Information Management in the Government of Canada

- A Situation Analysis –

For

The Chief Information Officer, Treasury Board Secretariat

and The National Archivist

By

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Table of Contents

Background Reports

The following background reports (i.e. expansions of each of the chapters of the report) are available from the Chief Information Officer Branch, Treasury Board Secretariat:

"Concepts
"Issues
"Recommendations

Information Management in the Government of Canada

- A Situation Analysis –

Preface

At no other time in the Government of Canada's history has information management been as important as it is today. As it enters the new millennium, the Government is implementing plans to connect Canadians to all government information and services by the Year 2004. Central to the success of these plans is Government's capacity to manage that information. The stakes are high. Citizens will expect their government to manage the information they provide in a trustworthy environment. Public servants will expect an infrastructure of policies, standards and practices, systems and qualified people to be in place to help them manage the information they need to support program and service delivery and, above all, to hold themselves accountable. Government is in the information business and the extent to which it manages information effectively will mark the extent to which it continues to be a responsive and responsible government within a democratic society. As government programs and services are increasingly delivered electronically, however, the government's ability to manage its information will be challenged significantly. This report and the three supporting background papers ("Issues", "Concepts", "Recommendations") are designed to help government orient itself to meet this challenge.

The author would like to thank all of those who participated in the consultation sessions associated with this initiative. The valuable comments and observations, often expressed with deep conviction and concern, reflected the seriousness with which IM issues are being considered by various communities across the government. Thanks also to the Chief Information Officer, the Deputy Chief Information Officer, the National Archivist, and the Assistant National Archivist for their leadership in launching this initiative, and to Ian Sinclair, Director of Information Policy at the Chief Information Officer Branch (CIOB), for his guidance and support throughout the project. The Advisory Committee for this initiative, co-chaired by the Deputy CIO and the Assistant National Archivist, provided excellent guidance and much valuable input to the final product. The author also thanks Paul Sabourin, information analyst at the National Archives, for recording and compiling the wealth of comments and observations expressed during the numerous consultations. The contributions of Jens Laursen of Inkron Inc., while under contract with the CIOB, are also gratefully acknowledged and appreciated

This report of the IM Initiative did not emerge from a vacuum. The contents of the report as well as the recommendations benefited considerably from the dedicated efforts of a relatively small group of individuals who, over many years, have believed strongly in the role and importance of information management. To these individuals and the knowledge and experience they have contributed to the field of information management (and which was drawn upon to help prepare the report), the author is especially grateful.

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Information Management in the Government of Canada

- A Situation Analysis –

Executive Summary

1.   Background

In the Speech from the Throne, the government announced that it would connect Canadians to all government information and services by the Year 2004. In such an emerging environment, featuring a range of recording media, from paper to electronic, government information must be current, accurate, understandable, trustworthy, and available in a timely manner. In establishing the initial IM/IT infrastructure to support Government On-line, the Treasury Board Secretariat (TBS) recognized that the ongoing quality and integrity of the government's information infrastructure would have to be addressed. Related concerns about the information infrastructure across government and within individual government institutions were raised by the heads of Information Technology (IT) and other senior officials such as the National Archivist and the Information Commissioner.

Based on these concerns, the TBS raised three questions:

–   What is IM in the context of government program/service delivery and accountability?

–   What are the IM issues and how do they relate to one another?

–   What should TBS, lead agencies, government institutions and others be doing to address the IM issues?

These questions were addressed through an assessment study jointly sponsored by the TBS and the National Archives. The work, which was guided by a director general-level advisory committee co-chaired by the Deputy CIO and the Assistant National Archivist, was based on extensive consultation across government. Three background papers were developed as a result of the consultation. A draft of the report describing a proposed IM landscape, the IM issues, and proposed recommendations was reviewed by the Advisory Committee in March and a final draft was given to the Chief Information Officer and the National Archivist in April, 2000.

2.   The IM Landscape

Information is the fuel driving government programs and services. In Canada's knowledge-based society the quality, integrity and ongoing accessibility of information, including that produced in the public sector, is crucial. As the government moves towards the electronic web-enabled delivery of its programs and services significant opportunities will emerge to enhance the ability of Canadians to access government information and move beyond traditional ways of locating, accessing, and retrieving government information. Innovative approaches to ensuring the authenticity, integrity, and reliability of information, especially personal information, for as long

as the information is required are also possible but only if "out-of-the-box" thinking is used to fully lever what the emerging technologies have to offer. To make this vision a reality, government will have to create a culture across the public service which values information and the role it plays in supporting a citizen-state interaction founded on trust and respect.

In an increasingly electronic environment, however, the ability of the government to create, use and preserve information effectively to support decision-making, program/service delivery, and accountability is being challenged. Getting the right information (regardless of its physical form) to the right person or persons, at the right time, in the right form and format, at a reasonable cost is a generally accepted principle that is becoming difficult to operationalize.

The challenge to government is in articulating the IM issues and recommendations such that they can be understood within a relevant and clearly understood context. An Information Management Infrastructure is described in the Report to give expression to that context. The infrastructure is based on a citizen-centered business view of government where it is recognized that the products of government programs and activities (as generated through defined business processes) are nearly always in the form of information which itself may be recorded in a variety of physical forms - from paper (e.g. a licence) to electronic (e.g. the results of statistical analysis reported on a computer screen). According to the proposed infrastructure, three types of activities are performed on information regardless of its physical form - "creation", "use", and "preservation", each of which (and in combination) is supported by an infrastructure of laws and policies, standards and practices, systems, and people encapsulated within a framework of enhanced awareness and assigned accountability.

3. The IM Issues

During the consultation process, it was acknowledged that numerous examples could be found across government of the effective application of information management principles and practices. Those officials managing health information, natural resources information, the sensitive personal information associated with licensing and social benefits programs, and other programs where the successful delivery of the program is dependent entirely on the existence of a high quality information management infrastructure, recognize the central role information plays in the success of their programs. The ability of the government to deliver information based programs and services on a daily basis in an effective and efficient manner is a measure of the extent to which the government has been able to address challenges such as those presented by new technologies, increasingly complex client demands, and emerging priorities such as Government On-Line.

Nevertheless, consultation participants identified a number of issues the resolution of which they felt would be necessary if government programs and services were to continue to be delivered in an effective and efficient manner. These issues are organized according to the proposed IM Infrastructure.

3.1 Awareness/understanding

− A generally accepted vocabulary for IM appears to be absent;

− There is a general lack of awareness by public servants of their role in serving as stewards of information;

− There is a general lack of appreciation for the relevance of information created in the recent past;

− The requirements of the Canadian public in accessing the range of government information have yet to be fully identified;

− There is an inconsistent level of awareness by public servants of the existing policy and legal structure governing government information;

− The roles and responsibilities of the National Library and the National Archives could be better positioned with respect to supporting the management of published and unpublished government information.

3.2 Accountability

− The accountability framework for information management is weak compared to other accountability frameworks such as personnel and finance:

− Overall accountability for IM within government institutions is fragmented and scattered among IM jurisdictions such as records management and library services as well as program and service delivery services;

− The efforts of IM committees and groups could be better co-ordinated and focused;

− Central and lead agency responsibilities for IM need to be better positioned to address IM challenges presented by the emerging electronic environment, Government On-Line, etc., as well as information in more traditional formats.

3.3 Infrastructure

− **Policy:** The government's primary information policy on the management of government information holdings as well as the IM policies of individual government institutions need to be updated and strengthened;

− **Information Creation:** Public servants lack the criteria for helping them determine what information needs to be created to support or document what they are doing; systems design methods often lack an IM component for helping users identify and define their information requirements;

− **Information Use:** Information standards and information navigation tools, especially at the government-wide level have yet to be established; existing classification

schemes and standards and tools for describing information may be inadequate; public servants and the Canadian public are experiencing difficulty accessing and retrieving government information which exists in multiple forms and formats; the relevancy, currency and trustworthiness of documents may be at risk because of the difficulty in tracking multiple versions; there are barriers to greater public use of some existing infrastructure such as the National Library's AMICUS database that includes federal government publications in all formats;

- **Information Preservation:** Standards and practices for managing the authenticity and reliability of electronic information through time appear to be lacking; the costs of preserving information through time may not be reflected adequately in the overall costs of systems;

- **Systems:** information management functionality is not being incorporated into the design of systems to the extent required; the integration of systems in unstructured work environments is presenting a challenge;

- **People:** a shared view of what public servants need to know about IM and what skills and abilities they need to have has yet to be established; training, education, and recruitment programs for public servants have yet to reflect IM considerations adequately, especially at the senior levels; a government-wide perspective on the nature of the work required to build and maintain an IM infrastructure has yet to be established; there are no government-wide champions for the development of an IM community and there is no community renewal or community development program; as public servants retire or change jobs, valuable information and knowledge is lost.

