Information Management Review

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Audit and Evaluation Branch

Environment Canada / Environnement Canada

Canada

Report Clearance Steps

Planning phase completed   October 2000
Implementation phase completed   December 2000
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Committee (DAEC)

Acronyms used in the report

ATIP   Access to Information and Privacy Act
EC   Environment Canada
GOL   Government-on-line
IM   Information Management
IT   Information Technology
MGIH   Management of Government Information Holdings policy
NACA   National Archives of Canada Act
NACA   National Archives of Canada Act

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Executive Summary

This study was undertaken in order to determine the state of Information Management (IM) practice in Environment Canada. Its purpose was to assess the degree of compliance with legislation and policies and good information management practices in the department.

The findings and recommendations are intended to provide input to the department's IM/IT Strategy, and are timely because of the priority and focus being directed towards Government-on-Line.

This review found that quality of information management is uneven across the department. Employees are aware of the importance of good information management and use their best judgment to manage the information they create and use. However, they often do not know the basic rules of managing information in the federal government and do not have the necessary tools for managing information well.

The findings identified a number of risks including:
- Information is being destroyed and it is highly probable that information with archival value is destroyed, in contravention of the National Archive of Canada Act;
- Environment Canada may not be able to launch all services on time under Government-on-Line as planned;
- While difficult to quantify, the lack of a cohesive and comprehensive approach to current Information Management practices is likely making the cost of managing information higher than necessary;
- The shortage of trained Subject Matter Experts to provide advice to staff may exacerbate the above mentioned risks;
- Implementation of centralist technological solutions to information management issues can be costly and we do not have assurance that it will deliver the expected results because of the decentralized nature of the department.

The department needs a global approach to information management to address the issues identified in this review.

Recommendation #1

In the shorter term, the Information Management Branch, with the help of regions, should develop the basic structures, documents and tools to provide guidance to employees. These include:
- **a common IM terminology, concepts and standards;**
- **the definition of the roles/responsibilities of the business lines, program managers and staff related to IM;**
- **the updating of the classification system;**
- **the development of a retention and disposal schedule;**
- **the development / update of departmental IM policies; and**
- **the establishment of standards for data and information management technologies, in order to ensure compatibility and sharing of data and information**.

Once developed, these tools and guidance documents must be communicated to employees across the department.

Recommendation #2

The Information Management Branch should develop a communication program to be used to inform staff across the department. These communications efforts should be sustained to ensure existing and new staff understand their information management responsibilities.

Over the longer term, the department may want to consider the implementation of an computerized information management system. This could potentially be an expensive endeavour and, at this point, it is too early to say which system would best meet the department's needs.

Recommendation #3

The Information Management Branch must develop a full business case before any decision be taken on implementing an information management technological solution in the department. The business case must identify and quantify the benefits, the implementation costs and on-going maintenance costs, including system updates and customizations, support staff, and training of staff using the system. This analysis must be done in the context of moving toward Government-on-Line.

Management Response

Recommendation #1: Agree
Proposed action for common terminology, concepts and standards and a definition of roles and responsibilities: The Information Management Branch (IMB), with the support of the Information Management Steering Committee (IMSC) and the Regional Directors of Finance and Administration, will develop a document to identify common terminology, concepts and standards. In the same vein, a document outlining all employees responsibilities (from senior managers to managers to support staff) will be prepared. Those 2 documents should be developed in the context of an Information Management Framework.

Timeline: Fall 2001 for the Common terminology and the definition of the roles and responsibilities. The definition of the roles and responsibilities should be presented to MAP later in the Fall.

Proposed action for updating the classification system: A new classification system based on functional processes should be put in place. National Archives have been approached to benefit from their experience. Given this is a fairly new concept, preparatory work to understand the system and its impact/feasibility within EC will be essential. IMB will work on a proposal to get external expertise to assist in the development of such a structure.

Timeline: Program Integrity funding will be required before setting up milestones.

Proposed action for development of a retention and disposal schedule: A business plan was prepared in the Fall of 1999 for which no funding was identified. The work was to be done over a period of 2 years. A second proposal to do the work internally over a longer period (6 years) has also been completed. This longer term proposal utilises existing resources and is subject to agreement by Regional Directors of F&A.

