SCIENCE POLICY INFORMATION REFERENCE SYSTEM

STATUS REPORT

JANUARY, 1976

report no.
rapport n°. 106

Ministry of State
Science and Technology
Research and Information Services

Ministère d'État
Sciences et Technologie
Services de recherche et d'information

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prepared for / préparé pour Dr. J.M. LeClair

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approved by / approuvé par M.S. Lipsett

SUMMARY

This report presents a brief review of the results of Phase I of the pilot project to develop the Science Policy Information Reference System (SPIRS) containing references to science - policy - relevant documents within the Ministry.

Work on the first phase was authorized by the Secretary on April 16, 1975.

Methodology has been developed, a computer readable data bank of some 1,200 references has been built up and the technical feasibility of SPIRS has been demonstrated.

Recommendations include:

- Phase I of the pilot project be considered as completed.
- Further work not be undertaken at this time.
- This report be tabled at a PMC meeting to inform Ministry management of the results of the project and the capabilities of the pilot data bank for future reference as appropriate.

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Status Report: Science Policy Information Reference System

Status Report:

Science Policy Information Reference System (SPIRS)

1. Overall Objectives of the Pilot Project

The Secretary on April 16th 1975 approved an allocation of four man years and $5,000. to conduct the first phase of a pilot project intended to develop an improved capability to access documented science policy information.

The objectives approved for Phase I of the pilot project were:

- to set up methodology and test it within the so-called Resources and Information Branch, and to determine what assistance the proposed facility could provide for the Ministry's managers;
- to determine objectives and requirements of a possible Phase II in which the experience gained in Phase I would be used in another branch to further test feasibility and acceptance of the proposed reference system and to report the findings.

2. Purpose of this Document

This document reports the results of Phase I of the SPIRS pilot project to September 5th 1975, at which time the summer students and other casual staff allocated to the project were disbanded.

results

purposes
procedures
recommendations

This report also discusses the specific objectives of the pilot project and of the Science Policy Information System, the specific operational objectives and design criteria for the system, the size and composition of the data bank, and information capture and assessment procedures. Conclusions are drawn and next steps recommended.

3. Purpose of SPIRS

a tool

Briefly, the Science Policy Information Reference System was intended to provide MOSST officers and others with a tool for the timely location of documents relevant to their particular areas of interest. The system was expected to be of greatest assistance to those not expert in a given area, by providing initial pointers to relevant documents and, through them, to sources of specific expertise and assistance both inside and outside the Ministry.

4. Operational Objectives Set for the Pilot Project

Within the overall objectives approved by the Secretary, the operational objectives of the pilot project were:

- to develop design criteria for a computer-accessible data bank, and
- to develop and test methodology to capture, and assess science-policy-relevant documents, and to enter references in the data bank for subsequent distribution, all within the then Resources and Information (R&I) Branch.

expected outcomes

The project was also to engender staff participation and commitment to the extent possible, and to satisfy the needs of managers.

5. Criteria for Design of the System

bilingual

versatile retrieval

low capital cost

simplicity

The requirements was for a bilingual document reference system for documents relevant both to science policy and of interest to MOSST. References were to be retrievable through such document attributes as policy areas, involved organizations, type of document, date of document, and generally on as wide a variety of indices as possible. The system was to be as versatile as possible and not require a large initial investment. It was to be directly accessable by users and searches were to be as simple to perform as possible. Also the assembly of a pilot data bank was to begin as soon as possible.

Service Bureau used

With these in mind several basic points of the system and the pilot project follow. In order to keep initial investment to a minimum a service bureau was engaged. The bureau chosen, "Com Share", was that recommended by P.S. Ross & Partners in a report (Annex I) prepared on the development of a science policy information system for MOSST, as being the one best able to provide an "off the shelf" package with the required versatility.

In order to comply with the request to begin as soon as possible and to develop experience and expertise in characterising documented science policy information,

prerequisite requirements

the capture, screening and indexing of documents was begun as soon as a preliminary list of words to be used for retrieving references by subject matter (subject search terms), a list of essential document attributes and instructions for indexers were developed. (Annexes II, III, IV).

6. Information Capture and Assessment

There were three aspects to be considered: document capture, assessment of significance or suitability for inclusion, and procedures for consistent abstracting/ indexing of documents selected for inclusion.