4.   Recommendations

The recommendations address immediate priority concerns related to the initial implementation of Government On-Line and the management of government records, and the longer term need to establish a sustainable IM infrastructure. It is important to emphasize that while concerns over the management of electronic information were paramount in the minds of those participating in the consultation process, the recommendations expressed below were intended to address the management of information regardless of its physical form. Similar to the situation in many other modern organizations, paper based information remains a key component of most program and service delivery applications managed by the Government of Canada.

4.1   Government On-Line

- Design an information architecture and information content standards within the context of work underway to develop a data architecture for GOL;

- Develop navigation tools to facilitate information access and retrieval;

–   Develop policies, standards and practices, and technologies for the management of the multiple forms of information (e.g. paper, electronic, etc.) normally found in the web environment;

–   Identify/establish model web sites or best practices that reflecting IM considerations;

–   Incorporate IM considerations into GOL awareness and education/training programs.

4.2   Records of Government

–   Enhance the awareness of public servants about the role and importance of government records;

–   Enhance records management education and training programs and remind deputy ministers/ heads of agencies of their responsibilities for the management of records;

–   Establish an accountability framework for government records and incorporate record keeping considerations into audit and evaluation tools and performance measurement;

–   Develop a records management self-assessment guide for government institutions;

–   Use the soon-to-be-approved international records management standard as the basis for a similar standard for the Government of Canada;

–   Develop guides and best practices for the management of records;

–   Identify model records management programs and establish a web site for the exchange of information on records management;

–   Confirm a core set of functional requirements for record keeping systems;

–   Develop enhanced technological and methodological approaches to managing records;

–   Establish a competency standard for records management and develop relevant training, education, and recruitment programs.

4.3   Building a Sustainable IM Infrastructure

–   **Governance:** establish a unit within the TBS to serve as a focal point on IM (e.g. advising the Chief Information Officer; leading government IM initiatives; etc.); establish an inter-departmental committee (possibly as a sub-committee of the Electronic Service Delivery Committee) on IM to serve as an advisory group on government-wide IM directions, initiatives, and issues and to help guide the work of the IM Forum and other IM groups and committees; clarify and strengthen (as necessary) the roles of lead agencies, government-wide groups and committees, and other IM related committees and groups.

- **Awareness:** develop an IM awareness program directed to senior executives, public servants in general, and those involved in building IM and IT infrastructures; incorporate IM considerations into courses, conference programs, etc.; establish a web site for the exchange of information on IM and develop a glossary of IM terms;

- **Policy:** conduct a review of the IM/IT policies with a view to developing a new policy addressing the development and maintenance of an IM infrastructure; develop model IM policy statements for use by government institutions;

- **Standards:** develop a standard approach to information description and classification to facilitate information access, retrieval, and preservation; develop standards and practices for the preservation of information; incorporate IM considerations in TBS-led initiatives and other related initiatives such as business resumption planning; establish a standards development process for IM standards based on the results of the review of the Treasury Board Information and Technology Standards (TBITS) program;

- **Systems:** incorporate IM considerations into systems development methodologies and related tools used to plan, design, install, maintain, and evaluate information systems; develop core IM functional requirements, model business cases, and pathfinder projects to facilitate the procurement and implementation of systems for managing the creation, use and preservation of information;

- **People:** incorporate IM concepts, strategies, etc. into the design of education/training and recruitment programs targeted at senior executives and public servants in general; identify IM work elements and competencies for public servants and use these as the basis for establishing accountability relationships, position descriptions, education/training and other development programs, recruitment strategies, rewards and recognition programs, and performance measurement programs; establish accountability relationships and job profiles covering the work involved in developing and maintaining an IM infrastructure, and, based on competency profiles, establish an IM community development initiative; within the context of the IM community development initiative, consider recruiting a small cadre of IM specialists to work in selected departments in order to "jump start" IM programs and to serve as the nucleus of a new IM community;

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1   INTRODUCTION

1.1 Background

During the Summer, 1999, the Treasury Board Secretariat (TBS) recognized that "information management" was becoming an issue across the government.

- The Government On-line initiative provides an opportunity to improve services to Canadians. In such an emerging electronic environment, however, government information must be current, accurate, understandable, trustworthy, and available in a timely manner. It must also retain its integrity for as long as required to meet service delivery and accountability requirements. In establishing the initial IM/IT infrastructure (i.e. the TBS-led Strategic IM/IT Infrastructure Initiative) to support Government On-line, it was recognized that the ongoing quality and integrity of the government's information infrastructure would have to be addressed.

- Members of the Advisory Committee on Information Management (ACIM) expressed concern about their capacity to address emerging IM issues within their departments and agencies (e.g. data and information standards to enable information access, retrieval, and sharing; preservation standards; etc.) and about the availability of policies, systems, standards, best practices and people to address the emerging electronic environment.

- The *"Report on the Future Roles of the National Archives and the National Library"* (i.e. the Dr. John English Report) suggested that the National Archives (NA) and the National Library (NL) assume a more active leadership role in developing an information management infrastructure for the government.

- The 1999 *"Annual Report of the Information Commissioner"* commented on the poor state of records management which, in the opinion of the Commissioner, was contributing to the inability of the government to fully meet its access to information obligations.

Based on these concerns the TBS raised three questions:

- What is IM within the context of the Government's responsibility to deliver its programs and services and to meet its accountability requirements?

- Within the context of the IM landscape, what are the issues facing government with respect to its ability to reduce risk, pursue opportunities, and achieve cost savings and/or cost avoidance?

- What should TBS, lead agencies, government institutions and others be doing to address the IM issues?

1.2   Method

From October to December, 1999 consultation sessions were held with over 15 government-wide IM groups, departments, and other groups and organizations totalling over 600 people. Over 30 interviews were conducted with key people in the Chief Information Officer Branch (CIOB), other areas of the Treasury Board Secretariat, and lead agencies such as the National Archives, the National Library, Justice Canada, and Public Works and Government Services (PWGSC).

The work was reviewed and guided by an Advisory Committee co-chaired by the Deputy Chief Information Officer and the Assistant National Archivist. The Committee met several times during the time of the project, to review the results of the consultation and again to review and endorse the recommendations.

A draft of the report describing a proposed IM landscape, the IM issues, and proposed recommendations was reviewed by the Advisory Committee in March and a final draft of the report was presented to the Chief Information Officer and the National Archivist in mid-April, 2000.

2.   THE IM LANDSCAPE

Although it is popular to speak of our times as the information or knowledge age, information has been a hall mark of all governments. Governments from the earliest use of clay tablets have used recorded information to better administer the affairs of state. The earliest clerks were the clericals who recorded the decisions and directives of monarchs, parliaments, courts and governments.

The Canadian government and its public service have used paper records to record the decisions of government, the statutes of the nation and correspondence with citizens since 1867. The complexity and growth in paper records reflect the complexity and growth of the country and its government. Records once the protected domain of government are now subject to access and privacy laws which encourage the sharing of these records with the public. This creates a fundamental problem for the records manager as records organized to support the management and delivery of programs are not necessarily organized or structured to readily respond to the information requests of public applicants. The commitment of government to protect the privacy of recorded information about an individual is compromised by other applicants seeking greater access to government records.

The volume and complexity of paper records is but one concern for records managers and users. The attraction of records management as a career has lessened as other career opportunities increase. This presents challenges in the recruitment and retention of qualified, experienced and competent records staff at a time where there is an increasing demand for this talent. The management of paper records is further challenged by the advent of records in other formats often dealing with the same subject, topic or issue. It is increasingly difficult to economically organize and structure for use information in a variety of formats. Records management leadership is compromised by the increased demands being place on the leadership at a time when fewer experienced records managers, experts and specialist are available to address the complexities addressed in this report. Paper records will not disappear. Paper records will exist and be used into the foreseeable future. As a result, even as the government evolves into an electronic environment supporting priorities such as Government On-line, it must not lose sight of the fact that for some time to come it will be functioning within a highly complex environment supporting a wide range of media including paper.

Government is in the information business. As previously referenced, everything it does is based on information - from briefing notes to senior executives, to cheques issued to citizens, to licenses issued to businesses, to statistics provided to researchers and academics, and to information designed to provide the accurate, complete, and relevant context public servants require to make decisions and deliver their programs. Information, which can exist in many different forms from paper to electronic, is the fuel driving government programs and services. In Canada's knowledge-based society the quality, integrity and ongoing accessibility of information, including that produced in the public sector, is crucial.

