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Industry, Science and Technology Canada

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INFORMATION MANAGEMENT STRATEGY

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INDUSTRY, SCIENCE AND TECHNOLOGY CANADA

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WORKING GROUP

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"It must be remembered that there is nothing more difficult to carry out, nor more doubtful of success, nor more dangerous to handle, than to initiate a new order of things. For the reformer has enemies in all those who profit by the old order, and only lukewarm defenders in all those who would profit by the new order, this lukewarmness arising partly from fear of their adversaries, who have the laws in their favour; and partly from the incredulity of mankind, who do not truly believe in anything new until they have had the actual experience of it."

Niccolo Machiavelli
The Prince (1513)

EXECUTIVE SUMMARY

This document holds a key for ISTC. It opens the door to the path that the Department must follow to accommodate the ongoing shift in its business focus from funded program delivery to the information-based functions of intelligence, policy, advocacy, promotion and client services. Twenty percent of ISTC's operating funds are devoted to computer systems and technology with most of the remaining funds being used for the non-technical aspects of information gathering, value-adding and dissemination. With appropriate senior management support in the implementation of the strategy, ISTC will be in a position to harness its benefits while minimizing the potential difficulties associated with the changes, both evolutionary and rapid, stemming from the strategy.

Most ISTC staff have a networked microcomputer. This communicating technology will increasingly dominate the information environment of the Department during the 90's. The use of networks will continue to facilitate the synergy that occurs when groups of people work together. The cultural transformation of ISTC is already helping to gain widescale recognition that information is a corporate resource that should, where appropriate, be shared and accessible, thus increasing its value.

Four strategic objectives for information management are established in this document. They are: to increase ISTC's effectiveness in serving its clients and partners; to improve ISTC's ability to access and share information; to achieve productivity gains; and to enhance ISTC's ability to manage its resources. Initiatives are presented which outline approaches to achieve these objectives.

The adoption by management of strategic information planning is presented as an innovative and fundamental part of this strategy. This will assist in integrating information management planning with ISTC's business planning thus ensuring that information management activities reflect business priorities. An underlying theme of the strategy is the need to continue building a supportive culture through more and better focused training and by encouraging government and departmental initiatives which promote the use of technology as a way of doing more with less. Accompanying themes are the need to offer the best available technology to managers and staff as well as to provide strong technical support .

The completion of the information management infrastructure will ensure senior management control over information resources while taking into account the needs of ISTC's various organizations. From the strategy's 39 initiatives will stem many projects and activities; in view of limited human and financial resources, the timetable to implement these measures will require flexibility and periodic reviews. Finally, the strategy highlights the fact that flexible and easy access to information is key in determining how well ISTC will serve its clients and partners.

The document concludes by describing the steps which have been or will need to be taken. These include a costed, multi-year implementation plan (Annex A) which identifies the various initiatives to be carried out. This plan is required to ensure that the strategy implementation is fully integrated with the Department's business planning process so that funding for information management activities is directed to priority areas. The resulting activities and projects will be reflected, as required, in the annual sector and region plans and in the annual ISTC Information Management Plan. For ease of reference, the 39 initiatives, linked to the objectives, are listed in Appendix 1. The document also points to the need to develop a comprehensive internal communications plan to ensure that all employees are made aware of the strategy and the implementation plan as well as their anticipated impacts.

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INTRODUCTION

The purpose of this strategy paper is to provide a framework for the management of information in ISTC during the coming three to five years. The Department, which has an information intensive mandate, has made good progress in the installation of information technology. The situation concerning the management of its information, with or without the support of electronic systems, is less advanced.

The adoption of a strategic planning approach for information management is required by ISTC's Information Management Policy. It is also promoted by government documents such as the recently issued Management of Government Information Holdings Policy. The goal of this approach is to enable departments to identify and focus on areas where the application of coordinated information management practices and technology will be of maximum benefit. This will produce highest return on investment and significantly contribute to meeting overall departmental objectives.

The application of this strategic planning approach is new within the federal government. Treasury Board Secretariat has just announced its intention to develop a government-wide strategy by March 1991. Several departments have developed technology or systems strategies but few, if any, have yet addressed the full scope covered by information management.

To develop this strategy, a working group was established by the ADM, Finance, Personel and Administration with membership drawn from across the Department. The resulting strategy provides an approach within which detailed activity plans will be developed and priorized to achieve the stated objectives within current departmental resourcing levels.

The document begins by reviewing the environment both within and external to the Department. A broad assessment is made of the current situation and opportunities are identified. The listing of the broad strategic objectives is followed by a description of the projected future situation in ISTC. The principles guiding the implementation of the strategy are listed next. The initiatives are then presented both for horizontal components such as technology and for vertical ones such as individual departmental business functions. The paper ends with a conclusion, which also outlines the next steps. A costed, multi-year plan for the implementation of the strategy is then presented in Annex A. For ease of reference, the 39 initiatives, linked to the objectives, are listed in Appendix 1; Appendix 2 lists the Implementation Plan's six strategic thrusts linked to the 39 initiatives.

A separate document, containing the top level information map of ISTC and the working group's detailed supporting papers, has been compiled. This is available on request from the Information Management Branch (954-3573).

OVERVIEW OF ENVIRONMENT

In this section, the global environment affecting information management is described. Government, ISTC, its clients and information technology trends are reviewed.

Government

Government-wide priorities for information management stress the management of government information holdings in all forms as a valuable resource. These priorities include the need to set network design standards, such as Open Systems Interconnection, and to meet privacy, security and bilingualization requirements. Government wide initiatives involving financial and other systems will affect ISTC as will communications initiatives such as the Senior Executive Network.

Re-orientation of management and staff roles will be affected by actions resulting from Public Service 2000 (PS 2000) and the Increased Ministerial Accountibility and Authority (IMAA). These actions will reduce the number of layers of management and lead to less hierarchical organizational structure. They will also continue delegation of decision-making responsibility and accountability to middle managers. Changes to the traditional jobs of secretaries and clerical workers will also continue. This will result in an increased emphasis on 'self service mode' and on administrative assistants who are skilled in using technology for highly automated administrative processes. These developments will continue to present classification problems and associated union concerns regarding technological change.

The government workforce is aging and much expertise and experience will be lost with the large number of staff who will leave the public service within 5 years as current information practices do not facilitate the transfer of much of this knowledge.

Department

The mandate of ISTC is to strengthen the national economy by promoting Canada's international competitiveness and excellence in Canadian industry, science and technology. The Department also has the mandate for aboriginal economic development in Canada and for regional development in Ontario and Quebec.

ISTC's ongoing shift in business focus from funded program delivery to sector intelligence, policy development, advocacy and client services has placed additional emphasis on the production of information-based outputs in these areas.

The changes to ISTC's business have led to additional expertise requirements. The need for technical skills and industry-specific work experience remains. The additional demand is for staff, capable of strategic business analysis and long range planning, who can

help client companies to identify and take advantage of opportunities. These officers are increasingly dependent on internal networks and teamwork to aid creative problem solving.

The ISTC corporate culture is also changing. Values associated with sharing and managing information are among the changes being promoted. ISTC is adopting a more participative management style. There are initiatives to establish the standards, technical connectivity and systems necessary for the efficient sharing of information. There is increasing emphasis on the development of executive support systems. These will filter information collected via operational information systems as by-products of work activities. ISTC's staff is becoming increasingly computer literate. This is attributable to the large departmental investment in training and development. It is also due to the growing number of staff with computers at work and in their homes.

The number of person years available to ISTC is not expected to increase from the current 2245. New operating funds, beyond the current levels of $118.7 million in 1990-91 and $116.1 million in 1991-92, to offset workload increases are unlikely. ISTC must, like other departments, cope with the environment of restraint.

Clients

The two main groups of external clients served by ISTC are the business and science communities. A third internal client grouping is the federal government itself.

Business community clients, as a result of increasing competition, must adapt to changing markets and shorten the time required to develop new products. ISTC is responding by providing a new range of information products and services to meet the needs of both industry associations and of individual firms. These products and services fall into four groupings - information products, advice and contacts, advocacy and funded programs. Most ISTC organizations provide these products and services as do several partners such as the private sector as well as other federal and provincial government departments.

Science community clients include science and engineering researchers and students (actual and potential) as well as the associations and organizations which support them such as granting councils, universities and the National Research Council. Products and services include promotional campaigns, advocacy, funded programs (including scholarships) and the network of centres of excellence.

The federal government as a client includes the Prime Minister, Cabinet Ministers and Parliament as well as other government departments. Products and services involve the provision of information and intelligence via responses to questions, policies, strategies, discussion papers, briefings, correspondence, press releases and ministerial statements. All ISTC organizations are involved in the provision of these products and services as are partners including ministerial staff and other federal and provincial government departments.

Technology Trends

The microcomputer will continue to dominate the information technology environment of the Department during the 90's. The linking of these microcomputers in local area networks will facilitate the synergy that occurs when groups of people work together. The expanded linkage via the ISTC departmental network creates larger work groups while also creating new operational challenges. The responsibility for design, maintenance and operation of systems on these networks will continue to be decentralized. This will amplify the need for central services to provide departmental planning, coordination and specialist support expertise.

Industry trends over the next five years favour innovation and creative exploitation of computer and communications technologies. Price performance of virtually all of these will improve at a rate of 15-20% per annum. A new generation of easy-to-use packaged software and networked microcomputers will enable individuals and groups to increase productivity at a rate comparable to the previous five years. Potential areas of improvement include the preparation of documents, reports and presentations, individual time management, access to needed information, and increased capability to communicate.

Improvements in mass storage capabilities and optical character recognition may make it economically feasible to capture and electronically store, access and retrieve large volumes of textual data. Improvements in data communications will make it possible to deliver ISTC computer based information products to clients. These improvements will shorten the time required to develop information products. It will be easier to keep products current, thus improving their quality and relevancy to client needs.

Other improvements will transform the way in which systems are developed and make it possible to harness the creativity of ISTC staff. Microcomputer-based development tools will become more powerful and simpler to use. It will be easier for ISTC staff to prototype new ideas at low cost before resources are committed to their full-scale development.

Technology improvements and decreasing costs will lead to continued economies in central data processing. These savings will be offset partially by the cost of increased security precautions, and partially by increased attention to user training and support needs.

SITUATION ASSESSMENT

The foundation of all aspects of ISTC's performance is its capacity to know what is going on in the Canadian and global business and science worlds and to interpret what this means for Canada's future competitiveness. This knowledge must, therefore, be in depth and sophisticated. This core capacity depends on two key factors: ISTC must be able to gather, analyze and share information about conditions in industry and the science

community; and, departmental staff must also build and maintain close and effective communication with clients in these communities.