Timeline: If funding is available from Program integrity, we will accelerate the process of developing the MYDP and merge it with the new classification system.

Proposed action for development and update of departmental IM policies: Meet with TB officials to identify when central policies and guidelines on IM will be available

Timeline: TB is reviewing Central Agency policies and guidelines. It is recommended we differ Departmental policies and guidelines until completion of their policies.

Proposed action to establish standards for data and information management technologies: IMB has already reviewed some of the technologies on the market and piloted the TB shared systems initiative chosen application called RDIMS. The final report on the pilot confirmed that this technology is working within the technical environment in EC. The fact that there is already a contract and several departments using it is a major advantage. One of the main concerns is to implement a web-based version because this is the way of the future.

Timeline: Final report on the RDIMS pilot almost completed. Need to complete the technical part. A fully costed business case will be developed.

Recommendation #2: Agree
Proposed action to develop communications plan: The IMB will develop a communication program with the support of the Regional Directors - Finance and Administration and the IMSC. This plan will include mandatory training sessions for employees as well as bulletins and a web-site to post valuable information on best practices in managing information. IMB will also organise a workshop on Information Management in the Fall 2001.

Timeline: Funding has been requested for the preparation of the material and travels across the country. This should be accomplished during the fiscal year 2001-2002

Recommendation #3: Agree
Proposed action for development of business case: IMB, with the help of a consultant firm, will prepare a full business case for implementing a technological solution in the department.

Timeline: First quarter of fiscal year 2001-02

Introduction

This study was undertaken in order to determine the state of Information Management (IM) practice in Environment Canada. It was conducted by AJJA Information Technology Consultants, specialists in information management. The major purpose of this study was to assess the degree of compliance with legislation and policies and good information management practice in the department. The assessment was conducted from the point of view of the document life cycle, accountabilities, knowledge levels, and availability, accessibility and integrity of the information.

The findings and recommendations are intended to provide input to the department's IM/IT Strategy, and are timely because of the priority and focus being directed towards Government-on-Line.

Review Scope and Methodology

Across the potentially broad range of information management areas and activities within Environment Canada, this study selected and focused on operational information management in selected program areas. Information and work processes related to the administration of finance, personnel and material management were excluded as were activities related to EC's role as the custodian of national environmental information and the role of the departmental libraries.

For the purposes of this work, the Treasury Board definition of Information Management was used:

Management of work activities related to the planning, creation, collection, organization, use, retrieval, transmission or dissemination, storage, protection and disposition (either destroying or archiving) of information.

Information was gathered for this study through 74 one-on-one interviews with staff and managers in order to get in-depth information about their IM practices. The interviewees were chosen randomly from across all branches, programs, specialties, positions both in headquarters and in all regional offices.

In addition, departmental documents as well as information from the Treasury Board, other government departments and from outside sources was reviewed to determine legislative and policy requirements. Findings from previous studies and experiences and best practices of others were also reviewed.

Findings

In order to address the key areas of interest, the summary of key findings is divided into sections addressing different components that influence, and help to determine how IM is practiced at EC. These sections are: People, Culture and Attitudes; IM Policies, Standards and Procedures and the Department's Readiness for Government-on-Line; and Department's State of Compliance to Legislation and Central Agency Policies.

People, Culture and Attitudes

Objective: Determine the knowledge level of managers and working level employees within the department of the responsibilities associated with the management of information.

- Some areas make specific efforts to catalogue their information holdings, but there is no consistency in how information is managed in Environment Canada. At the same time, employees are very conscious of their responsibility to look after the information in the department as a corporate asset and corporate memory. However, for the most part, managers and working level employees have minimal knowledge of the legislation and policies related to information management to help them manage the information effectively. Equally, many cited the fact that they have little time to devote to good information management and that aggregated data, analysis and finished reports are filed and preserved on personal drives. Keeping up with the volume of e-mail and managing it effectively is a problem;

- Scientists are concerned whether raw data will be accessible as a free service to the public. They worry that posting of raw data on the Web will jeopardize their research;

- Most scientist interviewees do not have a good understanding of what federal IM policies and legislation apply to them and their work and why;

