JOUR
T
58.6
.I53
1990

Industry Canada
Library - Jrl Tower S
NOV 09 1995
Industrie Canada
Bibliothèque - Édifice Jrl S

DRAFT

Industry Canada
Library Queen
AOUT AUG 12 1998
Industrie Canada
Bibliothèque Queen

AN INFORMATION RESOURCE MANAGEMENT REVIEW

DEPARTMENT OF COMMUNICATIONS
PROGRAM EVALUATION BRANCH

15 JUNE, 1990

– DRAFT –

AN INFORMATION RESOURCE MANAGEMENT REVIEW DEPARTMENT OF COMMUNICATIONS

1. PURPOSE

Information management within the Department of Communications has been the subject of study and development for several years. Several initiatives have recently been completed, while others are ongoing. These include a review of the literature on information management, a thorough study of information management in ADMSR, the development of a strategic information plan and work on strategic data planning by DGIM, and a comparative survey of practices in other large organizations in North America.

This proposal represents a further step in the development of the information management process in the Department of Communications. It describes the need to conduct a study of information resource management within the department, outlines the issues which the study will address, presents a plan for a thorough review of the department's information resource management, and recommends a plan of action for the first stages of the study.

2. REASONS TO REVIEW THE DEPARTMENT'S INFORMATION RESOURCE MANAGEMENT

During the past decade, information has increasingly been recognized as one of an organization's most costly and valuable resources, one which must be well managed so it will provide maximum value. Like energy, both the sources of information and the flows of information are resources.[1] Also like energy, discovering and developing sources of information are separate processes from ensuring that it reaches those who need to use it. Both the information itself (the meaning of the information) and the means by which information is obtained and delivered are part of the resource. Furthermore, information is a strategic resource. If an organization wishes to direct itself towards achieving its mission, it must link its information resource management issues to its strategic operations in finance, in research and development, and in its programs or projects.

This proposal is based on the assumption that information is a resource which can be managed like any other to achieve the strategic goals of the department. In short, information can be managed, and must be valued in the same way that financial, human, and physical resources are managed and valued. Information resource management is the management of both information content and the tools (supplies, equipment, facilities, personnel, and capital investments) to support corporate strategy and direction.[2]

Most study in the department to date has concentrated on the technology of information handling. The Strategic Information Management Plan (IMP) developed by DGIM is a current example. This work is essential, but it is desirable that the scope be expanded to include a strategic focus on the content, availability and relevance of information to achieving the department's strategic aims.[3] The business modelling component of the IMP will provide a conceptual basis for carrying out content-centred analysis of the department's information resources. The work proposed in this study and the business modelling project must be conducted concurrently and fully co-ordinated. A basis for co-operation has been established in the development of this proposal.

The literature on information management suggests that the essential starting point for effective management of information resources is an information inventory. Top management must first know what information the department holds, where it is, its cost, its value, and its quality before it can establish management methods.

Developing an information resource inventory is more than a project to discover something which would be nice to know. Three factors indicate a need to review how the department manages its information resources: the Treasury Board Management of Government Information Holdings (MGIH) policy, the importance of information resources in the department, and the rapidity of change in information technology.

The new Treasury Board MGIH policy requires that each department develop a complete inventory of its information holdings. According to a current draft of the standards being developed, the inventory should:

- be centrally coordinated,
- be current (regularly updated),
- be comprehensive (covering all programs and activities),
- be structured to provide an effective means for organizing and locating information,
- link the defined objectives of the department to its information holdings and to the various systems that allow access to these holdings,
- describe the mission, mandates and programs of the department,
- show how these are tied to its information holdings,
- describe the subject matter of those holdings and the various systems that allow access to them,

- define the method of access to those systems, and
- describe policies governing the retention, disposal, and classification of information holdings.[4]

In short, the MGIH policy requires the development of an information resource inventory which will serve the department's strategic needs. Other central agency requirements (ATIP, security policy, archiving policy) can also be met within a single comprehensive inventory. The department must determine if any changes are needed in its information management practices in order to comply with this new policy.

A second factor is the sheer magnitude of the corporate resources devoted to information management. As part of the development of the IMP, DGIM estimated that the department spends approximately $59 million on automated information management and informatics, and at least as much on manual information processing. In the current fiscal year, DOC will spend a minimum of $120 million on information management, approximately one quarter of its total annual expenditures. It forms such a large portion of the budget because what the department actually does is manage information. It is obvious that the information required to support decision making is costly to create and disseminate. The department must ensure that this corporate resource is managed in an effective, efficient, and economical manner.

The final factor which highlights the need to review information resource management in the department is rapid change in the technological environment. Developments such as the convergence of voice and data transmission and the widespread distribution of electronic data and word processing capabilities present new challenges in information management. For example, the ease of distributing electronic rather than paper copies of correspondence and reports can threaten the loss of corporate memory if new efforts are not made to provide archival copies. While much attention has been paid to the acquisition of hardware, this is only one aspect of information management. Work remains to be done on developing information technology policies, plans and practices within a broad information resource management context.

3. INFORMATION RESOURCE MANAGEMENT PROBLEMS IN THE DEPARTMENT OF COMMUNICATIONS

The review of the literature on information management suggested several problems that are likely to be identified in organizations which would benefit from improved information resource management. To test the assumption that these problems would be found in the department, it was decided to have DPE conduct limited interviews throughout the department to get an understanding of the situation. The results of these interviews are not intended to, and do not, present a complete picture of the state of information resource management in the department.