The potential to enhance ISTC's core capacity through the systematic management of information is enormous, and we have only begun to tap it. A top priority for the Department is therefore to strengthen the information management function in order to support its delivery of a wide variety of client services. This, plus using the best current technology, will help in strengthening ISTC's ties with its clients. Better support for service delivery is required to meet these priorities. In addition, ISTC management systems must be adjusted to suit the new types of activities.

The processes involved in ISTC's intelligence and analytical functions and in developing and delivering associated client services are complex and fluid. They involve many participants both inside and outside the Department. If attempts are made to support these processes by developing a single comprehensive and integrated system, there is a high risk of failure. However, if ISTC continues to build stand-alone systems that are not set in the context of a Department-wide, top-down information plan, the current ad-hoc situation will prevail. Duplication, information gaps and information overload will grow.

ISTC should, therefore, adopt a pragmatic and innovative approach. Extensive use of external sources of information and of external data bases should be made to avoid needless duplication. The controlled use of existing software packages and the development of system prototypes to solve specific problems should be also encouraged. Those prototypes which prove successful can be adapted and made available throughout the Department. These individual initiatives must be put in context by using strategic information planning techniques to build a top-down information map. By using this map and also by defining and applying standards, the Department will lay the basis for any required linking and sharing of the various individual systems or applications.

The top level of the required information map is contained in the working papers. It includes descriptions of each main ISTC function and identifies the associated organizations and broad information requirements.

In summary, ISTC is at a threshold of opportunity. It is becoming a knowledge organization, where explicit attention to information management by all levels of management will be critical to the overall success of its business. Key areas of opportunity are:

- Completing the cultural transformation of ISTC to achieve widescale recognition that information is a corporate resource, not an exclusive organizational or personal resource, that must, where appropriate, be shared and accessible. This will increase the value of ISTC's information.

- Providing catalogues, improved indexes and other tools to improve access to ISTC's information (both text and data). This will increase information sharing as well as improving access.

- Meeting the needs of external clients with a set of information products, delivered via user-friendly systems, will help in achieving key ISTC priorities.

- Equipping and training all staff to use communicating workstations will establish the foundation on which ISTC can build integrated systems.

- Redesigning and integrating administrative support processes and associated financial, administrative, human resources and funded-program systems will increase ISTC's efficient and effective use of information and technology.

INFORMATION MANAGEMENT STRATEGIC OBJECTIVES

In this section the strategic objectives are identified. A description follows which portrays the future situation in ISTC that is expected to result from achievement of these objectives. The principles that must guide ISTC in implementing its information management strategy are then listed.

Strategic Objectives

To address the Department's information management requirements, considering the environment, assessment and opportunities defined earlier, four strategic objectives for information management have been established:

- Increase ISTC's effectiveness in meeting the needs of its clients and partners;
- Improve ISTC's ability to access and share information;
- Achieve productivity gains; and
- Enhance ISTC's ability to manage its resources.

Future Portrait

It is intended that the attainment of these objectives will result in a situation where all ISTC staff will have at their desk a networked workstation capable of communicating within and outside the Department. They will also be provided with personal productivity improvement tools and be capable of accessing and maintaining, as applicable, current information on subjects such as:

- clients (description, contacts with ISTC, interests, needs and concerns);
- products, services and programs of ISTC and its partners;
- sectors (profiles, reports, events, news, etc);

- ISTC and external information sources;
- ISTC expertise sources;
- consultants;
- planning (mission, objectives, priorities, plans, initiatives and resource allocations);
- economic;
- advocacy and policy (agenda, status, positions);
- technologies (contacts, events and initiatives);
- public attitudes, media coverage, press releases and speeches; and
- evaluation (effectiveness, cost and impact of various ISTC services).

Staff will also be able to interact with administrative processes and systems using their workstations. Forms, correspondence templates, files, etc. will be available electronically, and managers will have easy-to-use systems to collect, maintain and review:

- resource management data (human, financial, etc.);
- operating data on programs and services; and
- business plans and performance.

External clients and ISTC partners will be provided with access, as appropriate, to:

- an electronic inventory of ISTC's and Partners' products, services and programs;
- the contents of selected ISTC electronic information products;
- ISTC publications, videos, interactive software; and
- advice on how to take advantage of ISTC programs, products and services.

Principles

ISTC's information management principles are:

- Information is a valuable corporate resource that must be effectively used. It must be planned, organized, controlled, monitored, protected and disposed of in accordance with government policy and standards. It must also be representative, accurate and appropriate for the context in which it will be used;

- Information of corporate interest must be widely and easily accessible in accordance with federal laws and government policy;

- Technologies and systems must be user-friendly and available in both official languages. Employee self sufficiency and autonomy in the use of these technologies and systems must be achieved;

- Technology and systems expertise across the Department must be used for the collective benefit of the organization;

- The transition towards new technologies, systems and information management practices must minimize disruption of departmental operations; and

- The information management strategy shall ensure that the needs of all elements of the organization are considered.

INFORMATION MANAGEMENT INITIATIVES

In this section, 39 initiatives are presented which will contribute towards achieving the strategic objectives detailed in the preceding section. The approach used in the development of these information management initiatives was to view ISTC's business activities from two different angles. The first view presents the various information management components which cut across and apply to all ISTC's business functions and organizations. These horizontal components are:

- Strategic Information Planning;
- Information Management Infrastructure;
- Corporate Culture and Training;
- Access to Information Holdings;
- Technology;
- Security, Bilingualization and Privacy;
- Support Services; and
- Decision Support.

The initiatives listed under the above components relate primarily to the strategic objectives of enhancing ISTC's ability to manage its information technology resources and to access and share information. They also contribute to achieving the remaining two strategic objectives and set a base for the other initiatives described subsequently.

The second view presents ISTC's principal business functions. These vertical components are:

- Intelligence;
- Client Services;
- Advocacy;
- Policy;
- Promotion;
- Funded Programs; and
- Administering the Department.

The initiatives described under the above components are those specific to each of ISTC's main business functions. These functions are interconnected, span ISTC organizations and frequently share common information requirements. The initiatives for the intelligence, client services, advocacy, policy and promotion business functions are

primarily aimed at the strategic objective of increasing ISTC's effectiveness in meeting the needs of its clients. The initiatives for funded program and administrative business functions are aimed at the strategic objective of achieving productivity gains. Most individual initiatives will, however, make a significant contribution to each of the four strategic objectives.

For ease of reference, the 39 initiatives, linked to the objectives, are listed in Appendix 1.

The strategic initiatives described in this section are closely interconnected. To facilitate the future implementation and management of these initiatives, they will be actioned by means of strategic thrusts. The six strategic thrusts comprising the 39 initiatives are listed in Appendix 2. These thrusts form the basis for the accompanying implementation plan (Annex 1).

Strategic Information Planning

Strategic information planning is the key initiative. ISTC is a complex organization with many differing functions, each involving hundreds of activities, all of which involve information in some way. An appropriate analogy is found in any factory with multiple product lines. It must have plant layout diagrams showing the location of people, stock, wiring, plumbing and machines. The machines, in turn, require engineering and circuit diagrams to enable their creation, maintenance and modification. Production plans would specify the use of plant facilities to build individual products. The factory manager needs a top-down plan to ensure that the right machines are acquired and used for as many products as possible. The plan also is needed to ensure that wiring, plumbing, conveyor belts and facilities for workers are put in place.

Similarly, in order for ISTC to better manage and share its information, a comprehensive, top-down picture is necessary. The purpose of strategic information planning is to define the information needed to conduct ISTC's business. The picture will show the business processes and associated information needs and outputs. The business analysis required to create the picture will identify the means for reducing information overload and help in the identifying and developing information products. A corporate business and information analysis must be gradually undertaken to portray the whole Department. It will lead to increased efficiency in the acquisition of information, streamlining of manual processes and development of individual systems. This analysis will lead to reduced duplication of effort, will address the inefficiencies created by having a multitude of similar yet isolated data bases and will result in higher quality information products for ISTC's clients.

ISTC must undertake this top-down process of strategic information planning for each of its business functions. This will serve as the starting point not only for effective information management but will also be of immediate use in the business planning process.

Components of this strategic information plan will derive from several of the initiatives proposed in the following sections. Other components, such as the Operations Sector and Tourism Canada parts of the plan are already completed. The initiatives described below will give ISTC its layout diagrams and ensure that all the required pieces can work together:

1. Complete the top corporate level of the plan down to a level where ISTC's major information subjects and systems are defined. This top level portion of the plan will set a departmental framework which individual studies will extend.

2. Focus on horizontal projects to expand the plan in priority areas. Examples include the company information study now underway and others described in initiatives 23, 34 and 36 following.

3. Support requests for strategic information planning studies from individual organizational units at various levels by providing appropriate funding. Continue to require the use of the strategic information planning techniques as part of the feasibility studies for systems development. These activities will add vertical parts of the plan.

See also initiatives 4, 5, 19 and 22 which relate to strategic information planning.

Information Management Infrastructure

The recently approved information management policy provides for an information management infrastructure. The infrastructure is headed by the Departmental Management Committee. It encompasses the Information Management Committee (ADM level), the Information Management Advisory Committee (DG/Director level) as well as various other committees and working groups which address and resolve information management issues. It ensures visible and active senior management control over the management of information resources and it will be essential to coordinate and link information planning to the business processes of the Department. Initiatives in this area are as follows:

4. Complete the implementation of the infrastructure detailed in the information management policy. This infrastructure will play a key role in the strategic information planning process, described in initiatives 1 to 3, and the subsequent priorization, initiation and approval of related activities. The infrastructure should be reviewed after two years.

5. Ensure that all major studies and development projects are steered by multi-functional sub-committees. This will ensure that requirements from all ISTC functions and organizations are addressed.

Corporate Culture and Training

Although information technology is a powerful facilitator, the ability of people to learn to use and apply it lags far behind technology's capabilities. The technology provides all staff with many opportunities for doing their jobs more effectively. These opportunities also pose much stress as they change the ways that people gather, access and use information. The changes impact basic values about who employees are, where they fit in the organization, and what their responsibilities are. ISTC staff are learning how the management of information and application of information technology can provide both themselves and clients with new and better products.

Employees, who will become self-sufficient in using and applying technology effectively, will also become dependent on shared information. Incentives must be put in place to encourage holders to share their information and exisiting barriers to information sharing must be eliminated. Support staff will acquire office management and information specialist expertise. Processes and supporting systems must be carefully designed to meet the needs of ISTC people. At the same time, ISTC must work with other government departments to reduce duplication by either adapting systems in use elsewhere or by joining with other departments in developing common solutions to very similar problems. A large investment in training and support is required; all training developed by or for ISTC must emphasize the Department's corporate culture and values as part of its curricula. This will ensure that staff become proficient in managing ISTC's information and in using associated technology.