- Senior managers recognize the need and priority for training in IM. This is in direct contrast to working level staff. Working level staff are stating that even if training is offered they don't have time for it, and in lieu of training they are asking for policies and procedures at their desktops;

- Regarding ATIP requests, most senior staff expressed concerns ranged from potential embarrassment to the department if the requested information could not be found to worries over personal liability and being subject to fines for not producing the information on time. While it does not seem that current information management practices are the main factor affecting our capacity to respond to ATIP requests on time, the current approach to managing information can result in more staff time than should be necessary spent to respond to ATIP requests;

- Post Program Review, there are few records management staff in the department. Of those who remain or who have been moved into records management areas, few have had sufficient training or upgrading of skills especially related to electronic records keeping to be able to provide "good" advice or to be used effectively in helping with Government-on-line (GOL) initiatives. In addition, records management staff in the

regions, and perhaps at headquarters, need better understanding of what is required by National Archives and how to interpret their Disposition Authorities.

Objective: Determine whether the integrity and continuity of information is maintained through organizational change.

- Information that is published is well managed, even if not all the best practices are followed;

- Those who work in the collection of raw data through specialized electronic means or those that work primarily with raw data transmission are mobilizing to guard that data through locally developed processes;

- Lack of good and consistent Information Management practices is resulting in loss of information in many areas of the department when organization (or personnel) change takes place. At the same time there were areas that specifically made time before senior staff departed to have them examine their data holdings, bring to publication any data that was ready and to pass on to others any additional raw data before departing;

- Management of e-mail, is an issue. There are very few directives on how to organize information in personal file folders. Everyone has their own way of doing things. Regardless the method used, just keeping up with the volume of e-mail information that needs to be managed for personal use is challenging, information management of e-mail for the sake of preserving corporate memory or sharing is rarely done.

Objective: Determine whether employees have the information they need to conduct their day to day activities.

- Employees generally have the information they need to conduct their day-to-day activities. A few voiced specific concerns such as jurisdictional issues, impact of cost recovery, whether the right information was supplied, etc.

In summary, while some areas understand the need for and undertake reasonable information management efforts (such as published information in the scientific area), much of the department is either unaware of or unsure of their specific responsibilities regarding information management. Efforts to maintain the integrity of information, both hard copy and electronic, through staff departures and organizational changes has not been good. The interviews indicated that while the unevenness of information management does not appear to be affecting the ability of staff to carry out their responsibilities on a daily basis, there are implications for the longer term accessibility of information. There is clearly a willingness to improve but both staff and managers will need tools and sufficient guidance provided by information management specialists in order to improve their IM practices.

IM Policies, Standards, Procedures and Readiness for GOL

Objective: Examine if departmental information is available, understandable, useable, complete, accurate and up-to-date in preparation for greater accessibility to more departmental data through GOL.

- Some areas have been gradually putting more of their information into a Web friendly format and making it available through this mechanism. On a department wide level, changes to the way information is managed are required to make departmental information more available, understandable, useable, complete, accurate and up-to-date in preparation for GOL. Specifically, information in the department is not sufficiently inventoried and clustered under controlled classification and indexing schemas for posting on the Web. At the same time, scientists are concerned about the implications of GOL; they worry about whether posting of raw data on the Web will jeopardize their research;

- The existing classification system is outdated, may not cover all records and is seldom used for the indexation of documents and records created in the electronic environment. It may not even be applicable to electronic records or records publishable to the Web;

- Internal IM policies are outdated and relate mostly to paper records; and

- There are no definitions in the department for the new IM terminology, concepts and standards that have evolved in the last five years. If the department needs to create models on how information must be presented, create processes for publishing to the Web under GOL, there needs to be a controlled vocabulary in place so that all stakeholders understand each other.

- The department is decentralized not only in the administration of IM but also in the administration of all of its mandates. To date, there has been no cohesion between individual movements to address IM issues. Based on this, implementing a standard centralist IM strategy may be difficult, when all other functional activities are divided.