In the Speech from the Throne, the government announced that it would connect Canadians to all government information and services by the Year 2004. The implications of this vision on all

facets of government activity are profound. Citizens will have access to a wide variety of government information systems and sources. While traditional ways of interacting with government will be maintained, citizens will be able to electronically pay their taxes, apply for licenses and benefits, and search for the information they need to better understand themselves, their cultures, their environments, and their country.

Unlike any time in the history of this country, Canadians will have the opportunity to become an integral part of the program/service delivery and decision making processes of government. The vision set out in the throne speech will likely transform the way information is created, used, preserved and otherwise managed in the Government of Canada over time.

Web-enabled tools and techniques offer significant opportunities for not only enhancing the ability of Canadians to access government information but to completely re-engineer and move beyond traditional ways of locating, accessing, and retrieving government information. While recognizing that the government's program and service delivery environment will feature multiple forms of information (i.e. paper, electronic, etc.), the path to increasingly automated service delivery channels based on electronic information is clear.

Innovative approaches to ensuring the authenticity, integrity, and reliability of information, regardless of its physical form, for as long as the information is required are also possible but only if "out-of-the-box" thinking is used to fully lever what the emerging technologies have to offer.

To make this vision a reality, government will have to re-affirm a culture which values information and the role it plays in supporting a citizen-state interaction founded on trust and respect. In this new reality, public servants will:

- be fully conscious of the role information plays in establishing a relationship with citizens built on trust, integrity, and quality service;
- understand the varied needs of citizens including businesses and respond to these needs with information which is complete, relevant, organized, timely and structured to maximize self sufficiency and access;
- understand the central and critical role information plays in support of government business and accountability;
- understand the need to document what they are doing with the records created as a result of their activities;
- see these records as valuable sources of information to help them do their job and as instruments of accountability;
- understand the need to apply common standards and best practices to manage, make accessible and protect information assets, and;
- appreciate the value of sharing information and knowledge to support more integrated program delivery within government (i.e. where appropriate and authorized).

Information and its effective management are important at all levels: from the government as a whole, to individual organizations and programs, to individual public servants. And yet at all

levels, the ability to create, use and preserve information effectively is being challenged. Getting the right information to the right person or persons, at the right time, in the right form and format, at a reasonable cost is a generally accepted principle that is becoming difficult to operationalize, especially in an electronic environment.

Concerns are being raised across the government about the quality and integrity of the government's information management infrastructure. There is a widespread feeling that unless these concerns are addressed the following will likely result:

- the absence of effective and relevant information standards and navigation tools will inhibit the ability of citizens and public servants to find government information recorded in multiple forms and formats, and access government services;

- the absence of complete and adequate policies, standards, best practices, and systems for managing the authenticity and reliability of information through time will increase the risk of government being unable to establish trustworthy environments for conducting business electronically;

- the absence of records documenting decision-making and actions will threaten the ability of citizens to exercise their right of access to government information and jeopardize the integrity and quality of the government's corporate memory;

- the absence of a knowledgeable and skilled workforce for developing and maintaining an information management infrastructure will increase the risk to government institutions of having to rely upon a poorly designed infrastructure to support decision making, the delivery of programs and services and the ability to meet various accountability requirements, and;

- the absence of an effective accountability framework where public servants can be held to account for their stewardship of government information will result in confusion (re: roles and responsibilities), increased risk, and increased costs.

In order to understand the nature and extent of these concerns and the specific issues that need to be addressed, a government-wide consultation process was conducted in November and December, 1999. The results of these consultations led to the conclusion that the best way to frame the issues was to focus on the infrastructure of laws and policies, standards and practices, systems, and people required to enable government to manage its information at both the operational and strategic levels. Such an infrastructure would need to be viewed as an integral part of the business of government - a business that is increasing adopting a citizen-centered perspective to the delivery of its programs and services. The IM Infrastructure model which emerged from the consultation process was used to frame the issues and recommendations described in the remaining sections of this report.

The model begins with a perspective on the business of government (i.e. if IM is an integral part of the business of government then an understanding of how that business is viewed must first be acquired). The **business view** (see *figure1*) begins with a citizen (individual or business) receiving or accessing a service (e.g. applying for a benefit or licence; filing tax returns; accessing government information sources; etc.).
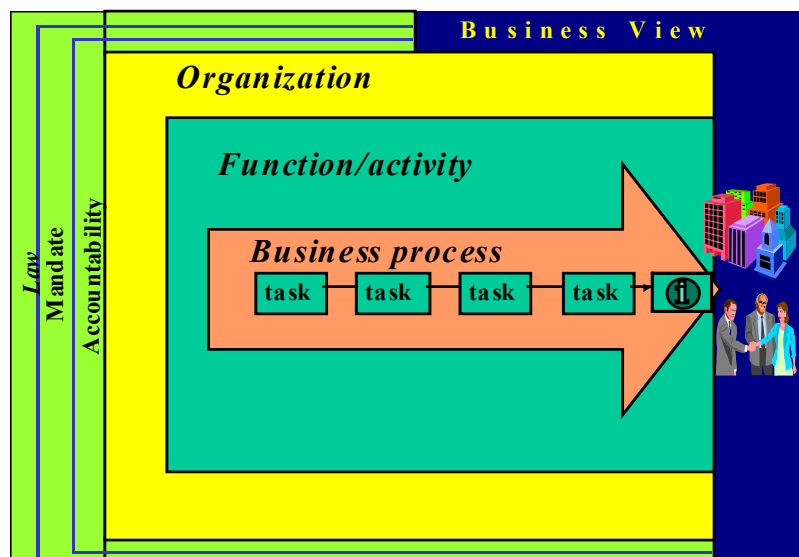

Figure 1: Business View

The service is supported by a **business process** comprising a set of related **tasks** which generate an **information product** which could be recorded electronically, on paper, etc. The business process (which is normally automated) supports the requirements of a given government **function** or **activity** which is managed by accountable individuals located inside an **organization**. The organizational structure is nothing more than a management and accountability framework for the function/activity and the business process. All of this (i.e. the organization, the functions, and the processes) are situated within an **accountability** framework which itself is derived from a **mandate**(s) and an enabling **law**(s).

The basic relationship among the business process (or workflow), the information product, the function/activity, the organizational structure (accountability framework), and the enabling law and mandate is a constant regardless of the type of program or service being delivered. It also aligns very closely with models (e.g. federated architecture model) developed by the TBS and others to illustrate the concepts of electronic service delivery.

The **IM Infrastructure view** (see figures 2 and 3) is aligned with the business view. It focuses on the delivery of a service - often an information product generated by the tasks in the business process or workflow (see figure 3). The individual tasks themselves generate information "objects" of their own (e.g. the various types of information generated to process an application for a licence; the multiple drafts of a briefing note to the minister; the documents generated to produce a report intended for dissemination to a wider audience, all of which can exist in

multiple forms from paper to electronic). In executing these tasks, three kinds of activities are carried out, namely:

- activities done to bring information into existence to support decision making, program/service delivery, and to meet accountability requirements These activities include: create, generate, collect, receive, etc. The label given to this set of activities is "**create**".

- activities done with information to support decision making, program/service delivery, and to meet accountability requirements. These activities include: transmit, exchange, access, retrieve, disseminate, share, etc.. The label given to this set of activities is "**use**".

- activities done to information to ensure it is authentic, reliable, available, usable, and understandable for as long as required to support decision making, program/service delivery, and to meet accountability requirements. These activities include: organize, describe, classify, retain, protect, store, migrate, dispose, etc. The label given to this set of activities is "**preserve**".
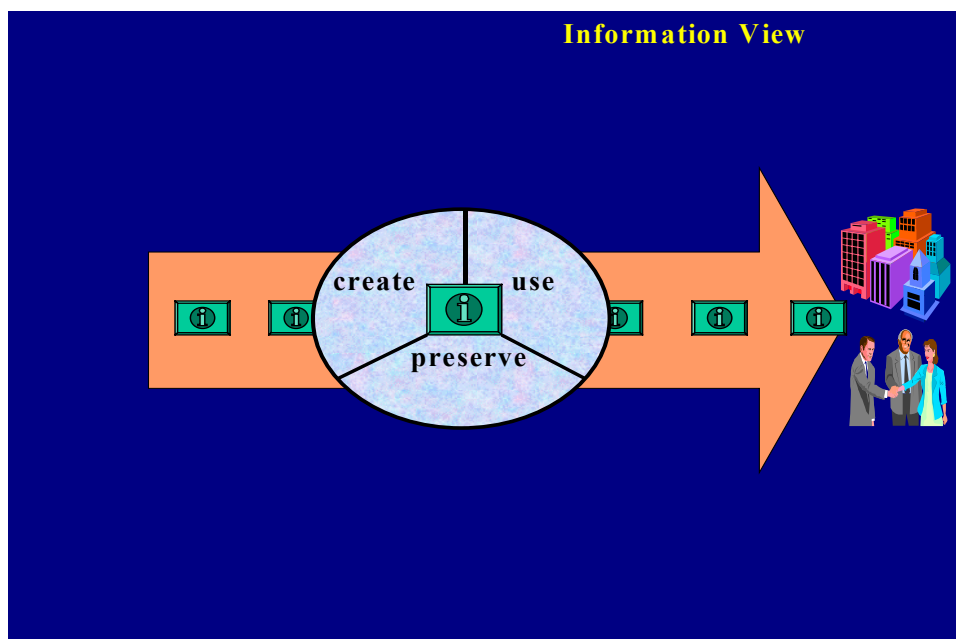

