Computer/ Communications Policy

A Position Statement by the Government of Canada

Computer/ Communications Policy A Position Statement by the Government of Canada

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Canada. Dept.

FOREWORD

This position paper on computer/communications policy is presented at this time, not as a firm statement of settled government policy, but in order to provide a positive basis for discussion with provincial governments and others who share the federal government's concern with this vital area.

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PART I

INTRODUCTION

It is only twenty-five years since the first, crude electronic computers appeared. Nevertheless, within that quarter-century, the computer has already managed to become one of the most versatile and indispensable servants of contemporary science, business, and government. Indeed, without its existence, it is difficult to see how the modern world's complex, interrelated governmental and industrial society could function effectively. Despite that, there is good reason to believe that the current situation is no more than a take-off position for developments which may make computer services universally accessible, and the industry one of the largest in the world.

One of the most important factors leading to these possibilities is the perfection, over the past decade, of techniques for employing telecommunications channels to directly connect individuals, whether in their offices, schools, or homes, to centrally located computers or databanks. These computers and databanks can again be connected, via communications links, to create computer/communications information networks which someday will blanket the globe.

Terms like remote-access computer systems, tele-processing systems, computer utilities, and information utilities are employed to describe these networks; but regardless of the name, most authorities now agree that the widespread economical distribution of computer services to all segments of society has profound social and economic implications for every country in the world. It is for this reason that the Canadian government is so deeply concerned with the impact of computer/communications upon our society, and why it is making so determined an effort to come to grips with this new age. Many other national governments and international organizations have also recognized this importance. In particular such technologically advanced countries as the United States, Sweden, Germany, France, Great Britain and Japan, are currently exploring and implementing policies which will permit maximum benefit to be derived from the new systems.

The involvement of the federal government with the subject of computer/communications began in 1969, with a far-reaching investigation of all aspects of telecommunications in Canada, called the "Telecommission Study". In the Telecommission Report on computer/communications, the vital importance of these new systems was recognized and the following fundamental policy question was posed:

"How can Canada best exploit the computer utility concept to make the potentially revolutionary benefits of computer power available to the entire public and at the same time generate effective safeguards against the unwise use of that power?"

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Instant World, the summary report of the Telecommission, raised many questions concerning the proper application of computer/communications. That report was a forceful beginning but the government decided that it was necessary to explore the whole area of computer/communications in greater depth. Therefore, in October 1970, in an attempt to provide answers to the many complex policy issues involved, a decision was made to create an independent task force within the Department of Communications. Its defined purpose was "to speedily develop and recommend specific policies and institutions that will ensure the orderly, rational and efficient growth of combined computer/communications systems in the public interest".

The resultant two-volume task force report, *Branching Out,* provided a comprehensive review of the entire field of computer/communications, and presented thirty-nine policy recommendations.

The report was generally well received. It caused widespread public discussion, and is already going into a second edition. In response to the invitation of the Minister of Communications, over sixty briefs, commenting on the report, were received from a broad cross-section of interested parties throughout the country. At the same time the government undertook a detailed examination of the task force recommendations, and this, together with the public responses, led to the preparation of the policy statements contained in the present paper. It should be understood, however, that these statements are not an expression of settled government policy. Rather, they represent the government's current perception of viable policies which could permit Canadians to obtain maximum benefit from computer/communications services.

In the development of final policies the federal government recognizes the vital interest of other levels of government and particularly the provincial governments. Consequently, the material contained in this paper is presented to provide a basis for discussions with provincial governments and all other organizations and persons who share the federal government's concern for this critical and challenging area.

PART II

THE GOALS OF
COMPUTER/COMMUNICATIONS
POLICY

The overall goals of computer/communications policy as perceived by the government are summarized in the following statement:

It is important that computer/communications, as they affect both existing services and lead to the development of new ones, be oriented in such a way as to emphasize the national identity, the achievement of major economic and social aims, both national and regional, and the maximization of Canadian influences and control over the key activities and services.

Set out in Part III are twenty-nine statements, listed under five separate headings, which were developed in support of these goals. The following paragraphs contain a summary of these statements, and an explanation of their relation to the recommendations of the Computer/Communications Task Force.