In summary, EC is not starting from scratch. The department has a documented history of well-established policies and directives for managing information in the past. *EnviroSource*, the first information holdings inventory in a federal department, was a very successful EC product, conducted under the umbrella of the Management of Government Information Holdings Policy. Similarly, the *Management, Policy and Procedures Manual for Administrative Support Functions,* last issued in 1989, was a good document and, although outdated, it is still being used as a basic reference for records management. Of the tools created in past years however, the Departmental Records Automated Management System would seem the most appropriate to use as a starting point to meet present needs in categorizing records holdings in the department. However, that subject block numeric system may not meet the need of future Web based information management. A final factor is the challenge the department's decentralized nature will present when trying to prepare for government on line and to do so in a cohesive manner.

Status of Compliance with Legislation and Central Agency Policies

Objective: To identify accountabilities for managing information within Environment Canada.

- The departmental Information Management Branch, under the supervision of the Director General, Administration, is responsible for the implementation of the Management of Government Information Holdings policy throughout Environment Canada;

- All staff are aware that the creator is responsible for the management of his/her information on the desktop, and all understand that they are accountable for the content;

- Few working level staff are aware they are accountable for the information they posted to the Web, placed on shared drives or filed in records office;

- Based on the interviews, senior management is aware of Copyright laws and ATIP legislation. They understand that non-compliance to these Acts may cause harm and embarrassment to the department. However, there is little indication that senior managers are aware that keeping too much information, and for too long, is very costly, risky, and maybe in contravention of the National Archives of Canada Act (NACA).

Objective: Assess information management within the department by analyzing the full life cycle of information holdings in a sample of programs in the department.

- As is the case with many departments, Environment Canada is not fully compliant with the legislation, policies and directives related to Information Management in the federal government.

- Archival records are being destroyed in contravention of the National Archives of Canada Act (NACA).
  1. Employees, when leaving, clear out their workstations, and in many areas, there is no systematic process for downloading their information into an archival repository.
  2. The records office has no control over electronic information in the department.
  3. When staff leave or transfer, copies of electronic records do not filter into the records management offices, therefore, if the records offices do not have the paper version, nor the electronic version, the information is lost. It is suspected that the information has been destroyed.

- The NACA stipulates that departments "arrange for the transfer of archival or historic information to the National Archives in accordance with schedules or other agreements developed for this purpose"
  1. The Records Disposition Agreement with National Archives of Canada, which was signed and agreed to in 1990, has not been carried through by EC. Consequently the EC records have not been appraised and archival records are not being passed to NA following the end of their usefulness to the department.

- Records are destroyed in contravention of the Transitory Records Authority under the NACA
  1. Staff routinely destroy e-mail transactions that they deem to be of administrative nature and therefore not of value, yet many of those records document the processes of developing a policy or arriving at business decisions. Such records hold archival value and should not be destroyed. The NACA applies not only to the "content" of the record but also to the "context" of the record. E-mail transition messages are most at risk.

- Access to Information and the Privacy Act (ATIP)—There is not a uniform understanding of the requirements of ATIP.

- There is no compliance to Management of Government Information Holdings Policy to maintain a comprehensive inventory of records subject to the NACA and the department is in contravention of the Management of Government Information Holdings Policy by not maintaining a complete bibliographic description of published material according to established standards, together with references to catalogues and any indexes used.

- There is evidence that not all copies of publications are sent to the National Capital Region for transfer to National Library as directed under the National Library Act.

In summary, this section highlights non compliance with legislation and policies governing information management which is intrinsically linked to the findings described under People, Culture and Attitudes. Developing the capacity in the department to retain its information, document its holdings and be compliant with requirements will depend on staff and managers having a clear understanding of what their responsibilities are, being able to depend on effective tools and systems to facilitate the information management process as well as knowledgeable IM staff to provide guidance and advice.

Risks

The findings in the three sections above identify a number of weaknesses in the current state of information management which pose a certain level of risk for the department. More specifically:

- Information is being destroyed and it is highly probable that information with archival value is destroyed, in contravention of the National Archive of Canada Act, because staff do not have the necessary tools and guidance to manage information adequately;

- Environment Canada may not be able to launch all services on time under Government-on-Line as planned. Without a comprehensive inventory of, and classification system for records, it will not be possible to ensure the information we post on the Web is current and kept up-to-date and EC may not be able to implement Government-on-Line on time;

- While difficult to quantify, the lack of a cohesive and comprehensive approach to current Information Management practices is likely making the cost of managing information higher than necessary, due to the implementation of ad hoc partial or local solutions to IM issues and the generalized duplication of information;

- The shortage of trained Subject Matter Experts to provide advice to staff may exacerbate the above mentioned risks;

- Implementation of centralist technological solutions to information management issues can be costly and we do not have assurance that it will deliver the expected results because of the decentralized nature of the department.