These are preliminary results, but they provide initial confirmation that the department experiences most of the difficulties identified in the literature review .

Ten managers and information resource users in the Department of Communications were interviewed about their experience and satisfaction with information resource management in the department at present.[5] A number of difficulties emerged during these interviews which can be grouped into four general themes: problems with strategic direction, information management problems, the usefulness of the resource, and administrative information system problems.

Strategic direction:

Managers felt there was a lack of strategic focus involved in choosing what information is gathered and provided. The problem is exacerbated by a perception that the information gathering function is not driven by a strategic plan, but by fast breaking priorities which draw attention away from the strategic to the immediate. As a result, it is generally believed that the department's information needs for effective long range planning are not being met.

Managers indicated that the department does not do any broad environmental scanning with a 3 to 5 year horizon to anticipate trends which will affect the department within the period of its strategic focus. This means that there is often not enough time to gather, sort and analyze data to feed either the policy process or the design and implementation of programs.

Also, because of the short time frame in information gathering, information producers did not know if the information they produced was sufficient, too much, or in a form that was most useful to information users.

Information management policy:

Many interviewees stated that there was no overall departmental policy on information management, and that this leads to duplication of effort and inefficiency. Two major types of problems were identified: incompatibility of information resources, and a lack of coordination or dissemination of information resources.

Both managers and users said that compatibility problems remain in the department because information tools – both hardware and software – are incompatible and diverse. This results in part from the lack of a match between responsibility for decision making and authority. Taking the example of hardware compatibility, DGIM has the responsibility for coordination, but lacks the authority to impose the standards which it recommends.

Secondly, information is gathered or compiled in a variety of forms which do not allow it to be merged or compared with other available information. For example, Statistics Canada, various DOC branches, and the cultural agencies collect related information, but because they define

the terms they use differently, and because it is not in a form which allows it to be merged, the information cannot produce maximum value. This is a problem of both compatibility and coordination.

Coordination of information resources presents a major problem. The department has no central registry of its information holdings. This results in a less than ideal corporate memory. Several registries exist -- the DGAT registry of holdings, the ATIP registry, the recently instituted information collection data bank, and sector registries -- but none is centralized, none is established to serve the department's multiple purposes, and not all are structured so as to be conveniently interrelated.

Several reasons were offered to explain this problem. Often similar information is collected by several branches because they did not know what others are doing. At the same time, information which has been collected is not used because there is no adequate corporate memory of previous projects. This may be a problem of coordination, because managers do not always disseminate information on their holdings, nor consult with others before gathering new information resources. This may be because managers have previously had a bad experience with giving up control of their resources. The informatics branch provided several examples of how programs have suffered loss of data quality or access when they have followed central directives. A single bad experience can make program officials shy of further involvement with central information systems or even registries. Others suggested that the problem is caused by the lack of a central body in the department with sufficient authority to coordinate information resource gathering and management. One manager suggested that a central body might require financial authority to back up this responsibility.

Administrative information systems:

Two types of problems with the department's administrative information systems were identified in the interviews. Within ADMCM there is a recognition that problems exist. This includes a lack of information on the demographic makeup of the department's human resources to be used in human resources planning and development, an insufficient automation of systems, and a predominance of raw data over processed information which is practical and useful. Improved training was perceived as necessary to make quality information management a possibility. Management indicators have recently been developed within ADMCM which will help to overcome these problems within the context of the Annual Management Report (AMR) and IMAA.

Outside the corporate management sector, interviewees complained that administrative information systems, including the EIS network, are poorly documented and poorly supported; as a result, these systems are not user friendly so they are under used. Respondents in two sectors complained that administrative and management information are not readily available to them. They further noted that DOC and DSS systems sometimes appear to provide conflicting or out-

of-date financial information to managers, making it difficult for them to take responsible decisions. The level of dissatisfaction with these systems appeared to be quite high.

Refining the resource:

All ten interviewees agreed that they suffer from a serious information overload. Large amounts of raw and semi-refined data are available, but there is a shortage of the analysis and filtering required to transform data into information. In the literature, the processes which are missing are referred to as value added.[6]

To some degree, this final problem encompasses elements from each of the preceding. Without a strategic direction, an overall information management policy, or adequate operational information systems, it is impossible to provide just the right amount of well-focused information to the user who needs it. The interviews conducted in preparation for this proposal all pointed to an organizational problem within the department. The problem is not exclusive to the Department of Communications, however. As Cornelius Burk, author of *InfoMap: a complete guide to discovering corporate information resources*, said in a recent presentation to the Department of National Defense, "... the primary constraints to succeeding [at information management] lie not in the deficiencies of technology but in the organization ... and the business practices it employs. Conversely the necessary enabler of success for the strategic use of information is the organization and its practices, not the performance of technology. As a consequence ..., information management will inevitably become more closely interwoven with the very fabric of the business ..." [7]

Burk was also very clear about the risks an organization faces if it continues to mismanage its information resources. These are waste, system failures, unnecessary paper burdens, and a possible loss of security.[8]

4. SCOPE OF THE REVIEW

As noted at the beginning of this paper, work is already underway to address the problems identified in the preliminary interviews. Most recently, a strategy for addressing the department's information resource management practices has been proposed through ISSC. At the same time, DGIM is devoting serious thought to developing an information resource management approach to the IMP. The plan proposes building a framework for data administration based on a business model of each sector of the department which will be developed as an early stage in the IMP.