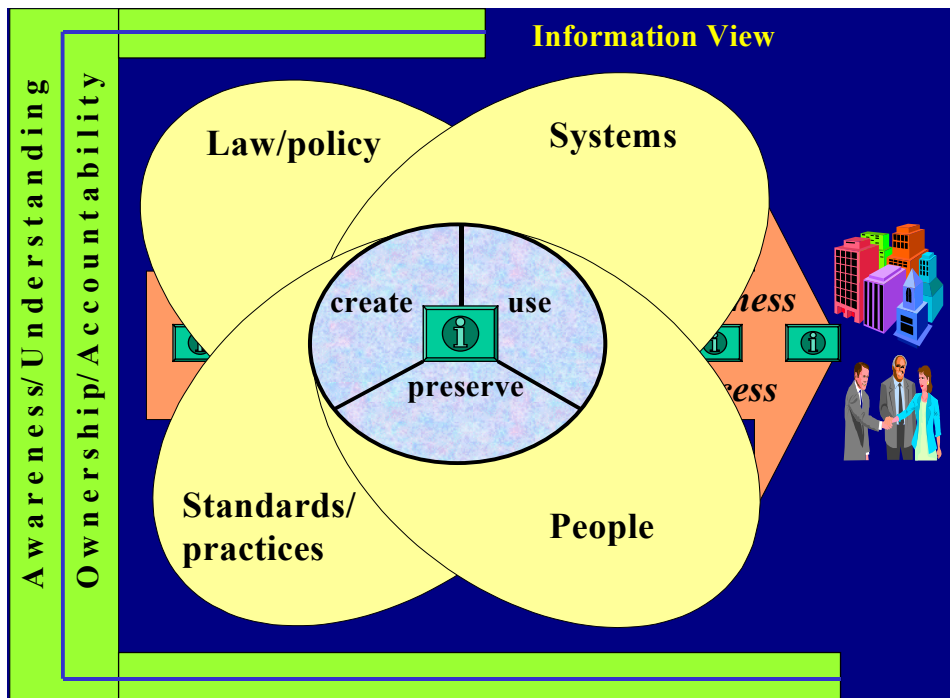**Figure 2: Information View - Part 1**

Figure 3: Information View - Part 2

These activities are managed by a framework of **polices, standards** and **practices, systems**, and **people** (see figure 3). This framework cannot exist in a vacuum. It must be supported by people who have an **awareness** and an **understanding** of the importance and relevance of information to their programs. But it needs more than this. The framework requires **ownership** and **accountability** through public servants who understand its fundamental importance in enabling them to carry out their program responsibilities.

Normally this "ownership" is reflected in an accountability framework extending across a given organization: to the deputy minister or head of agency; to the individual program managers and staff; and to the specialists responsible for the infrastructure to create, use and preserve information. The accountability framework must be supported by policies, audit standards, and methods to measure the extent to which the infrastructure is (or is not) implemented and maintained effectively.

The IM Infrastructure view or model provides context within which the issues described in the report can be situated. By focusing on the IM infrastructure, it has been possible to distinguish between information issues which are specific to individual programs and those common information issues which are specific to the infrastructure itself. Given that the infrastructure model is one which can be applied as a template to any government program or activity, it follows that if the issues associated with the infrastructure could be addressed, then the program specific IM issues might be more easily resolved.

This perspective on the model explains why the scope of this initiative did not extend to so-called information based functions such as Communications or ATIP, or even to "knowledge management". By addressing issues within the context of the IM Infrastructure, it follows that any government program or activity, including communications and ATIP, would benefit in terms of their ability to have the information they need to meet their program and accountability requirements. In this respect it is important to emphasize that the rationale for an IM infrastructure is not driven solely from the need to address ATIP considerations; it is driven from the need to meet the business and accountability requirements of given programs and services and to do so within the context of government-wide laws and policies. By meeting these requirements, it follows that government institutions should also be able to meet their obligations under laws such as ATIP.

Knowledge management (KM) strategies would also benefit because the infrastructure would result in the effective management of explicit information which is one of the important building blocks for KM (the other being tacit information or the information retained in peoples' minds based on experience and the understanding of the various contexts in which they worked and which might not be documented).

The IM Infrastructure does not exist in isolation. The **Business Infrastructure** of government is primary and sets the context for other supporting infrastructures. The **IM Infrastructure** supports and manifests the information requirements of the Business Infrastructure - it fuels and documents the business functions and supporting activities. **The Information Technology Infrastructure** serves mainly to support the Information Infrastructure. These three infrastructures are created, sustained and imbued with purpose and meaning through the government's **Human Resources Infrastructure**

3.   The IM ISSUES

3.1   Introduction

The issues associated with the management of information in the Government of Canada were identified as a result of the consultations held with individuals and groups representing a wide variety of organizations from the public, private and academic sectors. The majority of those consulted were from the federal government and the majority of these were from the information management and information technology communities. While the perspectives of the IM and IT communities were dominant during the consultations, the issues described in this section have been presented in a manner that attempts to respect the views of a wider audience including those responsible for program and service delivery.

They have also been presented in a manner that respects the multiple perspectives consultation participants brought to the issue of information management. For instance, during the consultation process, it was acknowledged that numerous examples could be found across government of the effective application of information management principles and practices. Those involved in managing health information, natural resources information, the sensitive personal information associated with licensing and social benefits programs, and other programs where the successful delivery of the program is dependent entirely on the existence of a high quality information management infrastructure, recognize the central role information plays in the success of their programs. The ability of the government to deliver information intensive programs and services on a daily basis in an effective and efficient manner is a measure of the extent to which the government has been able to address challenges such as those presented by new technologies, increasingly complex client demands, and emerging priorities such as Government On-Line.

Nevertheless, consultation participants identified a number of issues the resolution of which they felt would be necessary if government programs and services were to continue to be delivered in an effective and efficient manner. These issues are organized according to the proposed IM Infrastructure.

3.2   Awareness/understanding

Consultation participants generally felt that a common understanding of IM, its role in decision making, program and service delivery, and accountability had yet to be established. From senior executives to officers and administrative staff there was a concern that as the government evolves from a paper-based environment to one increasingly dominated by information recorded in electronic form, a shared view of IM concepts and vocabulary may be difficult to maintain.

There was also concern that the awareness by public servants of their responsibility for information (i.e. to record business activities, to support ongoing decision-making and for accountability purposes) could be seriously eroded as the government moves to the electronic delivery of its programs and services.

Participants in several IM groups as well as those representing policy areas indicated that in the rapidly changing environment associated with the conduct of government business public

servants may consider information used only a few years ago as irrelevant; "new information is required in today's changed context". It was felt that this perceived lack of relevance of past information, especially in policy areas, could have a major impact on the level of attention paid to the way in which information is managed. It could also have a major impact on the quality and depth of the government's corporate memory and the ability of the National Archives and the National Library to acquire, preserve, and make available recorded information of long term value.

3.3   Ownership/Accountability

Consultation participants identified issues which may have an impact on the quality and extent of the accountability framework for IM. These are grouped according to both the government-wide perspective and the perspective of individual departments and agencies.

3.3.1   Ownership and accountability at the government-wide level

Many participants felt that the current accountability framework[1] for managing government information needs to be enhanced to account for the direction government is taking in program and service delivery, especially in the emerging electronic environment. Concerns were expressed that the same level of attention being accorded to the enhancement of the accountability frameworks for personnel and financial resources is not being paid to an equally important government asset, information. It was felt that the failure to establish and maintain such an accountability framework would have a dramatic impact on the extent to which IM considerations are reflected adequately in the audits and evaluations of government systems and programs, or the appraisals of public servants.

Consultation participants in a number of groups and individual government institutions expressed concerns about the continued effectiveness of the government's accountability framework for IM in the face of challenges presented by the electronic environment. The key concerns expressed were the following:

- a TBS focal point for IM appears to be absent;

- IM considerations have yet to be established in TBS-led initiatives;

- the legislated roles of the National Archives and the National Library for supporting the management of government information could be better coordinated and positioned especially as they pertain to the management of electronic information, and;

- while the efforts of Government-wide IM groups[2] are substantial, they are not well co-ordinated across the groups and they have little visibility at senior levels.

