, people, partnerships; report of the Labour Canada Task Force on Micro-Electronics and Employment. Ottawa, Labour Canada, 1982. Supply and Services Catalogue No: L35-1982/IE. Quotation from p.72.

R&D is key to the continuing development of the technology and its applications. Development implies the whole process of moving an application from the research stage to the operational stage, including necessary training and education. The R&D policy issue has been stated as follows by the Minister of State, Science and Technology Canada:

> "Perhaps the most important science and technology policy issue facing Canada is that we raise national spending on research and development (R&D) to 1.5% of GNP by 1985. This goal is ambitious, but so far the combined efforts of industry, universities and government have been very successful. It is vital that the public be aware of this target and of its importance to Canada's economic and cultural future."[1]

The issue with regard to the telecommunications regulatory configuration has been stated by CNCP as follows:

> "The basic problem with the present Canadian regulatory configuration is the lack of a single locus of authority for dealing with the national dimension in telecommunications. This results in regulatory inconsistency from one part of the country to another, and in national interests frequently being ignored in critical areas of telecommunications policy, including terminal attachment, systems interconnection, the introduction of new technology and services, interprovincial rates, the relationship between monopoly and competitive services, and service costing an accounting."[2]

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1. Letter dated June 11, 1982 from the Minister of State, Science & Technology Canada to the President of CAIS.

2. "Crisis in Canadian telecommunications policy and regulation". CNCP Telecommunications, 1982, p. iii.

The need to update relevant legislation in the light of changes in the environment is widely recognized. Work to produce a new Canadian Copyright Act is at an advanced stage. The report of the Clyne Committee recommended the revision of the combines law "to reflect the need to nationalize the (Electronics manufacturing) industry and to develop large companies."[1]

The Canadian transborder data flow situation is under active study by the Interdepartmental Task Force on Transborder Data Flow. Economic transborder data flow concerns are outlined in the report of the Clyne committee. This report noted a growing transfer of information processing activities from Canada. Most of these transfers are from Canadian subsidiaries to foreign headquarters. They could provide the basis for a damaging migration of management and planning functions from Canadian subsidiaries. Equally serious is the possibility that large imports of information processing and other services arising from these transfers could aggravate balance of payments problems. This transfer of information processing will likely be accompanied by a transfer of related jobs and, therefore, intensify the effects of the information revolution on employment in Canada. It has been estimated that by 1985 the value of imported computer services will have increased to about $1.5 billion a year. It has been further estimated that, as a result, some 23000 directly related jobs will have been lost to the Canadian economy by that time.[2]

The trade deficit in the electronic office industry "could reach $20 billion by 1990".[3] A study by the Evans Research Corporation concluded that if 13 multinational corporations covered by the study "invested in research and development and in plant and manufacturing in Canada to the same degree that they did at home, 21,000 more jobs would be created here"[4] in Canada.

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1. Consultative Committee on the implications of telecommunications for Canadian sovereignty, chaired by the Hon. J.V. Clyne. Telecommunications and Canada. Ottawa, Supply and Services Canada for Department of Communications, 1979. Supply and Services Canada catalogue no. Co21-5/1979, price $6.00, quotation from p.85.

2. Consultative Committee on the implications of telecommunications for Canadian sovereignty. Op. cit., p.63.

3. The electronic office in Canada. Ottawa, Department of Communications, 1982, p. 2. Supply and Services Canada Catalogue No. Co22-34/1982E.

4. The electronic office in Canada. Op. cit., p.8.

2.3 Social development

General social concerns are focussed on access to information, cultural sovereignty and heritage. Legal concerns - aside from the revision of specific pieces of legislation such as the Copyright Act - are focussed on privacy and computer abuse.

There are two major current access-to-information concerns. The first is that there should be an acceptable level of equality of access to information throughout Canada, including access in both of Canada's official languages. An example of this type of concern is that recently expressed by the Science Council of Canada. The Science Council was concerned with the danger of the development of an information-poor sector of Canadian society without adequate access to computer/communications-based information storage and retrieval systems. To this end, the Council recommended the installation numerous videotex terminals in public libraries across Canada.[1]

The second major access-to-information concern is the implementation of adequate arrangements for access to government information following the coming into force of legislation contained in Bill C-43. The rights to access provided by this legislation will be largely theoretical unless backed by effective practical service arrangements.