GENERAL POLICIES

Essentially, the statements in this section are intended to express the general framework of Canadian computer/communications policy. They are also fully in agreement with the basic thrust of the task force report, which particularly emphasized the following points:

- the rapidly growing pervasiveness of computer/communications throughout the social and economic fabric of Canada;

- the need for an active federal role in helping to ensure the development of computer/communications for the benefit of Canadian society;

- the necessity for protecting and maintaining Canada's presence in the computer/communications industry in the face of the strong competition offered by the dominant position of U.S. technology and the continuing extension of U.S. based services into Canada;

- the desirability of fostering a unified approach to the availability of computer/communications services throughout Canada within the framework of the constitutional authority of the federal and provincial governments;

- the need to encourage private initiative and innovation in the establishment of computer/communications products and services.

Considerable emphasis is placed on the necessity of recognizing computer/communications as a key area of industrial and social activity. Because of this, these policies are intended to

strengthen the Canadian industry in this field and to coordinate the development of computer/communications to meet the overall goals.

One of the dominant themes of *Branching Out* is that there should be a close cooperation between governments and the private sector. Industry has been generally receptive to this theme, and wishes to be consulted regarding policy formation. In particular, industry is anxious to cooperate with the basic aim of making sure that the development of computer/communications will be for the true benefit of Canada and its people. It is this spirit which must be nurtured, if the objectives are to be satisfactorily achieved.

There are important economic, social and political differences among the provinces and these are reflected in the attitudes and priorities of their citizens. For this reason, *Branching Out* emphasized the necessity for continuing cooperation between the federal and provincial governments in order to foster equitable access to computer-based services, and achieve a compatible approach throughout Canada. The federal government fully accepts the need for such cooperation.

One of the tasks which the government faced was to decide upon the federal role. Both this paper and the task force report express the opinion that the federal government should act mainly as a catalyst, encouraging and fostering a broad spectrum of imaginative policies and realistic measures which, in combination, would create a genuinely favourable environment for the development of computer/communications.

Probably the single, most important objective will be to find the means for a happy medium to steer a middle course between the extreme of a do-nothing approach and rigid government control. The former would represent an inexcusable abdication of natural government responsibilities. It would probably lead to a number of unpleasant developments, including a sharpening of regional differences; the frustration of social and economic goals; and the loss, to foreign interests, of control over what has been termed "the central nervous system of future society". The latter alternative - rigid government control and/or ownership - seems equally unappealing. There could be serious clashes among the provinces, industry and the federal government and grave difficulties in obtaining necessary management resources and capital.

DATA COMMUNICATIONS POLICIES

The area of data communications presents a special and separate challenge in the field of contemporary technology. Quality and costs, in particular, are vital considerations in achieving the overall objective of making computer-based services widely and equitably available and both the task force report,

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and the subsequent federal government review emphasized this fact. Part III of the present paper lists nine policy statements in this area which, like the recommendations of the task force that they support, are based upon the following major considerations:

- existing telephone networks are designed for voice, rather than data service. This leads to certain inefficiencies when these networks are used for remote-access computer applications as well as to undesirably high price levels and to inadequate quality of service. It is increasingly obvious that special, data-oriented facilities and services could help alleviate these problems.

- in the above context, it is encouraging to note that the existing and planned transmission capacity, as distinct from the switching capacity, of the telecommunications carriers, seems to be well equipped to sustain the projected growth of data traffic.

- it is basic to the government's thinking that coming improvements in data communications should be distributed equitably throughout all of Canada if critical disparities between regions are to be avoided.

- if computer-service firms and other users were given greater freedom in the technical use of carrier facilities, as well as in the attachment of independently supplied equipment to the public networks, there could be significant savings for users, and better utilization of the facilities. However, measures introduced to improve data communications services should not:

— adversely affect the fundamental principles of "economies of scale", and equalization of rates, which justify the existence of the regulated public utilities;

— interfere with the obligations of the carriers to continue to provide conventional telephone service;

— fragment and hinder the optimal development of data communications, so that the long-term technical quality and economic viability of Canadian telecommunications networks become jeopardized.