At present, other materials are available to provide background. In 1987, DPE produced a discussion paper on DOC's information requirements.[9] In 1989, DPE conducted a literature review which summarized the current literature on information management, identified major trends, and summarized the government's information management legislation and policy.[10]

Issues were identified, and a rationale for conducting an information management review was presented to ADMCM in a memo, November 28, 1989. DPE then developed an information requirements matrix for DGTA which set out a framework for considering what information ADMTR would require to do its job.[11] A study of DGAT records systems was conducted last year in co-operation with the Public Archives of Canada by a private consulting firm. An early draft report suggests that the results will be positive, and the study will provide a useful starting point for reviewing DGAT practices as part of the present proposal. Finally, a study of information management practices in large organizations has been conducted by David Black, with the final report expected in May, 1990.

Each of these studies, as well as the requirements of the Treasury Board MGIH policy, identifies conducting an information inventory as an essential first step in establishing effective information resource management procedures. For internal purposes, an inventory should link the department's information holdings to its mission, its strategic plan, and to its business models. It should identify the costs and benefits of information holdings. It should distinguish between information which is critical for the department's corporate success (strategic information resources) and non-productive or overhead information. Finally, it would emphasize senior management's commitment to good information management principles. For an information inventory study to succeed, of course, senior management must believe that information can be managed as a corporate resource, and that information can play a strategic role in the department's operations.

The InfoMapping approach is recommended as a basis for carrying out the information inventory. This technique was developed by Cornelius F. Burk and Forest W. Horton, the former an Ottawa-based consultant. The approach was tested first in Australia in the private sector, and used subsequently by the U.S. State Department, Labour Canada and Secretary of State. These users have been very satisfied with the overall approach, which can be custom tailored to meet an organization's specific needs.

InfoMapping is a bottom-up approach, designed for generalists. At Secretary of State, non-information specialists working in teams are developing the inventory. The approach considers both the information content (the holding) and the information handling functions (production, handling and use) to be a part of the information resource. Both internal and external information resources are considered in developing the inventory.

The Infomapping approach consists of four basic steps:

1. Conducting a baseline survey of information sources, systems and services

2. Attaching costs and values to information entities

3. Analysis of inventory and cost/value ratios

4. Developing a strategic synthesis to identify and protect resources with greatest strategic value to department

This proposal recommends conducting a pilot test of the InfoMapping approach before implementing the study throughout the department. This pilot should be conducted concurrently with the development of the top levels of the department's business model conducted by DGIM. To thoroughly test the approach, it should be applied in three different environments representative of the department's activities: a policy branch, a program delivery branch, and an administrative branch. Judging from the experience at Secretary of State, the study should be carried out by ad hoc teams made up of representatives from all directorates involved. Approximately three hours per week would be required from each team member. In addition, a project leader would be required. A senior level committee should supervise the overall project to direct activities and to help ensure full participation. Approximately six months will be required to carry out the pilot test, and a minimum of two years to conduct the full corporate inventory. Very few additional resources will be required. The proposed process for carrying out the study is outlined in greater detail in Appendix D.

While the full information inventory is being conducted, several further studies and evaluations should be undertaken to complete a full review of the department's information resource management. Briefly these are:

1. A review of the department's compliance with requirements of Treasury Board's MGIH policy in areas other than the information inventory (for example, archiving, collection of information, maintenance and protection).

2. A review of DOC's information resource management practices should take place at the same time as the inventory to determine whether organizational structure and procedures in the department allow the effective management of the resources being mapped. This review should address the adequacy of systems for tracking information costs at DOC, determine whether there is an appropriate linkage between human resources training strategies and information management strategies, examine the adequacy of organizational structures, and continue to track the state of the art in information management trends to ensure that the department makes full use of developments in other organizations.

3. A program evaluation of the department's policy research function to determine whether a rational and coordinated approach is currently in use in carrying out the department's research. The program evaluation issues questioning a function's rationale, its impacts and effects, its objectives achievement, and alternatives to the present program are well suited to reviewing the research function in the department. Recent initiatives in several sectors to increase the capacity for research make such an evaluation particularly timely.

4. A scheduled program evaluation of DGIM currently scheduled for 1990/91 should be expanded and altered to thoroughly review the department's information management function rather than concentrating simply on informatics. This evaluation should explore the processes and practices, policies and attitudes prevalent in planning to meet the department's information needs, attitudes held by program managers and senior management towards information as a resource, explicit or implicit departmental policies concerning the management of information and information technology, compliance with policies, management practices, the level of resources devoted to various aspects of information use and management, the adequacy of linkages between information management and strategic planning, etc.

5. An information resource inventory will provide one side of the picture the department requires to move its information handling toward the state of the art. When the inventory is complete, the department will know what information it has, it will know approximately what the cost and value of the information resources are and have a good idea of the cost to value ratio, and it will have a strategic approach to identifying and protecting its most valuable resources.

   To complete the picture of how well the department is served by its existing information resources it will also be necessary to develop an understanding of what information it needs to do its job. Appendix C is an example of preliminary work undertaken by one sector to understand its information resource requirements. Similar work undertaken for the entire department should provide an information needs matrix which could be compared with the findings of the information resource inventory to discover what information the department does not have that it needs, what information it has that it does not need, and to develop a plan for realigning the department's information resource activities to fill in the matrix. A project to assess the department's information needs could be conducted concurrently with or following the information resource inventory project. It is a necessary step in developing an action plan to institute modern information resource management in the Department of Communications.