ISTC managers will need to devote a consistent measure of their time to information management. They will need to determine how it can help them meet their current and future business needs. They must acquire the skills required to manage information and to take full advantage of the installed technology. Through employee retraining and skillful hiring, managers will need to ensure that the required technical expertise is available.

The key findings of the PS 2000 draft task force reports emphasize the need to have a major and long-term shift in culture and values, to improve the management of people and to integrate the use of technology into the business practices of government. Probable changes to government legislation, policy and regulations dealing with the Public Service will have a very significant impact on ISTC's corporate culture. Other initiatives, such as the Government's Task Force on Barriers to Women in the Public Service, ISTC's Corporate Development and its Task Force on the Advancement of Women are also touching on issues raised by the extensive use of information technologies.

ISTC has already made considerable progress towards establishing a corporate culture which recognizes the values of managing and sharing information. The following initiatives will continue along this path:

6. Continue to mandate and resource organizations to promote required changes and to develop ISTC's corporate culture. Examine and forecast the impact of

technological changes on ISTC employees. Select pilot areas to carry out work analysis on duties and procedures that have, or could, change for the benefit of both ISTC and its employees. The analysis would clarify roles and responsibilities and would identify requirements for education, training and support. The pilot areas would use the results of this analysis to develop working ISTC models. All activities should be steered by a committee which would include employees, union representatives, managers as well as human resources and technical specialists.

7. Complete the review of current information management and technology-management training and increase the levels of funding as appropriate. Improve linkage between courses offered and information activities being undertaken. Promote the development and presentation of courses for managers and staff on the techniques and benefits associated with managing and sharing information.

8. Continue to support pilot projects, such as the improvement, publication and automation of directories, which evaluate and demonstrate mechanisms for improving information sharing and access. See initiatives 10, 11, 20, 21, 26, 28 and 32 for examples of such projects.

9. Support employee initiatives to prototype promising new applications using the installed departmental information technology. Ensure that a clearinghouse of existing applications is available to avoid duplication of effort. See also initiative 23 regarding sponsoring new applications.

Access to Information Holdings

In addition to undertaking strategic information planning and to fostering a corporate culture which promotes the sharing of information, there is also a major requirement to improve ISTC's ability to locate and retrieve its existing information. Corporate information resources are currently catalogued by several different organizations. Implementation of improved access must be done in a manner which reflects the framework and constraints of access and privacy legislation. A departmental data dictionary is used to manage computer data. A records management system is used to index paper files. A catalogue exists for video and other communications material. A library system exists for books, journals, cassettes and external databases. More information, contained in personal paper or computer files, is not formally catalogued at all. There is inadequate description in some of the current directories which causes problems in identifying and locating available departmental information for a given subject. The following initiatives will improve ISTC's access to its information holdings. It is key to achieving the objective of improving ISTC's ability to access and share information as well as improving the management of its resources:

10. Identify existing information directories and indexes used for the different types of ISTC's information holdings (library, records, databases, etc.). Review the security classifications and access schemes used in these directories and indexes. Investigate

the means of building links between them to improve access to the information contents. See also initiative 26 regarding directories for clients.

11. Build and test a simple-to-use electronic library, designed to meet business, rather than administrative, needs. This will expand the automated directories into a text storage and retrieval system for selected documents and classes of information. See also initiatives 29 and 32 regarding electronic information products.

Technology

The computing equipment now in place provides a good base for the future. Most staff have a computer workstation connected to others at ISTC. An office automation and systems architecture providing for computing resources at the personal, local and corporate levels was recently approved. The initiatives related to the continued improvement of ISTC's information technology base are as follows:

12. Complete all remaining microcomputer and local area network installations. This will establish the key part of the recently approved office automation and systems architecture. Complete other activities, such as improving the corporate backbone network, required to complete the architecture. See initiative 31 regarding technology acquisitions for Policy and Science sectors.

13. Upgrade equipment, software and communications facilities on a continuous basis as funds permit. Establish central funding for corporate-wide upgrades and retain local funding for the remainder. Maintain standards for end user procurement of informatics products.

14. Set up a research and promotion unit with a mandate to seek promising technology products and to promote their use in the Department. The unit, which will work closely with users to ensure live evaluations of appropriate products, will require adequate resourcing. Such a unit is expected to more than pay for itself through overall productivity gains in the Department.

15. Seek ways to consolidate the current range of large computers providing the corporate computing level. The implementation of the office automation and systems architecture, the redevelopment of corporate systems and increased drive for information sharing will assist in achieving this goal.

Security, Bilingualization and Privacy

ISTC is committed to implementing all applicable government security, bilingualization and ATIP policies and directives. The initiative associated with these requirements is as follows:

16. Dedicate a significant annual budget to meeting security requirements such as those identified by the RCMP's Security Evaluation and Inspection Team report, those arising from new technology applications such as electronic data interchange and those needed for compliance to the Privacy Act and the Access to Information Act. Ensure that all approved systems development and technology acquisition projects are resourced to include full bilingual capability and also to meet security and privacy requirements.

Support Services

The requirements for information and technology management support services have grown dramatically. Also, the widespread use of computer technology for document preparation, communication and storage has had a major impact on the need for coordination of central services, currently fragmented between various organizations. The introduction of microcomputers has raised other support issues. A strong demand for local support exists. This has been accompanied by the need to determine classification standards for business analysts and network administrators, in addition to defining the appropriate levels for the local computer specialists.

A balance between decentralised and centralised approaches is required that stimulates innovation and accommodates the need for discipline and standards. These are needed to facilitate information sharing and cost effective operations support. This balance requires a common understanding of the respective roles, responsibilities and resources of both the operating groups and the central service groups.

Resources for processing information are often considered overhead and not as an integral part of departmental operations. As a result, uncoordinated resource allocations have slowed development of a modern information management environment. Common services are provided in a reactive response to meet the individual needs of operating branches. This has often been at the expense of providing the Department with cost effective solutions addressing all aspects of the corporate information and communication needs. The following initiatives address the changing requirements related to the support services:

17. Encourage responsibility centre managers to dedicate more of their resources to the provision of local support services.

18. Undertake a review of the central services required from the various organizations providing information management support. Where appropriate, organizations should be designated as centres of expertise for one or more types of information technology. Review the classification requirements for decentralized support staff and also for staff performing the business analyst functions.

19. Ensure that information management planning is fully integrated with departmental business planning and that funding for information management activities can be

directed to the priority areas. See initiatives 1 to 3 regarding strategic information planning.

Decision Support

Good decision support systems will depend on, and result from, most of the initiatives outlined in this paper. These systems must be flexible to meet differing management styles and limited in scope to provide only the types of information suited to these applications. Initiatives designed to provide these systems are as follows:

20. Initiate the development of an ISTC planning and activity management system and a departmental electronic briefing book. See initiative 28 regarding development of electronic briefing book.

21. Prototype the use of decision support software packages to deliver the required information. Implement the resulting systems progressively.

22. Ensure that managers' information requirements are defined as part of the strategic information planning activities referenced in initiatives 1, 2, 3, 23, 34 and 36.

Intelligence

The identification, collection, analysis and dissemination of intelligence is central to the ISTC mandate. It provides the base for understanding its clients' needs and for developing and delivering its products, services, programs, policies and advocacy. The ability to respond to ministerial questions is an example of a direct output of this function. Many other outputs are directed to internal clients for inclusion in various products and services. Information needs and flows have rarely been formally documented for these functions. However, a current departmental priority is to expand and better manage ISTC's knowledge base.

Environmental analysis is also key to our ability to accurately discern public attitudes. This, in turn, is a factor when developing communications approaches to departmental issues, policies and programs. More work needs to be done in determining the requirements and availability of this type of information

The wide variety of intelligence information required can be grouped into subjects such as client, policy development, advocacy, sector, partners, programs, services and products, ministerial, economic, foreign, public opinion, technologies and ISTC. These information requirements are described in the working papers.

To obtain maximum benefit from existing ISTC or external sources of information and also to fully exploit the available technology, the following initiatives are required:

23. Begin the process of strategic information planning, described earlier in initiatives 1 to 3, to fully identify and address information needs. Start by identifying the information needs of the basic business processes in the client services, advocacy, policy and promotion functions and from these the Intelligence function. The planning will be followed by the development of prototype systems for the most critical areas of need - probably advocacy and external client services. Since there will be many common information needs, these planning activities must be coordinated.

24. Continue to make short term improvements in the management of ISTC's intelligence by undertaking the activities described in the following client services, advocacy and policy initiatives 25 to 32.

Client Services

ISTC currently provides a range of services such as trade missions, seminars, trade fairs and inter-firm comparisons. ISTC also offers information directly via products such as market intelligence reports and indirectly via systems such as BOSS. In response to the departmental emphasis on this business function, efforts are underway to develop a stronger understanding of clients' needs. This understanding will be used to define, priorize and develop a broader range of information products and services. These will serve a wider client base, including the science community. The aim is to offer a line of service products which regional offices and sector branches can select from to respond to the needs of their local clients. A line of information products, both ISTC originated and acquired and subject to the requirements of the Privacy Act and Access to Information Act, will be provided directly to business clients through the ISTC business service centres. These centres will serve as a gateway to access departmental information and expertise.

External client services is a strategic area for ISTC. Given the range of external clients (firms, associations, members of the science community etc.) it is important to map the basic information needs of ISTC. This is required for identifying areas of client need, developing services and information products, producing and delivering services and products and evaluating their impact. Not all of these needs can be served by automated systems, but the basic needs and processes should be defined systematically to permit the most effective use of information.

Ministerial support services have particular requirements (very rapid production, up to the minute information and frequent restructuring of the same information for different ministerial purposes). A strategic information plan is needed to define the information needs associated with these services and to identify means of streamlining related activities to enhance ISTC's efficiency. Special attention should be paid to the requirements associated with major or special projects (integration of sectoral information with company-specific information and sophisticated financial models; sustained interaction between employees of different organizational units).

The imaginative use of information technology will be critical for developing topical and relevant services and information products. The cataloguing and electronic dissemination of information including departmental sources of expertise will be essential to the effective delivery of ISTC services. This effectiveness will ultimately be enhanced by the provision of systems giving clients direct access to electronic information. Flexible and accessible information systems, used to manage the information and service initiatives, will foster the sharing of experiences in service delivery. They will also help in the reporting, tracking and evaluation of departmental service activities.

The long term strategy for this business function was presented under the heading of Intelligence in the previous section. The following short term initiatives are specific to this function:

25. Develop systems to help manage the business services being implemented nationally on an ongoing basis. These systems are needed to support planning, delivery, monitoring and evaluation of specific service products. This is a priority need. See also initiatives 36 to 39 regarding the administrative business function.