6.1 Document Capture

For the pilot project, two sources of documents were used: mail to the R&I Branch, and selected Central Registry files.

from the mail

Incoming mail was screened just before delivery to the addressee and after the mail had been processed by Central Registry. Non-relevant material was immediately sent on its way, often with no more than a few minutes delay. Relevant material marked or otherwise indicated as urgent was delivered to the addressee by hand immediately the indexing process was complete. Non-urgent mail

was all processed in time for inclusion in the next "mail run". Substantial publications from organizations such as the OECD and UNESCO occasionally were delayed longer, though never more than 24 hours.

from registry

Central Registry files selected for the pilot project were primarily those used mostly by the International and Domestic Divisions of R&I Branch with files related to particular areas such as oceans, transportation, HQM and STI policy being added as time permitted. File contents for the last one or two years were examined.

6.2 Assessment of Suitability for Inclusion

screening for inclusion

Each document was screened for such factors as perceived relevance to science policy and continuing importance. Screening was done primarily by students hired for the summer with guidance from officers assigned to oversee aspects of the project. A rather liberal interpretation was used for the pilot project; a "when in doubt put it in" philosophy. About one-quarter of all documents examined were considered relevant.

6.3 Abstracting/Indexing of Documents

document attributes

Each document to be referenced in the data bank was indexed by subject matter, author, recipient, type of document, report number, date of issue and central registry file number. An abstract was

prepared and entered and in addition, information such as title, meeting or conference information, and publication reference was appended. This was all done in the same language as the document.

key words

7. The Data Bank

As of September 5, 1975, there were 1197 document references stored in the computer data bank. About 14½ man-months of effort and $3530 were used in assembling this resource, but a significant proportion of effort was expended in prerequisite developmental activities such as design of indexing methodology.

8. Information Distribution

Output Lists

Output from the computer system consists of document references relevant to enquiries expressed as combinations of such document attribures as subject search terms and year of origin. A couple of examples might be: correspondence with Statistics Canada regarding HQM; or cooperation with other countries on topics related to communications.

As of September 5th there has been no actual output from the system other than for members of the project team for testing purposes.

9. Capabilities of the Present System

Current Status

The current system can indicate the existence and location of documents in response to queries based on subject matter, author, recipient or any of the other document attributes mentioned in section 6.3. Documents encompassed were those appearing in the incoming mail to the R&I Branch from early June to late August 1975, or in particular registry files, as outlined in 6.1. The subject matter search terms used are those in the controlled list in Appendix II. At this point in the development of the system, searches are best performed by a member of the SPIRS project team familiar with the list of search terms and with possible inconsistencies and errors that have crept into the developing system.

10. Development of SPIRS - Technical Aspects

The work to date has brought to light some points which will require attention in any future extension of the project.

need for client involvement

In order to improve the quality of the SPIRS data bank, improved selection procedures and criteria need to be developed incorporating a much greater measure of client participation in monitoring and improving selection decisions.

thesaurus

To improve indexing a subject search term thesaurus is required, consisting of word groupings which will guide users to all words related to a given explicit concept.

search routines

On the output side, some simplified search routines are required to enable users to browse through the data bank in person. In addition, planned provision for automatic bilingual search capability could be implemented.

team needed

To continue the project a new team will have to be assembled. The minimum needed would be a project coordinator, one indexer/analyst, one indexer and a machine operator/proofreader. Additionally, in the early stages there is a need for one and a half to two people to implement the improved bilingual capability and small refinements and to develop the thesaurus.

11. Development of SPIRS: Needs of the Ministry

an atypical period

While Phase I of the SPIRS project was under way, the Ministry entered a period of reorganization. Thus the activities of the R&I Branch monitored during the project were atypical in nature and intensity. This reduced the quantity and quality of the information captured in the data bank, and the potential "market" for the system evaporated. The system's clients (and particularly the managers to be assisted by it) were in transition and not in the best position to contribute either to the development of the system or its evaluation.

clients preoccupied

Thus, the managers' needs addressed by the project were solely those identified in the P.S. Ross report (Annex I).

12. Conclusions

technical objectives met...

In the now concluded Phase I of the SPIRS pilot project, methodology for information capture, selection, indexing, and storage and retrieval has been developed and tested. In this process requirements for additional developmental work (e.g. a bilingual capacity) have been identified. Thus technical aspects of the Phase I objectives were met within the available resources.