5. RECOMMENDATIONS

This proposal recommends that the first step in the review of the department's information resource management be to conduct a trial information resource inventory in three different areas representative of the types of activity carried out by the department. A sample policy branch which would be appropriate would be DGIR. DGIR has undergone a full program evaluation in the past year, so its processes are well documented and understood at present. Conducting an information resource inventory would contribute to implementation of the recommendations expected to appear in the final evaluation report. The Museums Assistance

Program (MAP) would provide a suitable example of a program delivery branch to be studied. In addition to providing a test for the information inventory, the process would contribute to development of a program evaluation framework to be developed this fiscal year. Finally, in ADMCM, DGAT and the ATIP office (which is part of DSC) are suggested as subjects of the inventory process. It is logical to conduct the two together because of the close interrelationship between the two branches.

The results of the pilot test of the InfoMap approach to developing an information resource inventory should be assessed by senior management upon completion, and the process and instruments redesigned to ensure that the inventory of the full department meets corporate strategic needs. This process should begin immediately upon completion of the pilot.

Concurrent with the information inventory, program evaluation assessments of the information management function and the department's policy research function should be undertaken. The assessments will identify issues to be studied and methodological approaches to produce useful results when the program evaluation studies are undertaken early in the full information resource management review. A team should also be identified to begin work on developing an information needs matrix for the department.

REFERENCES

1. Cornelius F. Burk, Jr. and Forest W. Horton, Jr., *Infomap*, Englewood Cliffs, N.J.: Prentice-Hall, 1988, p. 14

2. Karen B. Levitan, "Information Resource(s) Management – IRM," *Annual Review of Information Science and Technology*, Vol. 17, White Plains, N.Y.: Knowledge Industry Publications Inc., for the American Society for Information Science, 1982, p. 236.

3. Donald A. Marchand and Forest W. Horton, Jr., *InfoTrends, Profiting from Your Information Resources*, New York: John Wiley & Sons, 1986, p. 128.

4. Treasury Board Secretariat, "Draft Standards for a Corporate Inventory of Information Holdings," April 2, 1990, p. 1.

5. A list of interviewees and the interview questions appears in Appendix A.

6. See chart, Appendix B.

7. Cornelius F. Burk, Jr., "Current trends in information management," presentation to the Department of National Defense, Ottawa, Ontario, 7 November, 1989.

8. Ibid.

9. Department of Communications, Program Evaluation Series, *Discussion Paper: DOC Information Requirements*, Document #5178-7, November 1987.

10. Department of Communications, Program Evaluation Branch, *Information Management: a preliminary review of the literature*, 14 November, 1989.

11. See matrix, Appendix C.

– APPENDIX A –

LIST OF INTERVIEWEES AND INTERVIEW SCHEDULE

Peter Barnes, DSF
Jean Bélanger, DSC
Gaston Blais, DGAP
Julie Chahal, DGIM
Françoise Dompierre, DAP
Francine Gallo, DMG
Elizabeth Gilmour, ADMTR
Everett King, DGSP
Frank Malick, DGIM
Tom Racine, DASM

INTERVIEW SCHEDULE

1. Assumptions
   Information management, acquisition, processing ought to be user driven rather than technologically driven

2. Need for Study
   Problem identification (symptoms, benefits, constraints)

   Ensure information is able to support Department's mission

   Need to manage information as a departmental resource

   Establish inventory in support of Treasury Board guidelines

3. Issues
   What information holdings do you presently have?

   What information do you need to do your job?

   Do you know whether you have it, either in your unit or elsewhere in the Department?

   Do you experience any frustration as a result of current information holdings or management practices?

   Is there any practical way to assess the value of the information you have for your unit?

   What is the most practical level to define as that of the key user in your area? Director General? Director? Chief? Analyst? Other?

   Are others in the Department aware of what information is held in your unit?

   What form is the information in? Would it be in if you had it?

   Is there any relationship between information management and your unit's strategic planning? The Department's?

   Is the information in your unit available with sufficient accompanying analysis to be useful to others within and outside your unit?

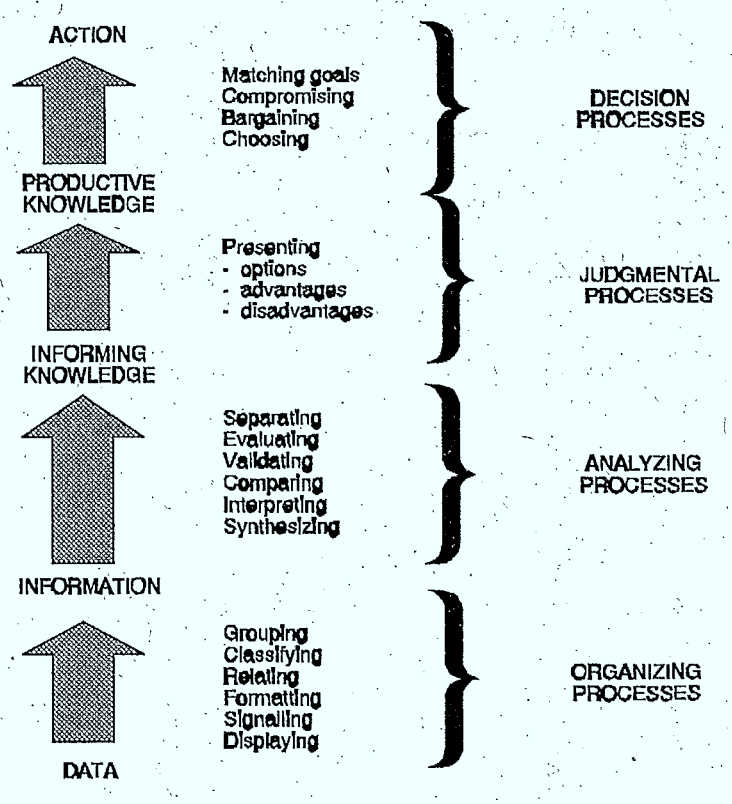
How do you ensure that your information gathering, maintenance or management activities support your strategic and operational planning process? Is there planning to ensure this? If now, should there be and at what level?