Obviously, in this area as in others, if there are to be improvements on a national scale, there must be coordinated policy development, planning and implementation by federal and provincial authorities.

INDUSTRIAL DEVELOPMENT POLICIES

There are many areas covered by the term "computer/communications industry", including the provision of computer and telecommunications

services and the development and manufacture of hardware and software.

The industry comprises a complex mixture of regulated monopolies and unregulated competitive companies in dozens of different configurations. Jurisdiction is equally complicated. It is divided among federal, provincial and municipal authorities, and, at the federal level, among many different departments and agencies. It is therefore inevitable that this complexity be further reflected in the number and variety of federal industrial policies that are required to deal with the situation.

.The industrial development policies in this paper are an attempt to come to grips with the realities of this highly intricate situation. In essence, they include the following: the promotion and preservation, through a judicious mixture of incentives and constraints, of Canadian control of our computer software and service industries; participation with suitable safeguards, of the federally-regulated telecommunications carriers in the provision of public data processing services; the use of government procurement, industrial and science policies to stimulate the development of the Canadian computer/communications industry for the benefit of the country as a whole; and close cooperation between federal and provincial governments, as well as industry, and users, in the development and implementation of innovative industrial policies.

NEW COMPUTER/COMMUNICATIONS SYSTEMS AND APPLICATIONS

The computer/communications industry is still in its infancy even though it has already become an increasingly boisterous and demanding infant. The future is full of promise, but there are many uncertainties about the final shape and direction of coming systems and applications. It is for this reason that no attempt has been made, at present, to define precisely particular networks or applications systems. Instead, as the Canadian Computer/Communications Task Force pointed out ". . . recommendations must take the form of broad and flexible policy guidelines".

It is important that new computer/communications systems and applications evolve in socially desirable directions. The policy statements in this area are accordingly intended to provide a flexible framework, within which technological change, new knowledge, and fresh concepts of the "public good" can be taken into account as time goes on. Also taken for granted is the need for rational guidance, so that the beneficial promise of computer/communications will be achieved through conscious planning - rather than being left to the unpredictable workings of the market-place. To this end, therefore, the policy statements in this section cover: government's obligation to promote the evolution of computer/communications to serve the needs of people, as well as institutions; priority,

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as far as federal jurisdiction is concerned, for the development of computer/
communications systems which possess broad social significance; govern-
ment action to foster multi-disciplinary research into the social aspects of
computer/communications; further action to encourage development, in
both the public and private sectors, of those techniques and applications
which would be specifically geared to Canadian needs; encouragement,
in collaboration with the provinces, of research and development in the use
of computers in education; and promotion of regional and nationwide systems
which offer substantial social and economic benefits.

COORDINATION OF COMPUTER/COMMUNICATIONS
ACTIVITIES IN THE FEDERAL GOVERNMENT

In recommending that computer/communications should be recognized by
governments as a key area of industrial and social activity, the Computer/
Communications Task Force proposed the creation of a federal government
focal point for computer/communications. Such a focal point, it was sug-
gested, should provide mechanisms whereby the many different policies and
policy alternatives could be related to each other and analyzed with respect
to their total impact and from which the results of such analyses could be fed
back to the responsible policy development bodies for interpretation and,
if necessary, augmentation or modification.

The task force saw such a focus as being
particularly useful in three areas where effective interface mechanisms
are vital:

— among federal departments and agencies;

— between the federal and provincial governments; and

— between governments and the private sector, including
industry, associations and institutions representative of the public.

Two broad functions were also identified: "strategic planning" and
"program coordination". The former was seen as being concerned with
future-oriented analyses of needs, technological developments and policy
impacts; and the latter with assessing problems and with the on-going
coordination of federal government activities in the area of computer/
communications.

In its report, the task force suggested
the Department of Communications as the logical location for the focal
point.

These recommendations have been
carefully examined and the government fully agrees with the views of the
task force concerning the need for these two functions. However, the on-
going coordination of activities, including that of strategic planning, touches

directly on the responsibilites of many federal government departments and agencies. Therefore, it has been decided that an inter-departmental committee having broad policy and program coordination responsibilities would be preferable to a group located in a single department. The permanent chairman and small secretariat for this committee will be provided by the Department of Communications. Steps will be taken immediately to establish this committee and to provide the necessary resources.