Canadian cultural sovereignty concerns turn around the achievement of acceptable market shares for indigenously produced cultural media. Cultural media include broadcasting, visual arts, dance, music, literature and theatre. There is considerable ongoing activity in relation to these concerns. There are the programs of the CRTC, Canada Council, Canadian Film Development Corporation, National Film Board, Social Sciences and Humanities Research Council and the National Arts Centre. In addition, the recommendations of the Federal Cultural Policy Review Committee are being evaluated, and there is the work of the Interdepartmental Task Force on Transborder Data Flow.

The work of the Task Force also bears on the issue of privacy. There are numerous concerns with respect to personal privacy. Questions include whether the collection, use and distribution of personal data should be controlled. What rights should the individual have to be

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1. Planning now for an information society; tomorrow is too late. Op cit., p. 62.

informed as to the content and use of the records? Must all personal data stored be timely, relevant and accurate? What rights should the individual have to correct/amend data?

Numerous concerns exist in relation to computer abuse and computer crime. Problems arise from theft of computer time; anauthorized access to, creation, alteration and destruction of machine-readable data; and computer fraud. These problems have implications for national security, proprietary information, trade secrets, industrial property and personal information. The Department of Justice is currently working on amendments to the Criminal Code to deal more effectively with computer abuse.

2.4 International concerns

These include concerns relating to national sovereignty; to trade and employment; to more general legal/regulatory questions; and concerns of developing countries. These concerns, as they apply to Canada, are under study by the Interdepartmental Task Force on Transborder Data Flow.

A number of national sovereignty concerns are associated with the tendency of the use of new microelectronics technologies to erode the meaningfulness of national boundaries. Satellite communications, for example, involve the use of signals which can normally be received and pirated outside a national boundary even when the original communication was intended to be solely within the national boundary. Privacy regulation within a country can be largely circumvented if the data is transferred outside the country and held in another country or location having few or non-existent privacy regulations. The ability to transfer key operations outside national boundaries (e.g., to a head office or research establishment in the US or Japan) raises concerns of technological dependence on another country. Economies of scale and the mass marketing of cultural products (e.g., TV broadcasting) across national boundaries raise concerns of cultural sovereignty. Concerns have also been expressed abouth the vulnerability of key computer/communications systems to sabotage and attack.

Trade and employment concerns include job migration between countries and balance of payments disequilibria when operations are transferred outside the national boundary taking advantage of new telecommunications technology. Increased use of new information technology may result in an adverse balance of trade in microelectronic hardware, software and data base services unless a country has adequate indigenous resources in this sector.

More general legal/regulatory concerns include the maintenance of the force and validity of national laws and regulations in an increasingly international context. Privacy, copyright and ownership of data are examples of topics which are increasingly difficult to deal with on a purely national basis. Increasingly there is need for fuller harmonization of individual nations' laws, regulations and institutional approaches. One aspect of a country's institutional approach is the choice of which telecommunications services should be provided on a monopoly basis and which on a competitive basis.

The concerns of developing countries largely centre on imbalances in access to and use of data and information sources. Developing countries may, in this context, be at a disadvantage in comparison with industrial countries and large multinational corporations.

3. PRIORITY CONCERNS FOR CAIS

3.1 What role(s) for CAIS?

This document has encapsulated the central Canadian information issue of today in the following question: how can Canada maximize the benefits of the ongoing implementation of new information technology and minimize any negative aspects?

The first question to be addressed by CAIS is what role or roles the Association should play with respect to the above issue.

It is assumed that CAIS will at least act in a way which obtains information on behalf of its members and facilitates the sharing of this information. In addition, CAIS may choose to play a reactive role, reacting to various developments. An example of such a reaction is the letter sent by the CAIS President to the Minister of State for Science and Technology regarding the Science Council of Canada Report "Planning now for an information society: tomorrow is too late".