26. Complete work to develop electronic, as well as published, catalogues and indices of ISTC information products, expertise, and programs and services. Where appropriate, offer our external clients direct electronic access to ISTC information. See initiative 10 regarding directories.

27. Complete development of a network of electronically stored and shared information on ISTC clients. This should begin with information on company clients and then be expanded to include associations and other clients.

28. Undertake a project to develop information scanning and retrieval systems to support the preparation of ministerial briefings, question cards, opposition day materials and speeches. Suitable software packages are already available in the private sector. See initiative 20 regarding decision support.

29. Complete the project undertaken by the Entrepreneurship and Small Business Office to identify ISTC and other information products which could be made available electronically to private sector clients and service partners subject to the requirements of the Privacy Act and the Access to Information Act. See initiative 11 regarding electronic library.

Advocacy

To improve access to the required range of information and sources of expertise, studies are required which will detail these requirements and identify potential applications. The long term strategy for the advocacy function was detailed earlier in the Intelligence section. A short term initiative, specific to the advocacy function, is described following:

30. Develop systems to maintain records and status of advocacy issues, positions of ISTC, its partners and other key players. The system developed by Tourism Canada should be examined as a possible model.

Policy

Information required to provide industry, science and technology policies is again diverse in nature and has not yet been formally recorded. The extensive production of textual outputs has been supported by the early adoption of integrated office systems by some ISTC policy organizations. These organizations currently employ a variety of technologies that came from ISTC's founding departments. Long term strategy for the policy function was addressed in the Intelligence section. The following short term initiatives are specific to the policy function:

31. Give high priority to the installation of workstations and networks that meet the Office Automation and Systems Architecture (OASA) requirements in the Policy and Science sectors. See initiative 12 regarding technology installation.

32. Pilot the development of text data bases, using a standard software product and standard subject classifications, that can be used to build local electronic libraries that aid the sharing of information within these sectors. Investigate means of providing controlled access to staff in other sectors or regional offices. Evaluate these pilots and introduce to other ISTC organizations as required. See initiative 11 regarding electronic library.

Promotion

No formal mapping of information requirements has been undertaken for this business function. The long term strategy for the promotion function was detailed under the Intelligence section. Special attention must be given to the information required to track the public attitudes and to measure the impact of promotional campaigns.

Funded Programs

Funded programs are supported by automated processes and databases. Most systems were developed at the time DRIE was created. These systems are now becoming out-dated. In contrast, the systems currently being built for the new, more complex programs (Strategic Technologies and Aboriginal Economic) are decentralized, microcomputer network-oriented systems. These systems employ new cooperative processing technology to link the microcomputer and the mainframe (where the corporate data base is located). The new systems are also being designed to automate the administrative processes associated with funded program delivery.

The following initiatives are aimed at realigning ISTC's systems that support funded programs to reflect the requirements of the new programs and to take advantage of available technology:

33. Evaluate the architecture piloted for the Strategic Technologies Program for its suitability for the new corporate systems. In this architecture, the supporting system is highly decentralized, geared to provide operational support and yet works with the central mainframe computer to assure the continued integrity of data and information. Some of the data is maintained in the corporate data base to permit reporting and information sharing at the corporate level. All of the data is available at the local computing level. See initiatives 36 to 39 regarding administrative systems.

34. Undertake a strategic information planning study, described in initiatives 1 to 3, to document administrative and program delivery processes. This will identify the means to improve integration with other systems supporting the administrative processes associated with program delivery. See also initiatives 36 to 39 regarding administrative systems.

35. Conduct a review of PRISM to determine the feasibility of modifying that system for the purpose of adopting a decentralized approach to capturing program data related to the evaluation and contracting processes at the local level. Other components of PRISM involving the processing of claims and the monitoring of benefits would remain intact.

Administering the Department

The finance, administration and human resources functions are currently supported by a range of systems that were built in 1982-83. Only the financial system (RAMS) permits sharing of information via the corporate data base. This permits integration of financial processes with those related to funded program delivery. Nonetheless, major changes are required to RAMS or its equivalent in order to make it a more effective operational system, integrated with the day-to-day activities of ISTC staff.

Records management is supported by an on-line index system and database. However, it remains primarily focused on paper files. The absence of an electronic central registry system causes a significant number of project and issue oriented transactions not to be captured into an electronically accessible and universally available registry. Forms management has recently begun to address the benefits of electronic forms. Other administrative systems for contracting, inventory, etc. operate as separate and independent systems. They involve significant paper flows and some duplication of effort.

By 1995, it is envisaged that administrative systems will, where cost effective, share common data and be integrated horizontally and vertically. They will use electronic data interchange for passing transactions within ISTC and to outside organizations. They will

also be developed based on business processes and thus bridge current functional and organizational boundaries. Information for decision support will be readily available and used by managers with minimal intervention by intermediaries. Transactions will be generated, validated, approved and authenticated electronically.

Communications is another support function which has experienced major changes as a result of the wide-scale introduction and use of information technology. The central support group responsible for this function has acquired sophisticated desktop publishing capabilities and now works closely with the many ISTC sectors and regional offices which have developed the capacity to produce high quality output.

Although many gains can be realized within these functions, they must be weighed against the potentially high costs of system redevelopment and the competing need for resources for other mission-critical projects. The following initiatives are laid out with this in mind:

36. Undertake strategic information planning, described in initiatives 1 to 3, as a prerequisite to individual systems development. This will identify the means for streamlining the many activities performed within all of the departmental administrative functions, including the communications function. This top-down planning will include the administrative processes and information requirements associated with services and funded program delivery as well as other decision support needs. The planning will also address processes associated with the creative production of departmental documents and publications. This undertaking will identify the inter-relationships between the various associated computer systems and manual processes. It will also identify the organizational and system implications that will accompany streamlining. See also initiatives 22, 23, 25, 33 and 34.

37. Complete a costed, time-phased workplan that will detail the specific administrative systems and manual processes to be modified, enhanced or redeveloped. The plan will reflect prevailing ISTC priorities.

38. Complete the development and installation of systems and procedures as identified in the workplan described in initiative 37.

39. In parallel to the above activities, continue work to provide suitable departmental forms in electronic format as a precursor to development of the new administrative systems. Continue also to enhance and maintain existing systems to meet critical needs, focusing on user and systems interfaces.

CONCLUSION

This paper has shown that information and associated technology are critical parts of departmental activities. It has also provided the approach required to exploit these parts. This will support the achievement of ISTC's mission in addressing the challenges of the 90's. ISTC's commitment to the implementation of this information management strategy will, by the mid 90's, result in the Department being recognized for the quality and relevancy of its intelligence and information products. It will also be recognized for its effective and efficient management of information and communications. ISTC will be, in line with its technology mandate, a leading user of proven technology solutions for information management and office automation.

As a subsequent step, the working group developed a costed, multi-year plan for the implementation of the strategy (Annex A). This is needed to ensure that the strategy is implemented as part of the departmental business planning process. The projects and activities initiated as a result of the implementation plan will be reflected, as required, in the annual sector and regional plans and in ISTC's annual Information Management Plan. Another required step is the development of an internal communications plan to ensure that all ISTC staff are made aware of the strategy, the implementation plan and the anticipated impacts. Given strong management commitment, a significant advance in ISTC's use of its information resources will be achieved during the early 90's. This will be done within the context of current departmental resourcing levels. The broad strategy contained in this paper is long term in nature and not expected to change significantly. However, a review will be conducted at the end of two years to determine and implement required adjustments.

ANNEX A

INFORMATION MANAGEMENT STRATEGY

IMPLEMENTATION PLAN

TABLE OF CONTENTS

INTRODUCTION

This annex presents a broad and high-level plan for the implementation of ISTC's Information Management Strategy (IMS). It is an intermediate step between the strategy itself and the many projects and activities which will be required for the next five and a half fiscal years in order for the Department to meet the IMS's strategic objectives. The thirty-nine initiatives identified in the IMS have been grouped into six strategic thrusts; this consolidation will ease the task of guiding and controlling the various projects which will take place during the strategy's implementation.

The document begins by presenting in Figure 1, for the 1990-91 fiscal year, the distribution of ISTC's O&M funds amongst two categories: informatics (non-discretionary and discretionary) and other O&M.

Table 1 shows, for the next five fiscal years, the proposed distribution of the identified discretionary informatics expenditures amongst the six strategic thrusts. It also indicates the source of funding for each thrust. Local initiatives will be funded from within the O&M resources already allocated to Responsibility Centres for the 1990-91, 1991-92 and 1992-93 fiscal years. For centrally-funded initiatives, supplementary resources will be required. Because of their magnitude and complexity, two of the six strategic thrusts are further divided into sub-thrusts, giving a total of eleven broad undertakings. A detailed project sheet is provided for each of the eleven undertakings indicating the objective, outline, expected benefits and proposed resourcing approach.

In the conclusion, the proposed distribution of the total five year's funds between the thrusts is shown by Figure 2.

In addition to this annex, the IMS document has three appendices. Appendix 1 is a cross-reference table showing the thirty-nine initiatices linked to the four strategic objectives. Appendix 2 is a cross-reference table grouping the strategy's thirty-nine initiatives within the Implementation Plan's six strategic thrusts. Appendix 3 contains two tables showing responsibility centre forecasts of informatics expenditures for the 1990-91 fiscal year by major cost category; these tables are taken from ISTC's 1990-91 Information Management Plan (IMP).

IM RESOURCING

The total ISTC non-salary O&M budget for the 1990-91 fiscal year is set at $118.7M. According to the 1990-91 IMP (see Appendix 3), planned informatics expenditures will amount to $22.6M or 19% of this total budget. Figure 1 below gives a further breakdown into discretionary and non-discretionary informatics expenditures.