Is information technology available to support information requirements and management in your unit?

Is your unit subject to compliance with access to information or information archiving regulations? Are these adequately handled at present?

– APPENDIX B –

THE VALUE-ADDED SPECTRUM[1]



[1] From Robert S. Taylor, *Value Added Processes in Information Systems*, Norwood, N.J.: Ablex Publishing Corp., 1986, reprinted in Richard H. Lytle, "Information Resource Management: 1981-1986," *Annual Review of Information Science and Technology*, Vol.21, 1986.

– APPENDIX C –

ADMTR INFORMATION REQUIREMENTS

Introducing the concepts of timeliness and timeframe into this matrix would be useful at some point so that expectations and useful life of the information would be clear

I.WITHIN THE SECTOR

A.SECTOR MISSION

1.What is the department mission?	Provides broad direction for department Planning (long range)	Mission process Formal statement	Focus for all department activities Identifiable purpose and focus for department Strategic thinking
2.What is the sector mission?	Provides broad direction for sector complementary with department mission Planning (long range)	Analysis Notes Formal statement	Focus for sector activities Congruence with department mission Strategic thinking
3.Is the sector mission still relevant?	Planning (long range) Redirection of sector activities Evaluation of activities Continued focus on mission	Analysis Management planning Review of environment Briefing notes/policy statements	Current and timely focus for sector activities Congruence with department mission Strategic thinking Continued focus on mission's importance
4.What business is the sector in?	Definition of sector activities Developing specific, measurable objectives Planning (medium range) Development of evaluation indicators	Mandate Analysis Briefing notes	Directed efforts Directed planning process Evaluation
5.How well are the sector's mission and business plan understood and accepted by: -- the dept.? -- the sector? -- the clients?	Knowing how well the sector is doing Planning Developing communications plans Adjustment of plans Evaluation (measuring client awareness	Statements Response to initiatives (support or opposition) Changes in flow of resources Communication of sector's mission within the department and externally	Sector business plan Good communications practices Evaluation

B.SECTOR OBJECTIVES AND GOALS

1.What are the stated objectives of the sector?	Sector planning (short and medium term) Personnel evaluation Program evaluation	MYOPs BYOPs Evaluation Frameworks IMAA Agreement	Planning Work plans Directs resource allocation
2.Are the sector objectives stated in order of priority?	Management Review	MYOPs BYOPs IMAA Agreement Evaluation Frameworks Notes, text	Planning Resource allocation Personal work plans Evaluations Strategic thinking
3.Are they stated in such a way that progress and completion can be measured?	Management Review Evaluation	As above	As above
4.Are they achievable with available resources and expertise?	Management Resource review Evaluation	Cost estimates Budgets Staffing plans	Audit Resource allocation Work plans Evaluation Strategic thinking
5.Are they well focused on issues directly relevant to the department and sector missions?	Overall direction Develop evaluation indicators re: rationale Internal audit Personnel review	Departmental reviews Management meetings Evaluation documents	Resource allocation Personnel evaluations Internal audit Program evaluation
6.Are the objectives understood and accepted throughout the: -- sector -- department -- client groups	Qualitative understanding of how well the sector is doing Understanding of whose interests are being served Evaluation of communications and policy making effectiveness	Statements Response to initiatives (support or opposition) Changes in flow of resources Documents communicating objectives	Planning Resource allocation Good communications Evaluation

C.SECTOR RESOURCES (Resources include human, financial, informational, technical, etc.)

1.What resources are available to the sector?	Setting priorities Gauging support for activities Developing work plans Adjusting objectives and goals	Estimates Budgets Communications from ADMCM, SADM, etc.	Ability to carry out plans Ability to achieve objectives Develop and maintain support for activities from within department
2.What are the major strengths and distinctive advantages the sector has in relation to the -- department -- its clients	Setting priorities Targeting activities to support internal and external strengths Ensuring that sector activities complement others' Personnel and resource planning to maintain a balanced resource base	Inventory of strengths (personnel, information, facilities, etc.) Evaluation documents	Effective positioning of sector Effective resource allocation Staff recruitment Complementary links with other sectors and with clients Performance monitoring system Evaluation
3.What are the major resource limitations of the organization?	Ongoing performance monitoring Targeting activities to support strengths Professional development planning Seeking complementary sources of strength in other sectors and among clients Developing plans to develop strengths where lacking	Estimates Budgets Communications from ADMCM, SADM, etc.	Effective positioning of sector Effective resource allocation Performance monitoring system Evaluation
4.How do the resources available compare to those of other relevant organizations?	Assessing sector's fit with other research organizations operating in same field Judging appropriate resource levels	Comparative studies	Appropriate resource base
5.Are the sector's resources appropriate to the mission, plans and objectives of the organization?	Assessing departmental support for sector mission, business plan, objectives, goals Setting priorities Developing resource plans Seeking additional support Redirecting resources	Budgets Estimates MYOPs BYOPs IMAA Agreement	Appropriate resource use Sector efficiency and effectiveness Ability to achieve objectives Strategic thinking