3.3.2   Ownership and accountability in government institutions

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[1]As set out in the MGIH policy and indirectly in ATIP, Communications and other policies.

[2]Such as the IM Forum, the Knowledge Management Forum and the Council of Federal Libraries

Many consultation participants suggested that the accountability frameworks for IM in government institutions would need to be adapted to account for the emerging electronic environment and the direction being taken by government programs and services within the context of that environment. There was concern that accountability for information may not be assigned to program managers in the same way and to the same extent as it has been for other assets.

Many also felt that there were few effective IM focal points in institutions and concerns were expressed that overall accountability for institutional IM infrastructures has been scattered among such disparate areas as records management, library services, data administration, etc. It was felt that this has led to confusion among program managers and staff about who is supposed to be responsible for the various information management functions.

Consultation participants generally felt that the lack of a comprehensive accountability framework and the absence of measurable standards were making it difficult to evaluate or audit IM within institutions. Questions were raised concerning what it meant to "do IM" in the emerging electronic environment. "How do we know that we have done IM to the level required (whatever that is)"?

3.4 Policy

The IM policy framework in government embraces the following policies: MGIH; ATIP, Security, Communications; Use of the Internet; and IT. Concerns were raised about how responsibilities for the policies should be coordinated. The government's primary information policy (MGIH) was felt to be in need of updating to ensure that it could account for the requirements and challenges associated with managing information within the context of electronic service delivery priorities.

Many expressed concern about the clarity of the MGIH policy and whether or not it was attempting to address too many issues ranging from public policy issues such as ATIP, information collections, and the requirements of the NA and NL on the one hand, and issues pertaining to the basic infrastructure institutions should have in place to manage the information they require for program delivery.

Beyond the MGIH policy, consultation participants generally felt that there were few policies in place which related program requirements and accountability requirements to the need for an information infrastructure. This was seen as a potential inhibitor to the development of effective information management infrastructures for electronic service delivery at both the government-wide level and within government institutions.

3.5 Standards and Practices

3.5.1 Information creation - activities to bring information into existence

Many participants expressed concern that in a complex environment featuring multiple forms of information from paper to electronic, public servants lacked the criteria for helping them determine what information needed to be created, received, collected, etc. to support or document what they were doing (i.e. some may create less information than required while others may create far more than what would normally be expected).

Concerns were also raised that as the pace and complexity of day-to-day work increases, public servants will not give sufficient attention up-front[3] to what information will need to be created and maintained as new programs and new systems are established. It was suggested that system design methods and guidelines on program development and redesign were in need of an IM component which would help users identify and define their information requirements. Beyond meeting the information needs of individual public servants, concerns were raised that institutions were not paying sufficient attention to the longer term needs of their knowledge base, and the even longer term needs of the nation's memory. Both the National Archives and the National Library expressed concern about their ability to carry out their mandate for acquiring and preserving government information when such considerations are not reflected at the "front-end" of systems or program design. Particular concerns were raised about the long term preservation of electronic information which they argued could only be addressed effectively if the preservation requirements were reflected and applied when the information was being created.

Forms are part of the information creation process. They provide the context and structure for the information content received from citizens, other public servants, etc. in support of government program/service delivery. Many consultation participants in the IM/IT groups and in individual government institutions expressed concern that the absence of standards and guidelines on the use of forms would lead to confusion, increased costs and lost opportunities (i.e. the use of forms to achieve efficiencies and costs savings in the design of automated highly structured web-enabled business processes).

Consultation participants in a number of groups expressed concern that the acquisition of information subject to licensing agreements, the acquisition of information in a web environment, and the costs of acquiring published information were significant issues which needed to be addressed within a broader IM context.

3.5.2 Information use - activities <u>done with</u> information

As Canadians go on-line they will expect to navigate, locate and retrieve government information, regardless of its physical form, seamlessly across institutions and across information domains such as records systems, library systems, and other information based

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[3]Except in highly structured environments where the up front identification and specification of information requirements is essential (e.g. licensing systems, taxation systems, benefit delivery systems, etc.)

systems. They will expect this no matter where or how they first enter a government service channel. So too will public servants expect that they can access the information they will need to do their job.

The following highlights from the consultation sessions identify some of the challenges government is expected to face:

- information standards have yet to be established at the government-wide level and in several government program areas to express and define the key terms to be used in accessing government information and services;

- navigation tools, have yet to be established at the government-wide level and in several government programs to facilitate information access and retrieval;

- existing classification systems and schemes are fragmented among the library, records management, database administration, and other areas of government; they are also fragmented and lack consistency in their design across departments; new approaches to information classification will be required to support access and retrieval in an electronic service delivery environment;

- standards and tools for describing information to facilitate access and retrieval at the government-wide level and within individual institutions have yet to be established;

- standards have yet to be developed for establishing how much contextual information is needed to facilitate access and understanding of the information once it has been retrieved;

- citizens and public servants confront technology barriers (e.g., software and format incompatibilities) when accessing or exchanging information electronically;

- public servants are experiencing difficulty accessing and retrieving the information needed to do their jobs; much is already fragmented across user "C" drives, individual and shared server areas, paper-based file drawers, and other unique systems and databases.

- mechanisms to support dissemination of published government information to the general public through libraries could be enhanced;

- electronic information access and retrieval services provided for people with disabilities may be inadequate as government shifts to electronic service delivery;

- current institutional systems may become challenged to provide multi-lingual access and content;

- other "use" issues such as copyright, charging for government information, and electronic publishing have yet to be addressed within a broader IM context.

3.5.3 Information Preservation - activities to ensure authentic, reliable, available, usable, and understandable information over time

Preserving reliable information for as long as required is central to serving the information needs of Canadians and to supporting good governance. Many consultation participants expressed

concern about the capability of government to maintain information (especially information recorded in electronic form) in an authentic and reliable manner for as long as required to meet a business or accountability requirement.

Concern was also expressed about the capability of public servants to know what information they should keep, for how long and what information they are permitted to dispose of and why.

Many consultation participants including those from lead agencies such as the National Archives and the National Library expressed concern about the capacity of government institutions to preserve electronic government information through time. The following illustrates some of these concerns:

- The relevancy, currency and trustworthiness of documents may be at risk because of the difficulty in tracking documents in multiple versions or in a variety of formats;

- Many government institutions lack strategies for preserving electronic information through time (electronic information is susceptible to loss because of the nature of the media, the obsolescence of the technology, the lack of documentation, and the lack of an effective accountability framework);

- The cost of preserving information through time may not be reflected adequately in the steps taken to cost and approve systems or to finance programs;

- The National Archives and the National Library face significant challenges with respect to the capacity of both themselves and government institutions to ensure the continued acquisition, organization and preservation of information which must be preserved through the long term;

- Issues associated with the preservation of security sensitive information through the long term have yet to be resolved especially in light of questions being raised about issues such as the preservation (or not) of certificates, digital signatures, encrypted documents, etc.;

- IM considerations (e.g. meeting identification, storage, protection, migration, and authenticity requirements) may not be reflected adequately in guidance developed for business resumption planning, emergency preparedness, etc. in an electronic service delivery environment;

- Policies and procedures for the devolution of government programs to other jurisdictions may not reflect adequately the stewardship of the information associated with such devolution initiatives.

3.5.4   The Standards Development Process

Many consultation participants expressed concern that a shared understanding of the concepts behind terms such as "standards", "best practices", etc. had yet to be established thus making it difficult to develop strategies for the development and adoption of IM standards.

A number of participants questioned the extent to which the Treasury Board Information Technology Standards (TBITS) program was continuing to be viable in the face of the emerging demands of GOL. There was a clear indication that a mechanism was required (building on existing standards endorsement processes connected with Government On-Line) to ensure the

effective development and promulgation of standards addressing a wide range of IM issues from information content and information access/retrieval to information preservation.

3.6 Systems

There was general concern about the extent to which information management functionality (i.e., to support the information activities of "creation", "use", and "preservation") was being implemented in government information systems. Concern was expressed that the costs of these information activities, especially for "preservation", is generally not accounted for in the overall costs and management of systems.

While it is challenging enough to develop systems in support of highly structured work processes it is much more difficult to incorporate IM requirements into much less structured environments such as the so-called office environment where work processes, business rules, and assigned accountability may not be clearly defined. In such environments, e-mail messages, and electronic and paper documents are created, used, and stored in a seemingly ad hoc manner, some for internal use, others for external access. For example, the Records/Document/Information Management System (RDIMS) initiative (i.e. the TBS-led shared systems procurement initiative) and other systems procurement initiatives are attempting to manage multiple forms of information in this unstructured environment. In this context many of those consultation participants who were involved in document management in their institutions explained that major systems integration issues remained (developing relevant classification schemes; designing effective training programs; overcoming corporate culture issues, etc.) . Concerns were also raised that more innovative and forward looking approaches to the management of this form of information (e.g. incorporating record keeping rules in the design of workflow such that record keeping becomes nearly automatic) had yet to be considered.