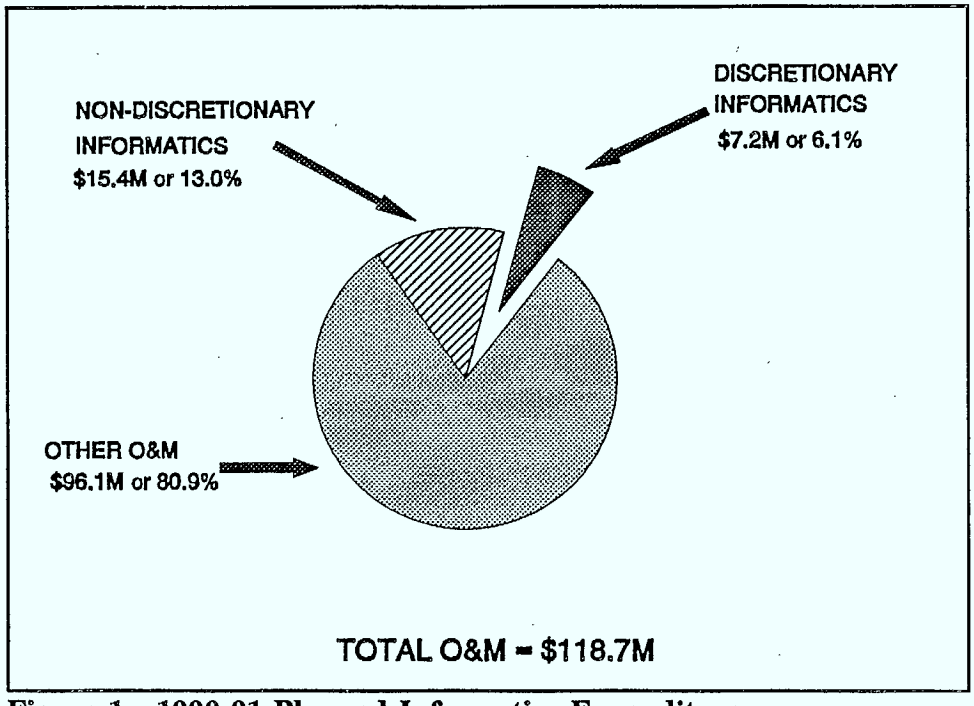

Figure 1 - 1990-91 Planned Informatics Expenditures

The $7.2M discretionary informatics portion (6.1% of O&M) of the IMP constitutes the main source of available funds for the implementation of the strategy. In addition to this amount, approximately $0.8M to $1M per year will be available as a result of savings from the implementation of the new Facilities Management contract. The Department, therefore, has a total of approximately $8M which can be used for the implementation of the IMS.

Table 1 (page 4) indicates for each of the eleven undertakings (ie. thrusts and sub-thrusts), the costs for 1990-91 and the following five fiscal years. For the current fiscal year, the requirements identified ($990K) are for incremental funds which are not presently

allocated and which will be sought as part of the mid-term review. As detailed previously, for fiscal years 1991-92 through 1995-96, the annual proposed expenditures of $8M for IMS implementation are consistent with this fiscal year's IMP forecast expenditures for discretionary items and with trends during the past fiscal years.

DETAILED PROJECT SHEETS

The following pages contain a detailed description of each of the eleven undertakings which, in total, form the Implementation Plan for the IMS. Each description is broken down into four parts: objective, outline, expected benefits and resourcing approach. These descriptions are intended to give senior management and other interested parties a tool by which the implementation of the strategy can be resourced, guided and controled. For each undertaking, there will be many projects and activities which will be required to assure its successful completion.

TABLE 1 - PROPOSED DISCRETIONARY EXPENDITURES
(in millions of dollars)

STRATEGIC THRUSTS	FUNDING	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	TOTAL
1. STRATEGIC INFORMATION PLANNING (Initiatives 1, 2, 3, 19, 22, 34 and 36)	Central	* 0.21	0.30	0.34	0.24	0.19	0.19	1.47
	Local		0.50	0.25	0.15	0.10	0.10	1.10
2. BUILD A SUPPORTIVE CULTURE (Initiatives 6, 7, 9, 17 and 18)	Central		** 0.10	**	**	**	**	** 0.10
3. BEST AVAILABLE TECHNOLOGY AND STRONG TECHNICAL SUPPORT								
3.1 IMPLEMENT OASA (Initiatives 12 and 31)	Central	* 0.56	1.05	1.10	0.90	0.90	1.00	5.51
	Local		1.40	2.55	0.75	0.75		5.45
3.2 UPGRADE TECHNOLOGY (Initiatives 13 and 15)	Local		0.30	1.00	1.46	1.56	2.21	6.53
3.3 ESTABLISH RESEARCH AND PROMOTION UNIT (Initiative 14)	Central		0.10	0.10	0.10	0.10	0.10	0.50
3.4 COMPLY WITH LEGISLATIVE AND CENTRAL AGENCY REQUIREMENTS (Initiative 16)	Central	* 0.24	0.25	0.30	0.50	0.50	0.50	2.29
	Local		0.15	0.20	0.25	0.25	0.25	1.10
4. INFRASTRUCTURE (Initiatives 4 and 5)	Local		0.10	0.10	0.10	0.10	0.10	0.50
5. FLEXIBLE IMPLEMENTATION								
5.1 INTELLIGENCE AND BUSINESS SERVICES (Initiatives 20, 23, 24, 25, 27, 29 and 30)	Local		0.70	1.00	1.35	1.35	1.35	5.75
5.2 ADMINISTRATIVE SYSTEMS (Initiatives 36, 37, 38 and 39)	Local		0.60	0.96	1.00	1.00	1.00	4.56
5.3 FUNDED PROGRAMS (Initiatives 33, 34 and 35)	Local		0.50	0.45	0.40	0.40	0.40	2.15
6. EASY ACCESS TO ISTC INFORMATION (Initiatives 8, 10, 11, 21, 26, 28, 29, and 32)	Central		0.25	0.30	0.35	0.35	0.35	1.60
			0.55	0.50	0.45	0.45	0.45	2.40
TOTALS	Central	* 1.01	2.05	2.14	2.09	2.04	2.14	10.46 + 1.01
	Local		5.95	5.86	5.91	5.96	5.86	29.54
	Total	* 1.01	8.00	8.00	8.00	8.00	8.00	40.00 + 1.01

* 1990-91 only identifies incremental requirements to be requested.

** Resource requirements for Training and Corporate Culture are not shown as these are subjects of separate functional plans.

1. STRATEGIC INFORMATION PLANNING

OBJECTIVE

To complete the development of a corporate Strategic Information Plan (SIP); to expand the level of detail and scope of the corporate plan through functional and organizational SIPs; and to establish a SIP support and maintenance function.

OUTLINE

The initial project will define the comprehensive information, systems and technology requirements of ISTC from a corporate perspective. Subsequent SIP projects will define in more detail the requirements from both functional and organizational perspectives. In each instance a business case approach will ensure that all requirements are justified in terms of contributing to the performance of ISTC business functions. These requirements can then be included and priorized as part of the departmental business planning process. Information Management Branch will provide functional and project management support as well as the required technical infrastructure. Training, marketing and procedure development will be required to assure the effective introduction of this new information planning approach. A sub-committee of Information Management Committee is recommended to direct the project. Management and officers from each sector/region will participate in the SIP process.

EXPECTED BENEFITS

The SIP will establish the framework for corporate level decision making regarding information management investments in support of ISTC mission. The initial project will provide a guide for the coordinated management of change at a corporate level. It will also establish a shared vision of an integrated information management environment which supports ISTC's staff and serves ISTC's clients. Maintenance of the SIP will ensure that on-going changes impacting the ISTC business functions are reflected in the corporate information, systems and technology requirements.

RESOURCING APPROACH

Establish central funding for the corporate SIP and to support and maintain the SIP function; local funding will be used for functional and organizational SIPs.

2. BUILD A SUPPORTIVE CULTURE

OBJECTIVE

To continue to develop an ISTC corporate culture which develops and reinforces the values associated with managing and sharing information; to further increase the ability of staff to utilise information technology; and to ensure that adequate technology support services are provided to ISTC staff.

OUTLINE

The current departmental approach to developing ISTC's corporate culture should be continued. A review of information management and technology-related training requirements is currently underway. It is anticipated that an increased level of funding will be required. A review of the requirements for information management support services will be undertaken.

EXPECTED BENEFITS

ISTC's staff will acquire the values, skills and experience required to implement the future integrated information systems and technology. They will thereby be equipped to work effectively in serving ISTC's clients in this new environment.

RESOURCING APPROACH

Funding associated with corporate development and training were not included in ISTC's Information Management Plan as they were the subjects of separate functional plans. The existing approach to resourcing these requirements is advocated. Funding for the study of support services should be centrally identified.

3. BEST AVAILABLE TECHNOLOGY AND STRONG TECHNICAL SUPPORT

3.1 IMPLEMENT OASA

OBJECTIVE

To complete the implementation of the Office Automation & Systems Architecture (OASA) as approved by the Information Management Committee at its May 10th, 1990 meeting.

OUTLINE

An Implementation Plan has been prepared which provides the framework within which the OASA can be installed in ISTC at Headquarters and in the Regions. The plan defines the overall project and its objectives, associated incremental costs, installation schedule and the roles and responsibilities of the various participants.

EXPECTED BENEFITS

The implementation of the OASA will enable the Department to move into a new era of office computing where all staff can take advantage of the improved productivity and communications that the new technology facilitates. It is a major investment for the Department but, if done in an organized way and monitored by the IMC, it will accomplish its objectives at the least cost with a minimum outlay on integration of dissimilar technologies.

RESOURCING APPROACH

Both central and local funding will be required to implement the related initiatives.

3. BEST AVAILABLE TECHNOLOGY AND STRONG TECHNICAL SUPPORT

3.2 UPGRADE TECHNOLOGY

OBJECTIVE

To ensure that ISTC's employees have access to up-to-date computer/communications facilities and leading edge software products, in context of the approved departmental informatics operating environment.

OUTLINE

Technology facilities (computers, communications equipment and software products of all kinds) are ISTC assets and, like others (such as buildings and equipment) they depreciate over time. The nature of their depreciation however is different - they tend to become quickly obsolete as newer and better facilities become available, unlike other assets whose worth slowly diminishes as they gradually break down or wear out. It is, therefore, necessary to upgrade equipment, software and communications facilities on a continuous basis as funds permit.

EXPECTED BENEFITS

Investment in upgrades to technology-based facilities will provide benefits in the area of productivity improvement and cost reduction.

RESOURCING APPROACH

Local funding will be used for the initiatives related to this thrust. Corporate-wide technology upgrades will be dealt with through the OASA implementation thrust.

3. BEST AVAILABLE TECHNOLOGY AND STRONG TECHNICAL SUPPORT

3.3 ESTABLISH RESEARCH AND PROMOTION UNIT

OBJECTIVE

To ensure that ISTC is able to identify, evaluate and promote technology products that will offer overall productivity gains.

OUTLINE

A Research and Promotion unit is to be established as part of the Information Management Branch. The unit will have the mandate and resources to seek promising information technology to service ISTC. The Strategic Information Plan will provide guidelines regarding the priorities and types of products for research. The sectors and regions will actively contribute to the evaluation of products.

EXPECTED BENEFITS

This initiative, which will establish a corporate knowledge base regarding the information technology products and services, is expected to make a large contribution to overall departmental productivity gains. It will also provide cost effective coordination of research and development initiatives.