6.Describe any plan for major changes in the organization in the next five years (e.g. new facilities, reorganization, altered mandate, etc.)	Long range planning Strategic resource development Human resource planning Professional development planning Maintenance of mission and plans	Planning documents Discussions Notes Management retreats, etc.	Maintenance of mission Relevance of sector Development of long range perspective among sector personnel, especially management Resource planning, manoeuvring
7.What feelings do employees have about themselves in the organization? (Do they see themselves as major assets of the organization? Do they perceive that the organization considers them important and counts on them?)	Monitoring management effectiveness Human resource planning (recruitment, professional development, reassignment, etc.)	Discussion Performance appraisal and review Staff meetings Department action plan	Happy, productive staff Sector efficiency and effectiveness Adherence to departmental action plan Integrated approach to resource planning and allocation
8.What is the approach to developing resources (personnel, motivation, reward, training, reorientation, information, fiscal, etc.)	Clarify management approach Evaluate adequacy of resources Ensure a development strategy exists where necessary	Annual resource plan Long range resource plan Sector plan MYOPs IMAA Agreements Personnel training and professional development plans as part of annual personnel evaluation process	Orderly resource modification and development Adequate resources to achieve objectives

D.SECTOR STRATEGY

1.What is the sector's core strategy for achieving its goals and objectives?	Ensuring directed action Providing continuity to activities Comparing relevance of activities to goals and objectives (evaluation indicators)	Strategic plan (document) MYOPs BYOPs Divisional/ Subdivisional plans	Directed action Strategic thinking Evaluation
2.What are the critical success factors for the organization's strategy?	Ongoing performance management Personnel performance appraisals Focusing activities Internal audit Evaluation indicators	Strategic plan Operational plans Management documents Personnel reviews, planning for next year Evaluation documents	Clear targets for activities Knowing when job is done (or not done) Strategic thinking Evaluation
3.Are major resource allocation decisions consistent with the sector's strategy?	Monitoring resource allocation Ongoing performance management Personnel performance appraisals Internal audit Evaluation indicators	MYOPs BYOPs IMAA Agreements Personnel appraisals Evaluation documents	Appropriate resources assigned to activities Ability to reassign resources as required Flexibility Evaluation
4.Does the sector's personnel accept the sector's strategy?	Monitoring relevance of strategy Congruence between sector goals and personnel goals Effective human resource management Ongoing communication with sector personnel Internal audit	Meetings Discussions Personnel appraisals Sector human resources action plan	Adherence to sector action plan Open communication between management and support staff Understanding of sector strategy and reasoning behind it Personnel committed to sector strategy
5.Is the sector's strategy complementary to or in conflict with: --the department mission? --its mission --its objectives --other sectors? --with outside contractors and/or universities? --with other government departments? --with its clients?	Avoiding duplication or conflict of activities Service to clients Developing national strategy Maintaining good communications with related players	Literature reviews Review of environment Consultation with others, reports Industry-sector database	Avoid conflict Coherent national strategy Focus on strengths Effective liaison with other players Agreement and concentration on goals and objectives

6.Does the sector maintain appropriate liaison with other players (list above)?	Monitoring sector effectiveness Keeping strategy directed Gathering input from clients/partners Avoiding duplication, resource waste	Meetings Reports on consultations Industry-sector database	Open channels of communication Awareness of who's doing what Coherent national strategy (also as above)
7.What mechanisms are there for collaboration with other players?	Sharing resources to reach common objectives Avoiding duplication Efficient division of labour	Negotiations Agreements Various forms of collaborative effort	Well structured collaborative approach to achieving shared objectives Little duplicated effort Coherent national strategy
8.What mechanisms are there for the application of results, diffusion of technology, etc. throughout the sector and among other players?	Optimizing the use of results of efforts Shared results Avoid duplication, wasted effort	Technology transfer agreements Seminars Colloquia Joint ventures Etc.	Diffusion of technology Application of results of pure research Commercialization of results Strengthened research capacity Strengthened industry

E.SECTOR PROGRESS

The material in columns 2, 3 and 4 the first point is applicable to each point in section E. Where material appears under the following points, it is additional to that under point 1.

1.What ongoing mechanisms exist to monitor the sector's progress from the point of view of: --the department? --the sector? --the clients?	Monitoring progress of projects, programs, units, personnel Adjusting mechanisms to improve performance if necessary Providing feedback to personnel about their progress Developing program evaluation indicators	Management systems Accounting systems Resource allocation systems Personnel assessment Consultation with clients (paper flow) Quarterly review Database	Results equal expectations Early awareness of problems or holdups Regular reward for satisfactory or better progress Timely completion of work
2.What opportunities and problems were identified in the last examination of the sector's progress?	Taking advantage of opportunities as they arise Focusing attention on specific problems	Database Management review	Optimum use made of opportunities as they arise Identified problems dealt with effectively
3.What has been done since the last examination of the sector's progress? Has the sector met its operational targets?			
4.Who in the sector is responsible for making changes recommended during the last review? What were the outputs of the review? Who benefitted from the review? Does this correspond with the intended results?			
5.How close is the sector to achieving its short range goals and objectives? To satisfying its mission?			