At the same time, the government recognizes the need to strengthen the strategic planning capability both within the Department of Communications and within the Department of Industry, Trade & Commerce and will move quickly to provide the additional resources that may be necessary. These two departments have a vital role to play in meeting the policy obligations outlined in this paper.

PART III

THE GOVERNMENT VIEW

As mentioned earlier, the following five-part statement is presented to indicate the federal government's current perception of a viable computer/communications policy that will enable Canadians to derive maximum benefit from computer/communications services. However, these statements do not in themselves represent settled government policy.

GENERAL POLICIES

Statement 1
The government recognizes that computer/communications are a key area of industrial and social activity and that computer/communications, as they both affect the existing services and lead to the development of new ones, must be oriented in collaboration with the provinces in such a way as to emphasize the Canadian identity, the achievement of major economic and social aims, both national and regional, and the maximization of Canadian influences and control in the key activities and services.

Statement 2
The government will actively assist the development of computer/communications by fostering a favourable environment, with particular emphasis on Canadian ownership and control, and on regional balance.

Statement 3
The government will consult and collaborate with the provinces with a view to promoting a high degree of cooperation among the public and private sectors for the development of computer/communications systems and services and for the achievement of equitable access to computer-based services and a compatible approach throughout Canada.

DATA COMMUNICATIONS POLICIES

Data communications are a primary vehicle for achieving part of the overall objective of widespread availability of computer-based services. Although the policies listed here apply only to areas of federal responsibility, it is obvious that policies intended to equalize the benefits to all regions of Canada can only be developed and implemented if they are coordinated with provincial interests and policies.

Statement 4
It is a government objective to foster the continued development of efficient and reliable nationwide systems of publicly-accessible data communications facilities for use equally in the provision of, or access to, computer or data communications services by any sector of society.

Statement 5 The government considers it important that policies for data communications in Canada should be directed to the provision of services that are more responsive to the present and foreseeable needs of the computer-service industry and of users, and particularly to the reduction of data-communications costs by relating charges more directly to effective use.

Statement 6 The achievement of the major thrust of computer/communications policy requires that any supplier of remote computer-services to the public be permitted access for this purpose to the data transmission facilities of the federally-regulated carriers, subject to appropriate conditions and charges but with greater freedom than is now generally granted by the carriers to enable the suppliers and users of computer-based services to achieve operating economies and improve their operating efficiency.

Statement 7 The government favours relaxation of the rules under which computer-service firms and users are given access to carrier transmission facilities, provided that

— the communications components of their services are integral to their computer service operations,

— there is no duplication of the protected basic public services offered by the carriers,

— the computer-service firms conform to technical and operating standards and specifications approved by the appropriate regulatory authority.

Statement 8 For this purpose, computer service firms and users might be permitted, using their own equipment if desired,

— to achieve more efficient use of transmission facilities by concentrating and multiplexing signals,

— to attach remote data terminals to the public switched networks, subject to the approval of the appropriate regulatory body.

Statement 9 The sharing of data transmission lines and facilities by computer service operators and users will be permitted.

Statement 10   Within the scope of known technology, no reason is seen to encourage the development of separate competitive transmission facilities and the established position of the existing carriers in providing transmission facilities should be continued.

Statement 11   The most desirable method of meeting these objectives is through voluntary action by the communications carriers. Therefore the government proposes to consult with the carriers (as well as with provincial governments) on the objectives, in order to take account of any carrier plans intended for early implementation which might affect the achievement of the objectives.

Statement 12   Recognizing the important aim of a compatible and integrated national system of data communications, the federal government will make every effort to coordinate policies with provincial authorities and to establish on-going mechanisms to achieve this end.

INDUSTRIAL DEVELOPMENT POLICIES

Recognizing the potential capability of computer/communications to transform Canadian society, its institutions and values, the government, in fostering a favourable environment for the development of computer/communications industries, will take into account the significance of computer/communications in achieving balanced national economic and social development, while ensuring the establishment in Canada of a system of sufficient power and flexibility to enable Canada to compete internationally.