3.7 People

The principal concern expressed by the consultation participants was "people". Questions were raised about the extent to which the Government had the people in place with the knowledge, skills, and abilities required to build and maintain an IM infrastructure - an infrastructure which acknowledges existing paper based work processes, but which is also sensitive to the existing and emerging electronic environment, and government priorities such as those expressed in the throne speech. Among the concerns expressed were the following:

- a government-wide perspective on the nature of the work required to build and maintain an IM infrastructure has yet to be established;

- The work of IM (e.g. building information access/retrieval and preservation tools and methods in an electronic service delivery environment) is expected to demand a higher knowledge and skill level than is currently reflected in existing communities such as records management;

- a shared view of what public servants need to know about IM and what skills and abilities they need to have has yet to be established;

- unlike for human and financial resources, the roles and responsibilities of public servants for managing the information resources they create, use and preserve to support their work have yet to be reflected in their job descriptions;

- job descriptions resulting from the Universal Classification System (UCS) initiative reflect the duties performed by the existing IM communities; the emerging requirements of the job of doing information management in an electronic service delivery environment have yet to be identified;

- an IM competency framework has yet to be defined and there is no mechanism in place for ensuring that whatever competency profiles are developed can be maintained;

- while it was not possible to assess whether or not existing IM training, education, and recruitment programs are relevant and effective, participants indicated that training and recruitment strategies within individual IM communities are fragmented, weak or non-existent;

- existing training, education, and recruitment programs for public servants have yet to reflect IM considerations adequately, especially at the senior levels;

- there are no government-wide champions for the development of an IM community and there is no IM community renewal or community development program;

- there is no system of rewards and sanctions in place for IM; there are few sanctions for doing IM badly.

- IM is not part of the performance appraisal process for public servants and it is ineffective for those involved in building and maintaining the IM infrastructure.

- the absence of effective records management and other support functions in a number of government institutions, has caused users in these institutions to become their own record keepers;

- concern was expressed that in those areas of government where there is an absence of expertise, standards and practices, systems, and rules of the road, users will resort to making up their own rules concerning the management of their information.

- as public servants retire or change jobs, valuable information and knowledge is being lost.

4. RECOMMENDATIONS

The recommendations described in this section are based on two considerations. The first consideration is the immediate need to support government priorities to better serve Canadians such as Government On-Line (GOL) and the Strategic Infrastructure Initiative (SII) and to address concerns about the management of government records. The second consideration is the need to establish a sustainable IM infrastructure to support government decision making, program/service delivery, accountability, and the achievement of the Government's strategic priorities.

4.1. Addressing the Priorities

4.1.1 GOL/SII

The GOL and SII initiatives are critical to the throne speech commitment to connect Canadians to government information and services by 2004.

The GOL initiative is to be implemented in stages or tiers over the next four years. The first tier is to provide a basic presence for the Government on the web by December 2000. Pilot projects will test innovative approaches to enhanced service delivery.

If the tier one objectives are to be met (i.e. a government presence on the web) there is an immediate need to:

- integrate IM considerations into existing implementation strategies such as the development of directories and navigation tools to facilitate **access and retrieval** of information about the government information sources and services; and,

- address concerns regarding the **authenticity and integrity** (i.e. currency, accuracy, understandability, and relevancy) of the information being accessed by Canadians, including public servants.

The following recommendations address these immediate issues:

- At the government-wide level, design an information architecture (based on information content standards) to complement efforts underway to develop directories and a data architecture;

- Develop navigation tools at the government-wide level to provide support to citizens and public servants, including persons with disabilities, in finding information about information and services. This work needs to be closely related to work underway on directories, the data architecture model, the design of a Government of Canada and other portals, the "clustering" initiative, and the "common look and feel" initiative (i.e. the development of a locator service);

- Develop policies, standards and practices, and technologies for the management of the multiple forms of information (i.e. from paper to electronic) in web environments;

- Incorporate preservation requirements and requirements for long term access to government electronic information as part of the Government On-Line initiative;

- Encourage/establish model sites (e.g. the Canada Site; HR Connections; etc.) to illustrate the successful implementation of IM considerations; and,

- Incorporate IM considerations into tier 1 awareness and education/training programs and initiatives.

4.1.2 Managing The Records of Government

One of the most significant concerns raised during the consultation sessions concerned the management of records in the emerging electronic environment. According to an international definition[4], a "record" is recorded information produced or received in the initiation, conduct, or completion of an institutional activity and that comprises content, context, and structure sufficient to provide evidence of the activity. Records have a purpose. They serve to document actions and decisions, and they serve as authoritative sources of information in support of subsequent actions and decisions. These concepts are entirely consistent with the Government of Canada's definition of "record" which, "includes any correspondence, memorandum, book, plan, map, diagram, pictorial or graphic work, photograph, film, microform, sound recording, videotape, machine readable record, and any other documentary material, regardless of physical form or characteristics, and any copy thereof."[5]

While National Archives' guidance as well as initiatives such as the Records/Documents/Information Management Shared System help institutions manage records in this environment, and although examples of successful records management programs were recognized, participants felt more could be done to anticipate both the challenges and the opportunities presented by a work environment generating information in multiple forms (i.e. paper as well as electronic). In the consultation sessions participants suggested that the following key "records" issues be addressed:

- The awareness of public servants of their responsibilities for record keeping;

- The criteria public servants require to guide their decisions concerning what should be kept to document what they are doing;

- The challenges of accessing, retrieving and otherwise managing the e-mail and other electronic documents public servants require to support their work;

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[4] see, *Guide for Managing Electronic Records from an Archival Perspective*, (International Council on Archives,; Paris; 1996)

[5] see, *Access to Information Act*, (Justice Canada; Ottawa; 1983)

- The length of time records should be kept and what should happen to them after their value to the government institution has ceased (i.e. destroyed; transferred to the National Archives), and;

- The availability of people with the required knowledge, skills and abilities to manage records especially when they are in electronic form.

The following could result if these issues were not addressed:

- Lack of trust in decisions being made because of incomplete or fragmented records;

- Heightened risk to government program and service delivery because records lack authenticity and reliability;

- Inability to meet various accountability requirements including challenges from audit authorities;

- Inability to carry out reviews and audits because of incomplete records and files;

- Deterioration in the quality and usability of the government's corporate memory; and

- Diminished ability of the National Archives to acquire, preserve, and make available government records of archival value.

These recommended strategies are a sub-set of those being recommended for the development and maintenance of an overall government-wide IM Infrastructure (see section 4.2). They have been organized according to the following: awareness and understanding, accountability; standards and practices; technological solutions, and; people.

4.1.2.1 Awareness and understanding

The following recommendations are intended to enhance the awareness and understanding of public servants about the role and importance of government records:

- Enhance (including through the use of web-technologies) the awareness of public servants about the role and importance of government records, their responsibilities for managing records, and the implications of not managing records properly on decision-making, program and service delivery, and the ability to meet accountability requirements.

- Develop strategies for enhancing records management education and training programs directed at public servants (senior executives and officers) and records management specialists.

4.1.2.2 Accountability

- Establish an accountability framework for the management of records within government institutions (e.g. accountability of senior executives for ensuring that proper record keeping takes place; accountability and stewardship of public servants for records creation, use, and

preservation to support decision-making and program/service delivery, and; accountability of records specialists and others for the quality and integrity of the record keeping infrastructure);

- Building on existing review guides, develop a self-assessment guide on records management for use by government institutions;

- Incorporate record keeping considerations into the audit and evaluation function of government institutions, and;

- Incorporate record keeping considerations into the performance measurement systems for all public servants.

4.1.2.3 Standards and Practices

- Establish a Government of Canada records management standard based on the proposed ISO standard on records management (approval expected in November 2000);

- Update and re-issue the "*Management of Electronic Records in the Electronic Work Environment*" guideline issued by the National Archives in 1996;

- Develop best practices and technical standards for the management of electronic records in the electronic work environment;

- Assess the Australian *Development and Implementation of Record Keeping Systems* (DIRKS) guide for its applicability within the Government of Canada;

- Identify programs which have successfully implemented record keeping standards and practices (especially for electronic records) and promote these as models; and,

- Establish mechanisms such as a web site (i.e. supported by discussion lists, etc.) for the exchange of information about standards, guides, services, best practices and other matters pertaining to the effective management of records

4.1.2.3 Technological Solutions

- Use existing functional requirements for the creation, use, and preservation of records, such as those for the RDIMS, to confirm a core set of requirements for record keeping. These requirements should serve as a reference model for procurement purposes (as reflected in the RDIMS initiative) and be updated regularly to keep pace with changing technologies. The US Department of Defense experience in developing such a model or standard should be reviewed;

- Use the core requirements as the basis for procurement either through the shared systems program (e.g. the RDIMS initiative) or through other means (i.e. the functional requirements could serve as a reference model for the procurement of technological solutions).