Based on previous studies, it seems the department has been operating with similar risks without incurring major problems for many years. However, a growing number of factors make it untenable to continue to operate in this way. First, an increasing proportion of the department's business is conducted electronically, many associated pieces of information are retained in this format only and there is a very limited awareness in most areas of how to manage this type of information effectively. Second, preparing for and participating in Government-on-line will require significantly more rigor in the way the department manages its information holdings and the present approach is unlikely to be able to adequately respond to the associated requirements.

Recommendations

This review found that quality of information management is uneven in the department. Employees are aware of the importance of good information management and use their best judgment to manage the information they create and use. However, they often do not know the basic rules of managing information in the federal government and do not have the necessary tools for managing information well.

The Information Management Branch in Corporate Services recognizes that these are important issues for the department and has taken a number of initial steps to address several issues. For example, this Branch has developed a hand-out to be distributed to employees to better inform them of their information management responsibilities and a pilot project was also conducted with the Year 2000 Office to analyze a software package (RDIMS) for its applicability to information management for EC. However, these steps need to be set within the context of a more comprehensive approach. The department needs a global approach to information management to address the issues identified in this review.

Recommendation #1

In the shorter term, the Information Management Branch, with the help of regions, should develop the basic structures, documents and tools to provide guidance to employees. These include:
- **a common IM terminology, concepts and standards;**
- **the definition of the roles/responsibilities of the business lines, program managers and staff related to IM;**
- **the updating of the classification system;**
- **the development of a retention and disposal schedule;**
- **the development / update of departmental IM policies; and**
- **the establishment of standards for data and information management technologies, in order to ensure compatibility and sharing of data and information**.

Once developed, these tools and guidance documents must be communicated to employees across the department.

Recommendation #2

The Information Management Branch should develop a communication program to be used to inform staff across the department. These communications efforts should be sustained to ensure existing and new staff understand their information management responsibilities.

This will require a different role for the Information Management Branch in headquarters and the Regions as a provider of guidance and advice as opposed to a provider of services. This revised role will require different skills for subject matter experts.

These short term actions will not resolve all the information management issues in the department, but will clearly define the business processes around information management and provide the strong basis required for good information management in the department.

Over the longer term, the department may want to consider the implementation of an information management software system. This could potentially be an expensive endeavour. For example, a preliminary assessment of one system, RDIMS, estimated a start up cost of over $8 million with subsequent and on going annual operating costs. At this point, it is too early to say which system would best meet the department's needs. No comparative analysis of the different technological solutions available has yet been done and the results of the RDIMS pilot project have yet to be evaluated.

Recommendation #3

The Information Management Branch must develop a full business case before any decision be taken on implementing an information management technological solution in the department. The business case must identify and quantify the benefits, the implementation costs and on-going maintenance costs, including system updates and customizations, support staff, and training of staff using the system. This analysis must be done in the context of moving toward Government-on-Line.

Management Response **(See Executive Summary)**

Conclusion

The review found that some parts of the department have better information management practices than other and that staff generally have the information required to meet their day-to-day responsibilities. The review also identified two main areas where information management practices should be improved in the Department.

The first area relates to the compliance with the National Archive Act. Because of current management practices, it is not possible to ensure that departmental records with archival value are protected. The second area that requires improvement is information management in support to Government-on-line. This initiative has requirements such as clearly identified owners of information and assurance that the correct version of the information is posted on the Web; these can only be met by improved information management practices.

Providing better IM tools and guidance to employees is an important first step and may address many of the issues identified. Beyond these short term measures, the department may require significant additional resources to further improve information management and to fully address all the weaknesses identified in this review. This is why a strong business case must be developed to identify the full costs and benefits of implementing the appropriate technology.