Many diverse areas of activity are embraced by the term "computer/communications industry", including, for example, the provision of computer and telecommunications services. Because of this complexity, no single policy is applicable. The following set of policies, however, might make an important contribution to ensuring that adequate computer-based services are available to meet Canadian needs throughout the country.

Statement 13   The government proposes to rely on competition policy to promote efficiency in the computer services and software industries, and to ensure that the resulting benefits are transmitted to the users of these services and to the Canadian public at large. Consequently, the government believes that the computer-services industry should remain unregulated except where constraints upon entry and participation may be necessary in the public interest, and with the possible exception of some specific areas such as privacy, file protection, and perhaps liability and standards.

Statement 14
The government will promote, to the benefit of Canada, effective Canadian ownership and control of the Canadian software and services segments of the computer industry.

Statement 15
To increase the likelihood of a strong Canadian presence, the entry of the federally-regulated communication carriers into the computer services industry should be permitted through the mechanism of a separate arms-length affiliate, subject to conditions preventing abuse of their privileged position. The responsible regulatory body might therefore be empowered to prescribe the terms and conditions on which such service may be offered to the public if it is satisfied that this can be done without detriment to the effective economic regulation of the public service. This authority might be subject to governmental approval. Alternatively, the terms and conditions to be imposed on federally-regulated carriers might be prescribed in legislation or by direction from the Governor in Council.

Statement 16
Recognizing the critical and pervasive role of financial institutuions in the functioning of the economy, it is very important that, in the rapid evolution of computer/communications involving the payments system of the nation and other financial services, a competitive environment should be maintained and that developments be consistent with the general policies outlined herein.

In Canada the powers of the chartered banks to provide facilities such as computer services are set out in Section 75 (1) (e) of the Bank Act, under which banks may engage in and carry on such business generally as appertains to the business of banking. The extent to which banks can offer data-processing services to the general public is, at present, accordingly limited by this legislative provision.

The Department of Finance will, with the assistance of the Receiver General of Canada, the Bank of Canada, the Departments of Communications; Industry, Trade and Commerce; Consumer and Corporate Affairs; and others as appropriate, examine the development of the computer facilities and services of the chartered banks and other financial institutions with a view to:

— ensuring the continuing development of an efficient and equitable payments system,

— determining the appropriate role for the banks in the computer-services industry, and

— determining the ways in which the federal government can best promote development in both these areas.

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Statement 17
While recognizing the jurisdiction
of the provinces in educational matters the government believes
that it might be desirable to discourage universities from taking advantage
of their privileged position (which arises from their publicly-supported
operating budgets, tax-exemptions and grants), in providing commercial
data-processing services to outside customers, where competitive services
are available from other sources. However, it might be desirable for such
policies to be sufficiently flexible to allow universities to supply special
services, such as databanks, programs or packages, in order to make the
benefit of publicly-supported research widely available, provided that these
are offered at fair competitive rates and that outside sources are not ful-
filling the need.

Statement 18
Before computer-based information
systems conveying cultural values are offered on a regular basis to individual
Canadians and the public in general, the government proposes, in consulta-
tion with the provinces, to establish the conditions of Canadian ownership
and control that might be applied to such undertakings.

Statement 19
The government endorses the need
for selective stimulation of the Canadian computer industry, and particularly
the Canadian-controlled computer industry, and will take this into account
in the formulation of its industrial, procurement, and science policies. These
policies will be supportive rather than protective in nature and will aim at
selected excellence.

Statement 20
To assist in the growth of the com-
puter and communications facilities and services to the benefit of Canada,
the government procurement policies in this area will emphasize stimulation
of the Canadian computer and communications industries, and particularly
the Canadian-controlled computer-service industry.

Statement 21
The government will cooperate with
provincial governments, professional associations, institutions and industry
associations, to encourage the provision of suitable training programs in
the field of computer/communications.

Statement 22
The government will increase its
participation in and support of national and international standardization
activities related to computer/communications and, in conjunction with
provincial governments, industry and user associations, promote the prepara-
tion, publication and adoption of standards for an orderly and coherent growth
of computer/communications in Canada, provided that such standardization
shall not be used as a device for reducing competition.