RESOURCING APPROACH

Establish central resourcing, including 2 py's, for this initiative.

3. BEST AVAILABLE TECHNOLOGY AND STRONG TECHNICAL SUPPORT

3.4 COMPLY WITH LEGISLATIVE AND CENTRAL AGENCY REQUIREMENTS

OBJECTIVE

To ensure that ISTC's systems and technology provide full bilingual capability and meet security, privacy and information access requirements.

OUTLINE

This activity will include implementation of the security plan prepared in response to the RCMP SEIT inspection. Similar plans are being developed for system bilingualization and information holdings. These will ensure appropriate compliance with the various legislative and central agency requirements relevant to information management. The Information Management Committee will provide direction in those instances where compliance involves departmental discretion.

EXPECTED BENEFITS

The compliance with legislative and central agency requirements will result in information systems and technology consistent with federal government standards. This will ensure: more effective access to information; protection of privacy of information; enhanced security of information resources; and bilingual systems.

RESOURCING APPROACH

Both central and local funding will be required to implement the related initiatives.

4. INFRASTRUCTURE

OBJECTIVE

To provide and effectively operate an infrastructure for information management at ISTC as detailed in the Information Management Policy.

OUTLINE

The successful implementation of the Information Management Strategy depends on the commitment and involvement of all sectors and regions. The ADM-level Information Management Committee has made many gains in guiding the development of the function during the past two years. The Information Management Advisory Committee, which is to hold its first meeting shortly, is seen as a key part of the infrastructure and will facilitate information exchange and consultation between sectors and regions. Other committees, at the sector and functional level are already well established.

EXPECTED BENEFITS

Sectors and regions will continue to participate in developing and promoting a corporate approach to information management.

RESOURCING APPROACH

Retain local funding to provide the resources required for the various committee expenses.

5. FLEXIBLE IMPLEMENTATION

5.1 INTELLIGENCE AND BUSINESS SERVICES

OBJECTIVE

To develop the systems and technology required to support the departmental client services, advocacy, policy, promotion and intelligence business functions.

OUTLINE

The SIPs conducted as part of Thrust 1 will identify the needs of the intelligence and client services functions. This will identify the range of required applications and place them in a corporate context. It is expected that this will be followed by the development of systems to meet these requirements.

In the short term there are requirements for information systems to be developed which support the planning, delivery, monitoring and evaluation of specific service products; and which maintain records and status of advocacy issues and related information. A requirement to develop a departmental planning and activity management system should be among the short term initiatives considered.

There are also a number of current initiatives to be completed, including a network of electronically stored and shared information on ISTC clients; identification of ISTC and other information products which could be directly delivered to clients using information technology.

EXPECTED BENEFITS

The approach outlined will reduce duplication and information costs. It will also ensure that information needs are fully reviewed and that automated systems will be suitable for the work environment. The short term initiatives will provide valuable relief to current operational demands. They can also provide valuable information for the definition and design of the long term support systems.

RESOURCING APPROACH

Priorization and resourcing of these development proposals should remain a part of the departmental business planning process.

5. FLEXIBLE IMPLEMENTATION

5.2 ADMINISTRATIVE SYSTEMS

OBJECTIVE

To develop the systems and technology required to support the departmental administrative support business function.

OUTLINE

The SIPs conducted as part of Thrust 1 will identify the needs of the administrative support sub-functions and the opportunities for productivity gains via process simplification. This will identify the range of required applications and place them in a corporate context.

The SIPs will also ensure that the requirements for administrative systems which support program delivery are reviewed and will determine the level of integration required with program delivery systems.

The SIP process will be followed by systems development and implementation projects. In the short term, activities to simplify processes and to provide forms, administrative directives, etc. in electronic format will continue. These activities will continue to provide valuable information for the definition and design of the long term support systems. There will also be a need to enhance and maintain existing systems to meet critical needs while the SIP and subsequent development processes are being completed.

EXPECTED BENEFITS

These projects will result in streamlined support systems which simplify administrative processes and meet the information and support requirements of each ISTC business function.

RESOURCING APPROACH

Priorization and resourcing of these development proposals should remain a part of the departmental business planning process.

5. FLEXIBLE IMPLEMENTATION

5.3 FUNDED PROGRAMS

OBJECTIVE

To develop the systems and technology required to support the departmental funded programs business function.

OUTLINE

The SIP conducted as part of Thrust 1 will identify the requirements for information systems and technology which support the delivery of existing and new funded programs. The SIP will identify the range of required applications and place them in a corporate context. This will be followed by systems development and implementation projects.

It is possible that the SIP will recommend the revamping of the PRISM system. A study will be conducted in parallel to the SIP process to evaluate the approach piloted in the Strategic Technologies Program for its suitability as a model of the long term solution. A study will also be required to determine means of providing continued access to historical information.

EXPECTED BENEFITS

These projects will result in support systems which are fully integrated with the delivery of funded programs. Accordingly, there will be productivity improvements and more effective services to ISTC's clients.

RESOURCING APPROACH

Priorization and resourcing of these development proposals should remain a part of the departmental business planning process.

6. EASY ACCESS TO ISTC INFORMATION

OBJECTIVE

To undertake projects that lead to improved ability to easily identify and access ISTC's information holdings.

OUTLINE

A project to identify and analyze the existing information directories and indexes will be undertaken. This project will seek ways to build links between these with a view to providing all staff with improved ability to locate information. The existing pilots for directories will be reviewed as will technological options for providing information in electronic format to both ISTC's staff and its clients. The identification of electronically available products, already underway in the Entrepreneurship and Small Business Office, will serve as an input to these projects.

An important element of this thrust will be to pilot the use of text retrieval technology. Pilot projects that will lead to the development of the required "electronic libraries" should be initiated. Suggested pilot applications include: directories; briefing books; question cards; opposition day materials and speeches. It will be important to establish software and subject classification standards for these pilots that will ensure departmental compatibility.

Another important element of this thrust will be to pilot the use of decision support software. The SIP activities will be key in defining the information requirements for each function. Decision support software packages could greatly improve the means for senior managers to access the required information.

EXPECTED BENEFITS

Provision of a map to show the location of ISTC's information sources will greatly reduce duplication of efforts in researching, developing and delivering products and services. The development of standardized text data bases that provide controlled direct access to selected information by ISTC staff or by clients will increase both effectiveness and productivity. The introduction of decision support tools will similarly assist departmental management.

RESOURCING APPROACH

Establish central funding for these initiatives.

CONCLUSION

Figure 2 below summarizes the proposed distribution of the total five year's discretionary informatics funds amongst five of the strategy's six thrusts. The sixth thrust, "Build a Supportive Culture", is not included since most of the related funding is for training and for corporate development and is included under separate functional plans.

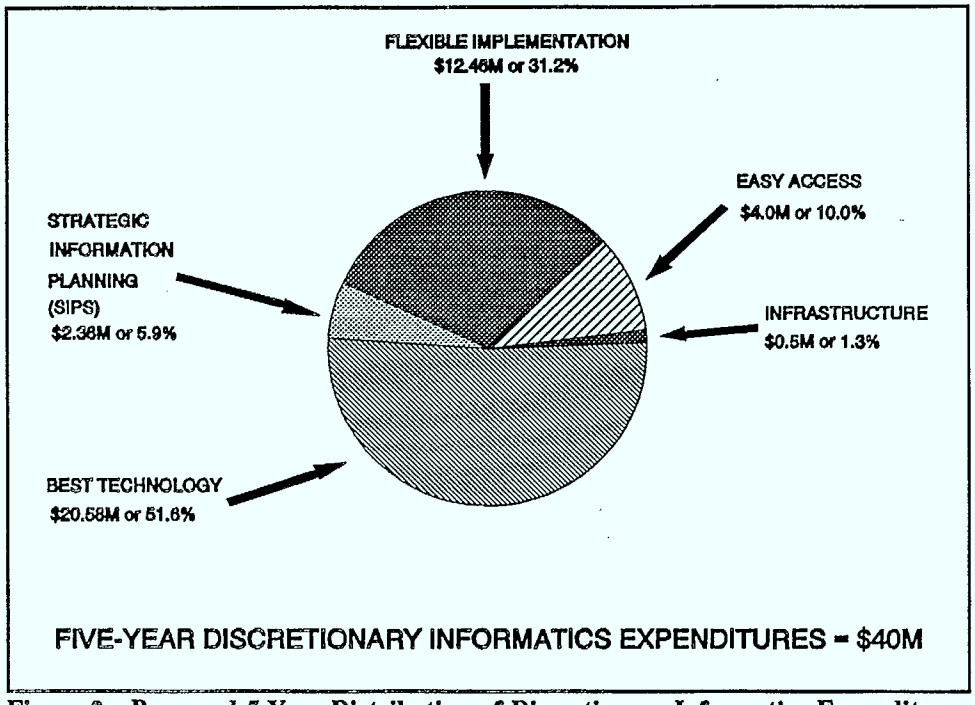

Figure 2 - Proposed 5 Year Distribution of Discretionary Informatics Expenditures

For some of the undertakings, the Implementation Plan proposes that central funding be established as the funding arrangement. This will require that a relatively small percentage of the Department's O&M allocation be set aside and used specifically for IMS implementation.

While the proposed annual allocation of $8M is sufficient to manage the implementation of the strategy, additional funds would allow the Department to increase the rate at which some of the activities are carried out. These are access to ISTC information (management of information holdings), technology upgrades (continuous replacement of obsolete software and equipment) and complying with central agency requirements (security and bilingualization).

STRATEGIC OBJECTIVES

A. - Increase ISTC's effectiveness in meeting the needs of its clients and partners;
B. - Improve ISTC's ability to access and share information;
C. - Achieve productivity gains; and
D. - Enhance ISTC's ability to manage its resources.

INITIATIVES

Strategic Information Planning - Objective D + A,B,C

1. Complete the top corporate level of the plan down to a level where ISTC's major information subjects and systems are defined. This top level portion of the plan will set a departmental framework which individual studies will extend.

2. Focus on horizontal projects to expand the plan in priority areas. Examples include the company information study now underway and others described in initiatives 23, 34 and 36 following.

3. Support requests for strategic information planning studies from individual organizational units at various levels by providing appropriate funding. Continue to require the use of the strategic information planning techniques as part of the feasibility studies for systems development. These activities will add vertical parts of the plan.

See also initiatives 4, 5, 19 and 22 which relate to strategic information planning.

Information Management Infrastructure - Objective D + A,B,C

4. Complete the implementation of the infrastructure detailed in the information management policy. This infrastructure will play a key role in the strategic information planning process, described in initiatives 1 to 3, and the subsequent priorization, initiation and approval of related activities. The infrastructure should be reviewed after two years.