...but user needs no longer evident

The concurrent organizational changes in MOSST have militated against assessment of the extent to which the SPIRS facility could serve the needs of the managers and officers of the Ministry. It is evident, however, that a clearer definition of need should precede further work in this area.

13. Recommendations

In light of the above considerations, it is recommended that:

(i) Phase I of the pilot project be considered as completed.

(ii) Further work not be undertaken at this time.

(iii) This report be tabled at a PMC meeting to inform Ministry management of the results of the project and the capabilities of the pilot data bank for future reference as appropriate.

ANNEX I

THE DEVELOPMENT OF A SCIENCE POLICY INFORMATION SYSTEM AT THE MINISTRY OF STATE FOR SCIENCE AND TECHNOLOGY

March, 1975

P. S. ROSS & PARTNERS

P. S. ROSS & PARTNERS
MANAGEMENT CONSULTANTS 90 SPARKS STREET, OTTAWA K1P 5B4, CANADA, 236-9662

March 27, 1975

Dr. G.Y. Tremblay
Assistant Secretary
Resources and Information Branch
Ministry of State for Science & Technology
Room 1221 Martel Building
270 Albert Street
Ottawa, Ontario

Dear Dr. Tremblay:

We are pleased to submit our report on "The Development of a Science Policy Information System at the Ministry of State for Science and Technology". This report describes the requirements for policy information in the Ministry and outlines our suggested approach to providing a computerized document storage and retrieval capability. Additionally, we have developed a work program for the implementation of such a system at the Ministry.

In submitting this report we wish to thank the Ministry for the co-operation extended to us, and in particular to the assistance provided by Drs. Quadling and Guttormson.

We have appreciated this opportunity of working with you on the first phase of this program to develop a computer based documentation storage and retrieval system and look forward to being of continued assistance to you. If you wish to discuss any aspect of this report or the work it represents, we will be pleased to do so at your convenience.

Sincerely,

P.S. ROSS & PARTNERS

A.P. Bogie
Principal

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I. INTRODUCTION

The Ministry of State for Science and Technology was established in 1971 for the purpose of assessing and developing policies for the Canadian Government in the fields of science and technology. Since that time, the Ministry has evolved through a series of organization formats to the present structure which comprises the following principal functions:

* Policy Formulation
* Program Review and Assessment
* Resources and Information
* Personnel, Finance and Administration

The Resources and Information Branch includes, among its responsibilities, a role in the functions of policy making and review and assessment. As part of this responsibility, the Branch recently undertook a preliminary review of the requirement for computer-based systems to support information requirements within the Ministry. This review involved preliminary research of the types of information within the Ministry that were appropriate for some form of mechanized storage and retrieval, along with an exploration of the types of approach that could be considered in such a computerization process. This research resulted in a decision to undertake a more complete study of the feasibility and approach to a computer-based information storage and retrieval system, and accordingly, P.S. Ross & Partners was asked to undertake the work.

It is envisaged that such a system initially will meet internal Ministry needs and provide prompt access to a broad range of Ministry data related to the development, monitoring, and understanding of policy related topics in Canada and around the world. It is foreseen that the system subsequently will be made available for use by other federal government departments, providing them access to selected information and facilitating the creation of their own collections of policy related information.

Other parts of the information coordination process relate to the provision of information available from external sources including other library collections, statistical data, and data analysis services provided by agencies such as Statistics Canada.

Our work has involved an examination of the nature of the data flowing into the Ministry, and has identified a number of such data sources including federal government departments, provincial governments, industry organizations, universities, research organizations, and foreign governments. Further, we have conducted interviews with a significant number of senior professional staff in the Ministry to gain an appreciation of their functions and of their storage and retrieval requirements. Additionally, consideration has been given to the planned availability of the PDP-11/45 computer as a basis for supporting this system.

This report describes the scope of the work conducted, and the requirements of Ministry users. A review of systems that would reasonably satisfy these requirements is provided and followed by our recommendations.

Finally, the report outlines a suggested plan for establishing such a capability for the Ministry and provides some preliminary estimates of the related costs and timing.