Beyond a reactive role, CAIS may wish to be more or less "pro-active". CAIS might, for example, prepare and publish position statements on certain issues. It might seek to be represented on appropriate task forces and advisory bodies.

The implementation of information technology involves important far reaching and pervasive changes of very broad concern. Many of the

more specialized associations (including CAIS) listed in Appendix 2 may have a much greater chance of influencing government and obtaining some form of representation on relevant advisory bodies and task groups if they are able to coordinate their representations to government concerning matters of common interest. CAIS might take an active role in this context.

Additional to the question of how passive/reactive/pro-active CAIS wishes to be is the question of the subject area to be addressed by the Association. Is this subject area limited to information science or is the subject area broader, embracing all aspects of information technology? Might CAIS form a Special Interest Group or a committee with a mandate relating to information technology? This mandate could include assisting the interchange of IT information within CAIS; monitoring IT developments; and advising the CAIS Board on IT issues. Might the Association even consider changing its name to something like the Canadian Information Technology Association?

Whatever course the Association chooses, it should ensure that its intended role is defined in a meaningful way which can be logically set into the context of the mandates of other major Canadian associations greatly concerned with the implementation of new information technology. A list of major relevant national-level associations is provided in Appendix 2.

3.2 Are Canadians according due priority to information technology in the Canadian and world economies?

The next major question which the Association should address is whether Canadians are giving due priority to the increasing importance of information technology in the Canadian and world economies. Ancillary to this question is another: namely whether Canadian government is adequately organized to receive necessary advice, make necessary consultations and representations, and to create and maintain needed policies and programs. The Science Council of Canada, for example, recently made a number of recommendations including a recommendation for the creation of an advisory committee on new information technology to advise First Ministers of governments of Canada. So far, this recommendation has not been implemented.

The Department of Communications report entitled "The electronic office in Canada" pointed in the following terms to the need for a policy framework to obtain the benefits of new information technology:

"Western countries are aware of the need for a policy framework to stimulate economic growth to achieve the benefits of productivity increases and employment growth and to channel investment and other resources in a timely manner to achieve this growth and mitigate any adverse effects and employment dislocation that may result.

Such a framework should recognize the following elements:

- Technology plays a critical role in raising productivity, economic growth, employment and our standard of living.
- Technology and the speed with which it is introduced can create employment dislocations if policies and programs are not developed in anticipation of the technology's introduction.
- Technology and its effects cannot be regulated effectively in the economies characteristic of most western democracies.
- Many dying industries can be revived by infusing them with new information technology.
- The micro-electronics, information and communications industries are high growth industries and should be regarded as targets of stimulative fiscal, monetary and other economic policies.
- There is an urgent need for awareness programs aimed at all segments of society. These will enable us to understand and cope with the new technology.
- The social and economic policies appropriate to an information and communications-oriented society will be very different compared with those in an industrial society. New policy instruments and programs must be devised relating information and communications activities to the economic and social development process.[1]"

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1. The electronic office in Canada. Op. cit., p.25.

Has Canada moved sufficiently far and fast in this direction? Is Canada keeping up with other nations?

An example of a nation which has given high priority to the development of information technology matters is Britain. Kenneth Baker, the Minister of State in the British Department of Industry has overall responsibility for information technology matters. All government activities in information technology are coordinated by Baker who also has responsibility for relevant research and development and an electronics division. The British Post Office and British Telecom are both in his portfolio of responsibilities.

A UK government strategy for information technology has been developed. Its main objectives are to provide a national telecommunications network; to develop a statutory and regulatory framework for information technology; to raise the awareness of all users of information technology; and to encourage new products and techniques by financial support schemes and by the use of sensible procurement policies.[1]

If CAIS considers that the Canadian government is not according a high enough priority to information technology and related developments and concerns then it will clearly wish to communicate this view to the appropriate quarters.

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1. "Britain has IT and funds it, too; information technology wins high priority in the UK" by J.K.L. Thompson, Bulletin of the American Society for Information Science, Vol.9, No.1, October 1982, pp.12-17.