Statement 23   The Department of Industry, Trade
and Commerce, in conjunction with other departments as appropriate, will
undertake the preparation of detailed policies and plans for the develop-
ment of the computer industry in the context of the preceding policies.

NEW COMPUTER/COMMUNICATIONS SYSTEMS
AND APPLICATIONS

The computer/communications field is still in its infancy, and there are
many uncertainties as to the direction and form of its future. This is parti-
cularly true for those application-areas of broad social significance. Because
of this uncertainty, it would be inappropriate, at this time, to precisely define
the characteristics of particular networks or application systems. These
general policies will, however, provide a flexible framework within which
new computer/communications systems and applications can evolve in
socially desirable directions.

Statement 24   The government fully recognizes the
importance of ensuring that the potential capabilities of computer/communi-
cations technology be closely harnessed to serve the needs of people as well
as institutions. Consequently, the government will encourage the identi-
fication of social needs which can be satisfied by computer/communications
systems and the development of such systems having broad social benefit
or significance, especially those where commercial considerations might
make implementation difficult or uncertain. The orientation will be towards
the formation of regional and nationwide computer/communications systems.

Statement 25   In conjunction with universities and
other research institutions, the government will seek to foster multi-disci-
plinary research on the long-range social effects of computers and
communications.

Statement 26   Existing federal research laboratories
will be encouraged to include, in their internal and external programs
in accordance with government's "Make or Buy" policy, selected areas of
computer/communications technology, and to make the results available
to public and private organizations for the development of techniques and
applications specifically adapted to Canadian needs.

Statement 27   Research and development into the use
of computers at all levels of education could be encouraged, in collabora-
tion with the provinces, through coordinated funding on a multi-disciplinary
basis and extension of existing programs in technological development.

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COORDINATION OF FEDERAL GOVERNMENT
ACTIVITIES IN COMPUTER/COMMUNICATIONS

As computer/communications are a key area of industrial and social activity, the complex situation in Canada requires a mechanism by which the various policies and policy alternatives are related to each other and analyzed with respect to their total impact, and from which the results of such analysis can be fed back to the responsible policy-development bodies for interpretation and, if necessary, augmentation, or modification. This was the "raison d'être" of the focal point proposed by the Computer/Communications Task Force.

Statement 28

The federal government accepts the need for coordination of its own policy and programs and will therefore proceed immediately to

— form a senior level Interdepartmental Committee for Computer/Communications Program and Policy Coordination;

— form a small group reporting at a senior level within the Department of Communications that will provide the chairman and permanent secretariat for the interdepartmental committee.

Statement 29

The government will also proceed to enhance the strategic planning functions of the Department of Communications and the Department of Industry, Trade and Commerce to ensure proper attention to computer/communications in telecommunications and industrial policies respectively.

PART IV

CONCLUSION

In this paper, the government has put forward its views on computer/communications policy. The statements in the paper, however, should not be considered settled policy. Instead, they provide a positive basis for discussion with provincial governments and other parties who share the federal government's concern for this vital area. Consequently, they should be regarded as the first steps in a continuing process aimed at ensuring that computer/communications systems, in Canada evolve

. . . . in such a way as to emphasize the national identity, the achievement of major economic and social aims, both national and regional, and the maximization of Canadian influences and control over the key activities and services.

Within the broad policy framework outlined in this paper, there are a number of areas which require further consideration. These include:

— the problems involved in exercising Canadian jurisdiction over companies operating in Canada which store and process business data outside the country.

— the role of multi-national corporations in the computer/communications field which in turn touches upon general economic policy.

— the role of the computer manufacturers in the computer services industry.

— the appropriate tariff policies, not only for hardware but also for programs and data.

It is expected that these areas will have a high priority in the work of the Interdepartmental Committee for Computer/Communications Program and Policy Coordination. In addition, the area of privacy is the subject of a separate investigation and the government intends to make a statement in the near future on the regulation of its own data banks.

The government believes strongly in the importance of computer/communications to the future of Canada and the consequent necessity for federal/provincial cooperation if Canada is to develop and implement policies that will result in the maximum benefit for the Canadian people.