5. Ensure that all major studies and development projects are steered by multi-functional sub-committees. This will ensure that requirements from all ISTC functions and organizations are addressed.

Corporate Culture and Training - Objective B + A,C,D

6. Continue to mandate and resource organizations to promote required changes and to develop ISTC's corporate culture. Examine and forecast the impact of technological changes on ISTC employees. Select pilot areas to carry out work analysis on duties and procedures that have, or could, change for the benefit of both ISTC and its employees. The analysis would clarify roles and responsibilities and would identify requirements for education, training and support. The pilot areas would use the results of this analysis to develop working ISTC models. All activities should be steered by a committee which would include employees, union representatives, managers as well as human resources and technical specialists.

7. Complete the review of current information management and technology-management training and increase the levels of funding as appropriate. Improve linkage between courses offered and information activities

being undertaken. Promote the development and presentation of courses for managers and staff on the techniques and benefits associated with managing and sharing information.

8. Continue to support pilot projects, such as the improvement, publication and automation of directories, which evaluate and demonstrate mechanisms for improving information sharing and access. See initiatives 10, 11, 20, 21, 26, 28 and 32 for examples of such projects.

9. Support employee initiatives to prototype promising new applications using the installed departmental information technology. Ensure that a clearinghouse of existing applications is available to avoid duplication of effort. See also initiative 23 regarding sponsoring new applications.

Access to Information Holdings - Objective B + A,C,D

10. Identify existing information directories and indexes used for the different types of ISTC's information holdings (library, records, databases, etc.). Review the security classifications and access schemes used in these directories and indexes. Investigate the means of building links between them to improve access to the information contents. See also initiative 26 regarding directories for clients.

11. Build and test a simple-to-use electronic library, designed to meet business, rather than administrative, needs. This will expand the automated directories into a text storage and retrieval system for selected documents and classes of information. See also initiatives 29 and 32 regarding electronic information products.

Technology - Objective - all

12. Complete all remaining microcomputer and local area network installations. This will establish the key part of the recently approved office automation and systems architecture. Complete other activities, such as improving the corporate backbone network, required to complete the architecture. See initiative 31 regarding technology acquisitions for Policy and Science sectors.

13. Upgrade equipment, software and communications facilities on a continuous basis as funds permit. Establish central funding for corporate-wide upgrades and retain local funding for the remainder. Maintain standards for end user procurement of informatics products.

14. Set up a research and promotion unit with a mandate to seek promising technology products and to promote their use in the Department. The unit, which will work closely with users to ensure live evaluations of appropriate products, will require adequate resourcing. Such a unit is expected to more than pay for itself through overall productivity gains in the Department.

15. Seek ways to consolidate the current range of large computers providing the corporate computing level. The implementation of the office automation and systems architecture, the redevelopment of corporate systems and increased drive for information sharing will assist in achieving this goal.

Security, Bilingualization and Privacy - Objective - all

16. Dedicate a significant annual budget to meeting security requirements such as those identified by the RCMP's Security Evaluation and Inspection Team report, those arising from new technology applications such as electronic data interchange and those needed for compliance to the Privacy Act and the Access to

Information Act. Ensure that all approved systems development and technology acquisition projects are resourced to include full bilingual capability and also to meet security and privacy requirements.

Support Services - Objective - all

17. Encourage responsibility centre managers to dedicate more of their resources to the provision of local support services.

18. Undertake a review of the central services required from the various organizations providing information management support. Where appropriate, organizations should be designated as centres of expertise for one or more types of information technology. Review the classification requirements for decentralized support staff and also for staff performing the business analyst functions.

19. Ensure that information management planning is fully integrated with departmental business planning and that funding for information management activities can be directed to the priority areas. See initiatives 1 to 3 regarding strategic information planning.

Decision Support - Objective D + A,B,C

20. Initiate the development of an ISTC planning and activity management system and a departmental electronic briefing book. See initiative 28 regarding development of electronic briefing book.

21. Prototype the use of decision support software packages to deliver the required information. Implement the resulting systems progressively.

22. Ensure that managers' information requirements are defined as part of the strategic information planning activities referenced in initiatives 1, 2, 3, 23, 34 and 36.

Intelligence - Objective A + B,C,D

23. Begin the process of strategic information planning, described earlier in initiatives 1 to 3, to fully identify and address information needs. Start by identifying the information needs of the basic business processes in the client services, advocacy, policy and promotion functions and from these the Intelligence function. The planning will be followed by the development of prototype systems for the most critical areas of need - probably advocacy and external client services. Since there will be many common information needs, these planning activities must be coordinated.

24. Continue to make short term improvements in the management of ISTC's intelligence by undertaking the activities described in the following client services, advocacy and policy initiatives 25 to 32.

Client Services - Objective A + B,C,D

25. Develop systems to help manage the business services being implemented nationally on an ongoing basis. These systems are needed to support planning, delivery, monitoring and evaluation of specific service products. This is a priority need. See also initiatives 36 to 39 regarding the administrative business function.

26. Complete work to develop electronic, as well as published, catalogues and indices of ISTC information products, expertise, and programs and services. Where appropriate, offer our external clients direct electronic access to ISTC information. See initiative 10 regarding directories.

27. Complete development of a network of electronically stored and shared information on ISTC clients. This should begin with information on company clients and then be expanded to include associations and other clients.

28. Undertake a project to develop information scanning and retrieval systems to support the preparation of ministerial briefings, question cards, opposition day materials and speeches. Suitable software packages are already available in the private sector. See initiative 20 regarding decision support.

29. Complete the project undertaken by the Entrepreneurship and Small Business Office to identify ISTC and other information products which could be made available electronically to private sector clients and service partners subject to the requirements of the Privacy Act and the Access to Information Act. See initiative 11 regarding electronic library.

Advocacy - Objective A + B,C,D

30. Develop systems to maintain records and status of advocacy issues, positions of ISTC, its partners and other key players. The system developed by Tourism Canada should be examined as a possible model.

Policy - Objective A + B,C,D

31. Give high priority to the installation of workstations and networks that meet the Office Automation and Systems Architecture (OASA) requirements in the Policy and Science sectors. See initiative 12 regarding technology installation.

32. Pilot the development of text data bases, using a standard software product and standard subject classifications, that can be used to build local electronic libraries that aid the sharing of information within these sectors. Investigate means of providing controlled access to staff in other sectors or regional offices. Evaluate these pilots and introduce to other ISTC organizations as required. See initiative 11 regarding electronic library.

Funded Programs - Objective C + A,B,D

33. Evaluate the architecture piloted for the Strategic Technologies Program for its suitability for the new corporate systems. In this architecture, the supporting system is highly decentralized, geared to provide operational support and yet works with the central mainframe computer to assure the continued integrity of data and information. Some of the data is maintained in the corporate data base to permit reporting and information sharing at the corporate level. All of the data is available at the local computing level. See initiatives 36 to 39 regarding administrative systems.

34. Undertake a strategic information planning study, described in initiatives 1 to 3, to document administrative and program delivery processes. This will identify the means to improve integration with other systems supporting the administrative processes associated with program delivery. See also initiatives 36 to 39 regarding administrative systems.

35. Conduct a review of PRISM to determine the feasibility of modifying that system for the purpose of adopting a decentralized approach to capturing program data related to the evaluation and contracting processes at the local level. Other components of PRISM involving the processing of claims and the monitoring of benefits would remain intact.

Administering the Department - Objective C + A,B,D

36. Undertake strategic information planning, described in initiatives 1 to 3, as a prerequisite to individual systems development. This will identify the means for streamlining the many activities performed within all of the departmental administrative functions, including the communications function. This top-down planning will include the administrative processes and information requirements associated with services and funded program delivery as well as other decision support needs. The planning will also address processes associated with the creative production of departmental documents and publications. This undertaking will identify the inter-relationships between the various associated computer systems and manual processes. It will also identify the organizational and system implications that will accompany streamlining. See also initiatives 22, 23, 25, 33 and 34.

37. Complete a costed, time-phased workplan that will detail the specific administrative systems and manual processes to be modified, enhanced or redeveloped. The plan will reflect prevailing ISTC priorities.

38. Complete the development and installation of systems and procedures as identified in the workplan described in initiative 37.

39. In parallel to the above activities, continue work to provide suitable departmental forms in electronic format as a precursor to development of the new administrative systems. Continue also to enhance and maintain existing systems to meet critical needs, focusing on user and systems interfaces.

Thrust 1 - Strategic Information Planning

1. Complete the top corporate level of the plan down to a level where ISTC's major information subjects and systems are defined. This top level portion of the plan will set a departmental framework which individual studies will extend.

2. Focus on horizontal projects to expand the plan in priority areas. Examples include the company information study now underway and others described in initiatives 23, 34 and 36 following.

3. Support requests for strategic information planning studies from individual organizational units at various levels by providing appropriate funding. Continue to require the use of the strategic information planning techniques as part of the feasibility studies for systems development. These activities will add vertical parts of the plan.

19. Ensure that information management planning is fully integrated with departmental business planning and that funding for information management activities can be directed to the priority areas. See initiatives 1 to 3 regarding strategic information planning.

22. Ensure that managers' information requirements are defined as part of the strategic information planning activities referenced in initiatives 1, 2, 3, 23, 34 and 36.

34. Undertake a strategic information planning study, described in initiatives 1 to 3, to document administrative and program delivery processes. This will identify the means to improve integration with other systems supporting the administrative processes associated with program delivery. See also initiatives 36 to 39 regarding administrative systems.

36. Undertake strategic information planning, described in initiatives 1 to 3, as a prerequisite to individual systems development. This will identify the means for streamlining the many activities performed within all of the departmental administrative functions, including the communications function. This top-down planning will include the administrative processes and information requirements associated with services and funded program delivery as well as other decision support needs. The planning will also address processes associated with the creative production of departmental documents and publications. This undertaking will identify the inter-relationships between the various associated computer systems and manual processes. It will also identify the organizational and system implications that will accompany streamlining. See also initiatives 22, 23, 25, 33 and 34.

Thrust 2 - Build a Supportive Culture

6. Continue to mandate and resource organizations to promote required changes and to develop ISTC's corporate culture. Examine and forecast the impact of technological changes on ISTC employees. Select pilot areas to carry out work analysis on duties and procedures that have, or could, change for the benefit of both ISTC and its employees. The analysis would clarify roles and responsibilities and would identify requirements for education, training and support. The pilot areas would use the results of this analysis to develop working ISTC models. All activities should be steered by a committee which would include employees, union representatives, managers as well as human resources and technical specialists.