II.CLIENTS AND PARTNERS

1.Describe each of the sector's major clients and partners and their business areas: --size --growth rate --national and regional trends --major technological developments --areas of research --interrelationships with department, sector, other clients, other government departments	Understanding who the clients are and what they do Targeting all aspects of the sector's activities Understanding the Canadian telecommunications industry Directing activities to position Canada advantageously in comparison with international competitors Information for user-centred evaluation	Database StatsCan Info Personal contacts Meetings Symposia, etc.	Targeted activity Understanding of needs and abilities Understanding of industry strengths, weaknesses and comparative advantages Appropriate positioning of sector within network
2.What benefits does the sector offer to each of its clients and partners? How do these compare with benefits offered to clients and partners by other organizations?	Understanding the role and position the sector occupies vis à vis its clients and partners Avoiding duplication Input to planning process Indicator of where gaps exists Evaluation indicators (program description, duplication, alternatives)	Program descriptions (sector's and other organizations') MYOPs BYOPs Client opinion	Program design Coordinated national strategy Strategic thinking Evaluation

3.What is the sector neglecting to offer its clients and partners? Should it offer these things? How might these things be offered where appropriate?	Strategic planning Evaluation indicator Assessment and reassessment of services Targeting sector activities	Review of environment Correspondence with department Client contacts Meetings	Program design Coordinated national strategy Strategic thinking Evaluation
4.Do mechanisms exist to publicize results of the sector's activities? To effect technology or skill transfers, disseminate knowledge, offer follow-up support? What are they? Are they effective?	Keep a catalogue of mechanisms Create organizational awareness of the importance of these roles Evaluate the effectiveness of strategies designed to accomplish communications, publicity, tech transfer, etc. Provide evaluation indicators	Publications Bulletins Notes Memoranda of understanding Contracts Meetings Electronic communications Database Evaluation documents	Clients and partners aware of sector activities Successful communications Technology transfers Skills available to clients and partners Knowledge available Follow-up support Mechanisms for transmitting the above Evaluations
5.Do clients and partners find out about and decide to use the sector's services? How? When? Where?	Evaluation of the effectiveness of external communications processes Targeting communications efforts	Review of environment Correspondence with department Client contacts Meetings	Services widely available to client community Clients and partners aware of activities and services Successful communications Evaluations
6.What is the sector's reputation among its clients and partners? How does its reputation compare with that of other relevant organizations? How does the sector know?	Qualitative measurement of sector's success Clients and partners aware of sector activities Evaluation (indicators of validity of mission, objectives, goals, strategy, communication, etc.)	Interviews Client contacts Number and types of requests for services Letters of complaint Nature of client contacts	Informal on-going understanding of success or failure Prestige for sector, department, nation Positive relationships within the sector and among clients and partners

388888888888999III.THE ENVIRONMENT

1.What are the significant, relevant short-term and long-term developments and trends in the sector's external environment (political, regulatory, economic, social, cultural, technical, international, etc.)?	Understanding what is going on outside the sector Identifying key players relevant to the sector Forecasting developments in the field which may affect the sector	Publications Exploratory missions Meetings Discussions Symposia, colloquia, etc. Surveys Industry databases Review of environment Focus group reports Expert opinion	Strategic thinking Directed policy Foresight Informed personnel
2.What are the likely impacts of these factors on the sector's mission, objectives, strategy activities, etc.? What opportunities and constraints are likely to emerge?	Creating awareness that external forces have impacts on sector Preparing for adjustment of mission, etc. Anticipating possible responses to external forces Incorporating concept of adaptability into short range and long range planning	Sector planning sessions Symposia, etc. Internal communications Review of environment Industry databases Surveys Informal discussions among sector personnel	Forecasting Timely and relevant objectives, strategies, etc. Mission statement Strategic thinking Directed policy
3.What are the likely impacts (beneficial and harmful) of the sector's activities on the social, economic, cultural, technical, international environments?	Creating awareness of external effects of sector's objectives, strategies, activities, etc. Anticipating possible effects (both + and –) Maintaining a coherent, useful and plausibly effective set of sector plans Establishing an evaluation and performance monitoring framework	Forecasting documents Planning documents Brainstorming sessions Sector reports Evaluation frameworks Industry databases Informal discussions Focus groups	Coherent national strategy Directed policy Carefully considered objectives, strategies and activities Adequate data collection for performance and effectiveness monitoring
3.In the public: --what are the major segments? --what are the characteristics of each segment? --what are the needs of each segment? --how are these segments changing over time?	Create an awareness of effects of sector activities on public other than direct clients and partners Develop an understanding of demographics and the public's needs, wants, wishes	Publications Meetings Discussions Symposia, colloquia, etc. Surveys Review of environment Focus group reports	Service to the public Balanced and coherent national policy Directed planning

--which segments have the most potential to utilize or rely on the sector's activities?	Develop sector plans reflecting an awareness of the public Develop a mission, business plan, objectives, strategies and activities balancing both public and client/partner interests		
4.With respect to non-client/partner interest groups: --what are the major interest groups? --are there ways in which interest groups can interact with the sector? --what are the likely effects of interest group interaction with the department, the sector, industry, other clients and partners?	Develop awareness of possible sources of support or opposition to sector initiatives Be prepared for interest group activities Also similar to #3 above	Publications Meetings Discussions Symposia, colloquia, etc. Industry database Surveys Review of environment Focus group reports	Service to the public Strategic thinking Directed policy Foresight Informed personnel
5.What is the sector's reputation in the environment? Is the public supportive of the sector's activities? What are recent trends in opinion? Are there any reasons to anticipate that opinion may change in the short run? In the long run?	Developing qualitative measurement of sector's success Clients and partners aware of sector activities Evaluation (indicators of validity of mission, objectives, goals, strategy, communication, etc.)	Interviews Client contacts Number and types of requests for services Letters of complaint Nature of client contacts	Informal on-going understanding of success or failure Prestige for sector, department, nation Positive relationships within the sector and among clients and partners
6.Who are the sector's direct and indirect competitors, both public and private, international and domestic? Describe each in terms of size, growth rate, mission, objectives, activities, and other important factors.	Developing awareness of dragons in the environment Developing a useful profile of each	Industry databases Meetings Expert reports Review of environment Focus groups Symposia, etc.	Strategic thinking Coherent national strategy Sector plans