- Assess the RDIMS and other document and records management initiatives, relevant pathfinder projects, and the opportunities presented by emerging web-based technologies with a view to developing enhanced approaches to managing government records.

4.1.2.5 Finding the People

The following should be undertaken within the context of the broader community renewal initiatives recommended in section 4.2. below:

- Establish a competency standard for records management based on work already underway in the IM Forum;

- Develop training and education strategies and programs for members of the records management community as well as others involved in the management of records, especially in an electronic environment;

- Develop recruitment strategies and programs for the records management function, and;

- Develop a rewards and recognition program for the records management community.

The experience gained from implementing these recommendations for the management of government records should be used to help inform the implementation of recommendations addressing the establishment of a sustainable IM infrastructure (see 4.2 below).

4.2 Building a Sustainable Information Management (IM) Infrastructure for the Government of Canada

While the IM responses to priorities such as GOL and concerns such as the management of government records are necessary, they need to be positioned within the broader effort to build a sustainable IM infrastructure for the Government of Canada. While such an infrastructure will take time to emerge, initiatives leading to its development should be established during the near term (perhaps based on a strategic planning session) and in parallel with steps being taken to address government-wide priorities (e.g. implementation of tiers 2 and 3 of the GOL initiative; government records).

The recommendations which follow are based on the following principles and characteristics:

- information is an asset which needs to be managed with the same diligence as any other asset;
- the de facto form of information in the Government of Canada is rapidly becoming electronic; while other forms of information such as paper and microfilm will continue to exist for some time, most government actions and transactions are being generated increasingly in electronic form;

- an information infrastructure is business driven; the requirements of the government program or service drive the decisions about what information needs to be created, collected, received, etc. and how that information should be used and preserved.

The recommendations are also based on a perspective of information management which comprises the infrastructure of policies, systems, standards and practices, and people required to manage the creation, use, and preservation of information in support of government decision-making, program/service delivery, and accountability.

It is an infrastructure supported by people who are aware of and understand the importance of information management and who are accountable for its quality and integrity.

It is also an infrastructure that can be applied to any decision-making or program/service delivery activity and that can be scaleable from a single information product (e.g. approved license or benefit, etc.) to a collection of information (e.g. all of the information associated with the processing of a license application) to the information in a given business function or activity (e.g. all of the information associated with the communications function) to the information associated with an entire organization or organizations (e.g. Transport Canada; the Government of Canada, etc.). An explanation of the proposed IM Infrastructure is described in Chapter 2.

The following recommendations have been designed to address all of the dimensions of the proposed IM infrastructure described in Chapter 2.

4.2.1 Governance

The results of the consultation emphasized the risk of not having a government-wide governance framework for information management. This vacuum adversely affects the ability to incorporate information management issues into the planning for citizen-centered services and to renew the information capabilities and capacity of government.

It is recommended that:

- A senior-level interdepartmental committee be established to address in collaboration with departments, lead and central agencies the critical information issues identified in this and other reports and recommendations.

- The Treasury Board Secretariat establish a unit to develop and maintain policies and strategies essential to the government-wide management of information that will support the proposed committee structure.

- The roles of the National Archives, National Library, PWGSC and Justice Canada in supporting the management of government information be reviewed and determined within the context of government-wide information management priorities.

- The roles of other information management committees should be reviewed and rationalized to ensure a vibrant governance framework that gives emphasis to government-wide information priorities.

Recommendations specific to each of the proposed components of the governance framework may be found in Appendix B of this Report.

4.2.1 Awareness/Understanding

- integrate IM concepts, strategies, etc. into the design of CCMD-sponsored courses and other related courses, publications and conference programs such as Government Technology week (GTEC), etc. for public servants including senior executives;

- publish an updated edition of the TBS publication, "Your Responsibilities", to communicate the role of public servants as stewards of government information;

- incorporate IM considerations in government-wide publications such as the *"Managers Desk Book";*

- produce a primer on IM for those involved in developing IT infrastructures at the government-wide level and within government institutions;

- develop a glossary to define terms such as "record", "data", "information", "information management", "knowledge management", etc.

4.2.2   Policy

- Conduct a comprehensive review of the IM/IT policy domains to ensure that both the policies and the policy domains themselves continue to meet contemporary requirements associated with GOL, SII and the emerging electronic work environment;

- Review the MGIH policy with a view to distinguishing between those policy elements which address public policy issues such as Access to Information and Privacy, information collections, etc. (i.e. the responsibility of the TBS/Government Operations Sector) and those which pertain to the IM infrastructure described in this report (the responsibility of TBS/CIOB). The Infrastructure elements should be updated and incorporated into a new policy which addresses the development and maintenance of an IM Infrastructure (with a focus on providing policy guidance on the three information activities: creation, use, preservation);

- Each government institution should name a senior official for the purposes of the new policy (i.e. reinstate the "senior official" concept of the MGIH policy), and;

- Develop model policy statements to help government institutions develop their own internal IM policies or incorporate IM considerations into existing and related policies.

4.2.3   Standards and Practices

- Develop a standard approach to the description and classification of information regardless of its physical form in order to provide an effective means of accessing information about government information sources and government services regardless of their type or location; description and classification should address all information activities including creation, use, and preservation;

- The National Archives and the National Library should work together with departments and agencies to develop standards and practices for the preservation of the authenticity and integrity of electronic information through time; such standards and practices should address the preservation requirements for "records" and "published information" in a range of information creation environments (e.g. web sites; highly structured transaction based environments; unstructured "office" environments; etc.)

- Integrate a checklist of IM considerations in the programs and initiatives undertaken by the TBS (e.g. Public Key Infrastructure (PKI); Enhanced Management Framework, Portfolio Management; etc.);

- Assess the mandate of the Depository Services Program with respect to its role in the management and dissemination of electronic and other forms of publications;

- Assess and, as required, enhance the capacity of organizations such as the National Archives, the National Library, the Depository Services Program, and other government programs with government wide responsibilities for the preservation, dissemination, etc. of information recorded in a variety of physical forms;

- Reflect information management considerations in Business Resumption Planning tactics and strategies

4.2.3.1 The Standards Development Process

- Use the results of the review of the TBITS program to help guide decisions concerning the establishment of a standards development process for IM standards;

- Develop an IM standards agenda within the context of the standards requirements of GOL and SII, and the IM standards requirements identified to TBS by government institutions.

4.2.4   Systems

- Incorporate IM considerations into the systems development methodologies and related tools used to plan, design, install, test, maintain, and evaluate information systems;

- Develop a core set of functional requirements for the management of the activities supporting all (or subsets of) the activities associated with information creation, use, and preservation. The requirements would either be incorporated into the overall requirements established for the procurement of information systems supporting program or service delivery or be used in the procurement of stand-alone systems dedicated to the management of the information creation, use and preservation activities themselves.

- Develop model business cases to help government institutions ensure that they have reflected IM considerations in the overall planning for new systems. Such model business cases would be based on the clear identification of business requirements, analysis of the requirements for information creation, use, and preservation (regardless of the physical form of the information), and analysis of risk reduction, cost avoidance, cost savings, and opportunity gain.

- Establish pathfinder projects to assess technological and methodological solutions to the management of information, especially within the electronic work environment (e.g. workflow driven record keeping; web-enabled approaches to accessing, retrieving, and storing information; etc.).

- Integrate IM considerations in pathfinder projects established to support PKI and the Strategic Infrastructure Initiative.

4.2.5 People

Similar to the situation for managing government records, the "people" issues must be addressed from two perspectives. The first is the perspective of public servants at all levels who are the stewards of government information (i.e. responsible for the information they create, use, and preserve to support decision-making, program/service delivery, and accountability). The recommendations for addressing "people" issues from this perspective are as follows:

- Integrate information management concepts, strategies, etc. into the design of CCMD-sponsored courses and other related courses, publications, conference programs, etc. targeted to senior executives and public servants generally;

- Identify work elements and competencies for information management (especially as these relate to the role of public servants as stewards of information) and incorporate these into the following for public servants, including executives.:

  - accountability relationships;

  - position descriptions;

  - education/training and other development programs;

  - recruitment strategies;

  - rewards and recognition programs, and;

  - performance measurement.