7. Complete the review of current information management and technology-management training and increase the levels of funding as appropriate. Improve linkage between courses offered and information activities

being undertaken. Promote the development and presentation of courses for managers and staff on the techniques and benefits associated with managing and sharing information.

9. Support employee initiatives to prototype promising new applications using the installed departmental information technology. Ensure that a clearinghouse of existing applications is available to avoid duplication of effort. See also initiative 23 regarding sponsoring new applications.

17. Encourage responsibility centre managers to dedicate more of their resources to the provision of local support services.

18. Undertake a review of the central services required from the various organizations providing information management support. Where appropriate, organizations should be designated as centres of expertise for one or more types of information technology. Review the classification requirements for decentralized support staff and also for staff performing the business analyst functions.

Thrust 3 - Best Available Technology and Strong Technical Support

12. Complete all remaining microcomputer and local area network installations. This will establish the key part of the recently approved office automation and systems architecture. Complete other activities, such as improving the corporate backbone network, required to complete the architecture. See initiative 31 regarding technology acquisitions for Policy and Science sectors.

13. Upgrade equipment, software and communications facilities on a continuous basis as funds permit. Establish central funding for corporate-wide upgrades and retain local funding for the remainder. Maintain standards for end user procurement of informatics products.

14. Set up a research and promotion unit with a mandate to seek promising technology products and to promote their use in the Department. The unit, which will work closely with users to ensure live evaluations of appropriate products, will require adequate resourcing. Such a unit is expected to more than pay for itself through overall productivity gains in the Department.

15. Seek ways to consolidate the current range of large computers providing the corporate computing level. The implementation of the office automation and systems architecture, the redevelopment of corporate systems and increased drive for information sharing will assist in achieving this goal.

16. Dedicate a significant annual budget to meeting security requirements such as those identified by the RCMP's Security Evaluation and Inspection Team report, those arising from new technology applications such as electronic data interchange and those needed for compliance to the Privacy Act and the Access to Information Act. Ensure that all approved systems development and technology acquisition projects are resourced to include full bilingual capability and also to meet security and privacy requirements.

31. Give high priority to the installation of workstations and networks that meet the Office Automation and Systems Architecture (OASA) requirements in the Policy and Science sectors. See initiative 12 regarding technology installation.

Thrust 4 - Infrastructure

4. Complete the implementation of the infrastructure detailed in the information management policy. This infrastructure will play a key role in the strategic information planning process, described in initiatives 1 to 3, and the subsequent priorization, initiation and approval of related activities. The infrastructure should be reviewed after two years.

5. Ensure that all major studies and development projects are steered by multi-functional sub-committees. This will ensure that requirements from all ISTC functions and organizations are addressed.

Thrust 5 - Flexible Implementation

20. Initiate the development of an ISTC planning and activity management system and a departmental electronic briefing book. See initiative 28 regarding development of electronic briefing book.

23. Begin the process of strategic information planning, described earlier in initiatives 1 to 3, to fully identify and address information needs. Start by identifying the information needs of the basic business processes in the client services, advocacy, policy and promotion functions and from these the Intelligence function. The planning will be followed by the development of prototype systems for the most critical areas of need - probably advocacy and external client services. Since there will be many common information needs, these planning activities must be coordinated.

24. Continue to make short term improvements in the management of ISTC's intelligence by undertaking the activities described in the following client services, advocacy and policy initiatives 25 to 32.

25. Develop systems to help manage the business services being implemented nationally on an ongoing basis. These systems are needed to support planning, delivery, monitoring and evaluation of specific service products. This is a priority need. See also initiatives 36 to 39 regarding the administrative business function.

27. Complete development of a network of electronically stored and shared information on ISTC clients. This should begin with information on company clients and then be expanded to include associations and other clients.

29. Complete the project undertaken by the Entrepreneurship and Small Business Office to identify ISTC and other information products which could be made available electronically to private sector clients and service partners subject to the requirements of the Privacy Act and the Access to Information Act. See initiative 11 regarding electronic library.

30. Develop systems to maintain records and status of advocacy issues, positions of ISTC, its partners and other key players. The system developed by Tourism Canada should be examined as a possible model.

33. Evaluate the architecture piloted for the Strategic Technologies Program for its suitability for the new corporate systems. In this architecture, the supporting system is highly decentralized, geared to provide operational support and yet works with the central mainframe computer to assure the continued integrity of data and information. Some of the data is maintained in the corporate data base to permit reporting and information sharing at the corporate level. All of the data is available at the local computing level. See initiatives 36 to 39 regarding administrative systems.

34. Undertake a strategic information planning study, described in initiatives 1 to 3, to document administrative and program delivery processes. This will identify the means to improve integration with other systems supporting the administrative processes associated with program delivery. See also initiatives 36 to 39 regarding administrative systems.

35. Conduct a review of PRISM to determine the feasibility of modifying that system for the purpose of adopting a decentralized approach to capturing program data related to the evaluation and contracting processes at the local level. Other components of PRISM involving the processing of claims and the monitoring of benefits would remain intact.

36. Undertake strategic information planning, described in initiatives 1 to 3, as a prerequisite to individual systems development. This will identify the means for streamlining the many activities performed within all of the departmental administrative functions, including the communications function. This top-down planning will include the administrative processes and information requirements associated with services and funded program delivery as well as other decision support needs. The planning will also address processes associated with the creative production of departmental documents and publications. This undertaking will identify the inter-relationships between the various associated computer systems and manual processes. It will also identify the organizational and system implications that will accompany streamlining. See also initiatives 22, 23, 25, 33 and 34.

37. Complete a costed, time-phased workplan that will detail the specific administrative systems and manual processes to be modified, enhanced or redeveloped. The plan will reflect prevailing ISTC priorities.

38. Complete the development and installation of systems and procedures as identified in the workplan described in initiative 37.

39. In parallel to the above activities, continue work to provide suitable departmental forms in electronic format as a precursor to development of the new administrative systems. Continue also to enhance and maintain existing systems to meet critical needs, focusing on user and systems interfaces.

Thrust 6 - Easy Access to ISTC Information

8. Continue to support pilot projects, such as the improvement, publication and automation of directories, which evaluate and demonstrate mechanisms for improving information sharing and access. See initiatives 10, 11, 20, 21, 26, 28 and 32 for examples of such projects.

10. Identify existing information directories and indexes used for the different types of ISTC's information holdings (library, records, databases, etc.). Review the security classifications and access schemes used in these directories and indexes. Investigate the means of building links between them to improve access to the information contents. See also initiative 26 regarding directories for clients.

11. Build and test a simple-to-use electronic library, designed to meet business, rather than administrative, needs. This will expand the automated directories into a text storage and retrieval system for selected documents and classes of information. See also initiatives 29 and 32 regarding electronic information products.

21. Prototype the use of decision support software packages to deliver the required information. Implement the resulting systems progressively.

26. Complete work to develop electronic, as well as published, catalogues and indices of ISTC information products, expertise, and programs and services. Where appropriate, offer our external clients direct electronic access to ISTC information. See initiative 10 regarding directories.

28. Undertake a project to develop information scanning and retrieval systems to support the preparation of ministerial briefings, question cards, opposition day materials and speeches. Suitable software packages are already available in the private sector. See initiative 20 regarding decision support.

29. Complete the project undertaken by the Entrepreneurship and Small Business Office to identify ISTC and other information products which could be made available electronically to private sector clients and service partners subject to the requirements of the Privacy Act and the Access to Information Act. See initiative 11 regarding electronic library.

32. Pilot the development of text data bases, using a standard software product and standard subject classifications, that can be used to build local electronic libraries that aid the sharing of information within these sectors. Investigate means of providing controlled access to staff in other sectors or regional offices. Evaluate these pilots and introduce to other ISTC organizations as required. See initiative 11 regarding electronic library.

TABLE 1 - FORECAST OF INFORMATICS EXPENDITURES BY MAJOR COST CATEGORY		
COST CATEGORY	DEVELOPMENT & ENHANCEMENT	OPERATIONS & MAINTENANCE
Hardware and software acquisition	4,090,510	1,858,600
Consultants	2,828,600	8,889,200
Equipment Rentals	7,000	1,727,900
Communication costs	11,000	940,075
Processing charges	6,200	11,000
Subscriptions to external data bases	29,000	570,630
Other	176,000	1,407,925
TOTAL	7,148,310	15,405,330
INFORMATICS FUNCTIONAL PLAN TOTAL:	22,553,640	

TABLE 2 - FORECAST EXPENDITURES BY SECTOR/REGION AND BY COST/CATEGORY						
SECTOR/REGION	HARDWARE/ SOFTWARE ACQUISITION	EQUIPMENT RENTALS	PROCESSING AND COMMUNIC.	CONSULTANT COSTS	SUBSCRIP-TIONS AND OTHER COSTS	TOTAL
Deputy Minister & Associate DM	16,300			10,000		26,300
Industry and Technology	2,609,610	10,000	18,000	1,867,700	384,425	4,889,735
Policy	287,000	2,000	2,500	114,100	165,000	570,600
Science	99,000	15,000	325	90,000		204,325
Operations	271,000	13,000	30,000	2,268,000	120,500	2,702,500
Tourism	150,000		15,000	58,000	23,000	246,000
Aboriginal Economic Programs	277,300	41,000	12,500	563,500		894,300
Finance, Personnel and Administration	859,650	1,368,800	727,200	6,204,500	1,042,200	10,202,350*
Legal Services	6,000			14,000	5,000	25,000
Communications	101,000			15,000	75,000	191,000
Operations Audit	10,000			15,000	2,000	27,000
Corporate Secretary	91,800			25,000		116,800
Newfoundland	16,000		22,000	55,000	9,000	102,000
Prince Edward Island	1,000		4,000			5,000
Nova Scotia	50,000	16,000	2,000	20,000	2,000	90,000
New Brunswick	23,000	2,000				25,000
Quebec	175,000	30,000	15,000	35,000	70,000	325,000
Ontario	137,800	60,000	9,000	35,000	73,000	314,800
Manitoba	19,000	24,000	6,000	10,000	22,000	81,000
Saskatchewan, Yukon and NWT	59,000	22,000	15,000	6,000	38,000	140,000
Alberta	40,000	13,600	50,000	2,000	18,230	123,830
British Columbia	40,000	33,000		10,000	42,000	125,000
Regional Development, Quebec	565,000	60,000	35,000	300,000	80,000	1,040,000
Regional Development, Ontario	44,650	24,500	4,750		12,200	86,100
DEPARTMENT TOTAL	5,949,110	1,734,900	968,275	11,717,800	2,183,555	22,553,640

* includes $7.85M for the provision of ISTC's central computing facilities as well as for the support of RAMS, the Establishment System and the data management facilities (see section 15 of the 1990-91 Information Management Plan for more detail).