7.What are the strengths and weaknesses of the most important competitors? What strategies have they employed in past? How are they likely to proceed in future?	Reviewing and adapting strategy Understanding forces active beyond the sector's influence and control Preparing to meet challenges	Industry databases Meetings Expert reports Review of environment Focus groups Symposia, etc.	Responsiveness to external conditions Strategic thinking National strategy Sector plans Preemptive strikes
8.Overall, is the environment stable or dynamic? Complex or simple? Diversified or integrated? Amicable or hostile?	Developing an awareness of the general conditions facing the sector Developing parameters for planning in different time frames Developing an appropriate degree of flexibility to respond to circumstances Etc.	As above	All of the above

– APPENDIX D –

THE INFOMAP PROCESS

PROPOSED PROCESS

1.Clarify issues, aims and strategies for this project

2.Select team members and begin orientation activities

3.Define key users, scope of project, activities, schedule (work plan)

4.Develop tools for data collection (inventory sheet and interview guide)

5.Implement on pilot project basis (e.g., in one sector or branch)

6.Analyze completed profiles to determine/refine classification system(s), evaluate success in assigning costs and benefits

7.Refine final products and processes

8.Conduct for department as a whole

NEED TOP LEVEL SUPPORT

- to open doors
- agree to consider results and recommendations
- peer review of data
- help ensure accuracy, comprehensiveness of inventory

BASELINE SURVEY

Survey identifies Information Resource Entities (IREs)

These consist of the information holding *plus* the information handling function

The information holding is the content

The handling function is the manner in which the content if gathered, stored or processed, in other words the medium

On a continuum, IREs range from management reports (all content) to telephone system (pure medium).

Information considered from point of view of supplier, handler and user.

Strategically significant entities = information resources.

SURVEY PROCESS

ESTABLISH PURPOSE AND SCOPE FOR THE PROJECT

- what do we know already
- build on existing knowledge
- limit scope (start with branch? certain levels?)
- identify issues of interest and corporate considerations (quality and adequacy of existing information sources, appropriateness of technology used, cost of handling or storing information, need for improved accountability, need for better services to clients, etc.)

DETERMINE CLASSIFICATION SCHEME: RESOURCE CATEGORIES AND TYPES

- Three categories suggested: source, service, system

Source = place, store or person, internal or external
e.g., newsletter, equipment manual, data processing magazines

Service = activity helpful in acquiring, processing or transmitting information and data or in providing an information product
e.g., courier, translating service, typesetting, evaluation research, auditing

System = structured and integrated series of processes for handling information or data, characterised by systematic and repetitive processing of inputs, file updates and outputs

e.g., financial systems, accounting system, quality control

- Then subdivide by types of entities which you suspect are present (e.g., consultants, market research, other government publications, and central agency policies are types of sources)
- Classification scheme helps focus the survey effort, basis for analyzing the inventory
- should be general enough not to miss things, but detailed enough to make important distinctions
- can and should be refined later

COLLECT DATA

- design inventory data form
- collect data through interviews with users, managers, suppliers and handlers; review of documents; and data from external organisations
- compile sheets

THE FOLLOWING TYPES OF INFORMATION COULD BE COLLECTED AS PART OF THE INVENTORY:

IDENTIFICATION

- Category and type
- Resource name

- Location (physical and organisational)
- Security classification
- Operating contact (name and telephone number)

PURPOSE

- Why was the information created?
- What purpose does it serve?
- Does it meet a legislative or central agency requirement?

DESCRIPTION

- How is it created, transmitted, used, maintained, stored and archived?
- Who are the main users and beneficiaries?/What is the function of the service?
- Is it dependent on, linked to or shared with other systems?
- Are there restrictions on its use or access to it?
- Primary inputs (e.g., published reports, periodic surveys)
- Primary outputs (e.g., floppy disks)
- Holding/storage medium (e.
g., disk)
- Life cycle

LINK TO MISSION STATEMENT

- Goals/mission/purpose supported (immediate and corporate ends served)

ACCOUNTABILITY/APPROVALS

- Resource manager (person accountable for managing it)
- Person who prepared sheet, date prepared
- Sheet approved by, date

VALUE/COST ASSESSMENT

- Attach cost of creating and maintaining entity
- Determine value to department of entity (users perspective)
- Assessment of value is subjective judgement
- Can be collected at same time or done later
- Ratios derived for each entity

ANALYSIS AND STRATEGIC SYNTHESIS

1.Analyze inventory and ratios for their magnitude, distribution of entities throughout department, locations, accountability

2.Identify resources (strategically significant entities)

Need to understand context in order to determine if information is a resource (if it has meaning, value, significance). Need to understand DOC in order to recognise a DOC resource.

3.Assess quality of resources, identify problems and opportunities related to current information management policies and practices

- Examples: strengths and weaknesses of information quality, accessibility, use and effectiveness of information, waste, inadequate accounting and budgeting practices

Analyses can point to need for:
- information resources management policy
- chief information officer
- systematic inventory of resources
- strategic plan for the management of information resources linked to business plan

4.Develop action plan