The second is the perspective of those who are responsible for the development of the IM Infrastructure which permits public servants to create, use, and preserve information while exercising their stewardship for information. The knowledge, skills, and abilities required to build such an infrastructure are multi-disciplinary and must be based on a clear understanding of the nature of the "work", especially within an electronic work environment. The recommendations for addressing "people" issues at this level are as follows:

- Identify accountability relationships and establish job profiles covering the work involved in developing and maintaining an information management infrastructure. The relationship (and compatibility) with existing job profiles (especially those from IM communities such as

records management and library services) should be assessed, especially within the context of the UCS;

- Develop a series of competency profiles for each of the job profiles based on existing and emerging standards;

- Based on the competencies, establish a community development initiative for information management which would address training and development strategies, recruitment strategies, compensation, retention, career development, the role of mentoring, rewards and recognition, performance measurement, etc.;

- Within the context of the IM Community Development initiative, consideration should be given to recruiting a small cadre of information management specialists to work in selected departments in order to jump start IM programs and to serve as the nucleus of a new IM community.

Appendix A - Terms of Reference

Information Management in the Government of Canada

- A Situation Analysis -

The Treasury Board Secretariat (TBS) has announced a joint initiative with the National Archives of Canada (NA) to identify and to scope the issues associated with the management of information in the Government of Canada and to recommend the means by which the issues can be addressed.

The initiative results from the recognition by the IM/IT communities that "information management" is an issue that transcends government and is key to the delivery of programs and services to the public.

- The Service Canada and Strategic Infrastructure initiatives have identified service delivery opportunities for government to do its business electronically and to better serve Canadians in innovative ways through the provision of secure electronic technologies. These initiatives have significant IM implications. For instance, to respond to citizen requests for information and services or to conduct electronic transactions with citizens and businesses, government information must be current, accurate, understandable, trustworthy and available in a timely manner. It must also continue to have integrity for as long as it is required.

- With the successful resolution of the Year 2000 challenge, the emphasis of TBS will be placed increasingly on the strategic use of information by the Government of Canada. The Strategic Infrastructure Initiative (SII) and its associated federated architecture reflects this direction. Information issues connected with the SII range from the development of directories and document standards, to the secure exchange and storage of sensitive personal and other information, to the management of e-mail and related attachments.

- The Advisory Committee on Information Management has identified IM as a strategic issue to be scoped. While appreciating the IM issues associated with the Government On-line, Service Canada, and SII initiatives, they are also concerned about the availability of policies, systems, standards, best practices and people to manage the multiple forms of information generated in their institutions. Some of the questions being raised are:

  - how should e-mail messages and other electronic documents be managed?

  - how long should electronic and other information be retained to support program and service delivery?

  - how should they be kept to ensure their integrity, accessibility, and security through time?

- what policies, systems, standards, and best practices are already available to address these issues?

- what are the gaps and how should they be filled?

- what knowledge, skills, and abilities are required to manage information and are these available?

Other related questions include:

- how can the information stored in both the information holdings and the minds of staff in a given institution be exploited in order to pursue existing and emerging opportunities (i.e. how should a knowledge management environment be cultivated)?

- what navigation tools are needed to permit public servants and citizens to access and use government information?

- how should accountability for information be assigned (as already exists for human and financial resources)? Is it possible?

- The Report on the Future Roles of the National Archives and the National Library (i.e. the English Report) makes recommendations, within the context of the Government of Canada's Management of Government Information Holding Policy, which impact on the management of information across the government. Among its recommendations, the Report suggested that:

  - the NA take a leadership role in the management of current records in the federal government;
  - the NA develop a records and information management infrastructure for government;

  - the NA develop a strategic plan for electronic records and record keeping systems;

- The Report of the Information Commissioner commented on the poor state of records management which, in the opinion of the Commissioner, was contributing to the inability of the government to fully meet its obligations. There have also been several well-publicized instances where the inability to manage organized information holdings has embarrassed or compromised the government and its effectiveness.

- The IM Forum, the KM Forum and other groups in the information management field represent a rich resource base of information and knowledge specialists and yet they are developing their work agenda independent of any senior level guidance or context.

The cumulative effect of these concerns caused TBS, upon the recommendation of the IM/IT community to identify IM as an issue area to be addressed. The questions raised were as follows:

- What is IM within the context of the Government's responsibility to deliver its programs and services and meet its accountability requirements?

- Within the context of the IM landscape, what are the issues facing government with respect to its ability to reduce risk, achieve cost savings and/or avoidance, and pursue opportunities?

- What should TBS and others be doing to address the IM issues?

The work began in mid September and is being undertaken through a partnership of the National Archives of Canada and the Chief Information Officer Branch of the TBS. John McDonald, Senior Advisor with the National Archives will be the project authority reporting to the Deputy CIO. The work will be based on substantial consultation with lead agencies, government departments, and the IM and related communities. A report with recommendations will be prepared by the end of February, 2000 for the CIO and the National Archivist.

Appendix B - Governance

Establish a unit within TBS to:

- develop information management policies and strategies based on the MGIH and related policies;

- set government-wide priorities in co-operation with lead agencies, government-wide committees and groups and others;

- advise the CIO on government-wide, corporate IM strategies, policies, and issues;

- integrate information management considerations into TBS initiatives;

- lead government-wide information management initiatives in partnership with lead agencies;

- serve as the secretariat for government-wide committees and groups such as the IM Forum; and;

- serve as a centre of expertise and a point of contact for matters pertaining to building and maintaining an IM infrastructure.

Establish an interdepartmental information management committee comprising Director General level representatives. The existing advisory committee for the IM initiative should be the basis for the committee. The rationale for the the Committee is as follows:

- given the extent of the information infrastructure (i.e. from policies and standards/practices to technologies and community renewal) existing advisory committees (ACIM) and management boards (e.g. the IMB) are hard pressed to deal with the issues and strategies associated with building a sustainable IM infrastructure. The Committee would ensure that issues and strategies were positioned effectively within the existing committee structure and the directions set by central and lead agencies;

- the Committee would help to guide the direction being set by government-wide IM groups such as the IM Forum, the KM Forum, the Council on Federal Libraries, the Records Management Institute, etc. and ensure that their activities and products were positioned effectively to support government priorities and concerns;

The Committee would be a sub-committee of the Electronic Service Delivery Committee to:

- advise on IM strategies, policies, and issues being proposed to TBS and/or lead agencies through ACIM, the IMB, or other appropriate means;

- advise TBS and lead agencies on initiatives designed to develop and maintain the IM infrastructure (i.e. policies, standards and practices, systems, and people);

- advise TBS and lead agencies on recommended IM policies, standards/ practices, systems (e.g. functional requirements; procurement strategies, etc.), and human resources strategies produced by TBS, lead agencies, and government-wide committees and groups such as the IM Forum;

- ensure that IM initiatives and issues are communicated to relevant committees such as ACIM and the Information Management Board;

- serve as a forum for the exchange of information on matters pertaining to IM across government.

The Committee should be co-chaired by the Deputy CIO and a senior official from a government institution (preferably from a Program area) and be supported by the proposed TBS IM Unit which would perform a secretariat role.

The National Archives is in a position to offer significant support to the implementation of the recommendations of this report through its mandate to acquire, preserve, and make available government records of archival value regardless of their physical form; control the disposition of government records, and; facilitate the management of government records through the development of standards and practices and the provision of records centre services. The National Archives should use its expertise in preserving the authenticity, integrity, and ongoing availability of archival records to assume a lead role (with the National Library, TBS, and other government institutions) in facilitating the development of standards, practices, systems and associated management frameworks (e.g. establishing policies, assigning accountability, planning/organizing/controlling resources, training, etc.), for the identification, description, storage, protection, migration, and systematic/authorized disposition of government information.

The National Library is in a position to offer significant support to the implementation of the recommendations of the report through its mandate to acquire, preserve, and make available government published information. The National Library should use its expertise in information access and retrieval to assume a lead role (with the National Archives, TBS, and other government institutions) in facilitating the development of navigation tools, information content standards, information access/retrieval mechanisms, and associated management frameworks (e.g. establishing policies, assigning accountability, planning/organizing/controlling resources, training, etc.), for use at the government-wide level and within government institutions as appropriate.

The **roles of government-wide groups and committees** (e.g. TIMS, IMB, ACIM, the IM Forum, etc.) in supporting government-wide IM strategies and priorities should be levered to support more directly the effective management of government priorities, program/service delivery, and accountability.

The **mandates and activities of other IM related committees and groups** such as the Knowledge Management Forum, the Council of Federal Libraries, the RDIMS Management Board, the Inter-agency Advisory Committee on the Internet, and others should be reviewed with a view to strengthening their roles in support of the management of government information.