II. OBJECTIVES

The objectives of this study are:

* To determine general systems requirements of the Ministry in regard to the filing and retrieval of science policy information;

* To identify the systems available to meet immediate needs;

* To identify costs of alternative systems; and,

* To outline the activities involved in the implementation of such systems.

III. POLICY INFORMATION REQUIREMENTS

A major part of our work program focused on the users of information in the Ministry. Accordingly, an extensive interview program was undertaken with some twenty senior managerial and professional staff. The interviews were designed to obtain a good understanding of the functions of each user and his perspectives, the kind of documentation and material available to him and the way it is used. During the course of each interview, we attempted to prompt the users with ideas and to elicit suggestions on alternative approaches to satisfy anticipated future requirements.

As a result of this work, we have been able to draw some conclusions on the nature of the major categories of information and documents required by the Ministry personnel. This section of our report documents our analysis of requirements, and provides an assessment of the resulting implications.

A. INFORMATION REQUIREMENTS

Our analysis of information and documents used by the Ministry determined that there are two broad classes of information available to the Ministry:

(i) Documents filed or retained at the Ministry; and

(ii) Documents available from external organizations.

The various categories of documents and materials are described briefly in the following sub-sections.

1. General Documents

This category embraces a range of documentary material processed by the Ministry including memoranda, letters, position papers, cabinet decisions, policy statements, and press releases. The materials are derived from the activities of various science and technology groups in the federal and provincial governments, universities, industry and private sector groups. The volume

of such materials in the Ministry is considerable and concerns were expressed by many individuals that it was becoming increasingly difficult to be fully aware of all such documents available in the Ministry.

2. Personal Data Collections

Many of the types of material in this broad class of information are available as part of personal files, data collections, or personal knowledge. In certain cases the systems are quite extensive and comprise a useful collection of selected documents.

3. Scientific Activities

This category of information relates to the knowledge of scientific activities in Canada (including such items as research programs), and the level of expenditures associated with them. These science and technology activities relate to federal and provincial government programs, private industry programs, and bilateral programs where other countries may be involved. The information is required to support the policy formulation and review and evaluation processes of the Ministry.

4. Policy Inventory

Knowledge of existing policies in federal and provincial governments emerged as an item of significance in policy formulation activities. The knowledge of such policies assists the Ministry in the avoidance of conflicts in policies under development and in the identification of areas where policies are indistinct or non-existent.

5. International Information

The Ministry policy formulation processes require that information on the policies of foreign governments and other organizations be available. It would also be beneficial to the Ministry to understand the framework within which foreign policies are developed. Additionally, the policy makers

and the Ministry must be aware of decisions taken by international organizations such as the UN and the OECD which may impact on Canadian policy, and must also be aware of the related view points of key groups within these organizations.

6. Who's Who

This category of data refers to key persons and key organizations involved in specific functional areas of science and technology who are involved in the policy formulation process. Availability of the names of these people and their areas of relevance is particularly useful to individuals new to the organization.

7. Quantitative Data

This requirement is for access to quantitative data collected by other departments and agencies such as Statistics Canada, both directly and on behalf of the Ministry. MOSST accumulates and analyzes financial data on federal departmental programs in the area of science and technology. Descriptions of the type of data and analyses that are available would be a useful component of a data base.

8. Published Documents

Published documents cover the broad category of both materials produced by universities, governments, research institutions and private sector organizations in the form of books, journals, conference proceedings and published research papers, etc. The Ministry makes extensive use of such materials as they relate to the areas of science and technology. The awareness or knowledge of the Ministry staff of specific materials in this category are brought about, in addition to the Ministry library staff function, by personal efforts and as a result of references from other contacts in the field. While this process provides reasonable access to a certain range of materials in this category, there are distinct limits on the extent of an individual's awareness of publications in the wide ranging application areas with which the Ministry is concerned.

Over recent years, several organizations have undertaken the development of extensive and comprehensive data bases of publications, references, and literature in certain fields of endeavor. Examples of such data bases are those developed through the efforts of the National Research Council and the CAN / SDI Program. The library and other Ministry staff are aware of the availability of certain of these data bases. It is likely that the availability of such data base information will expand considerably over the next few years. A requirement emerging from our interview program was for a better and more complete awareness of such systems and reference materials, and the provision for access to them by Ministry staff to support their generally expanding requirements.

9. Other

Other general categories of information requirements within the Ministry have been expressed as follows:

* Policy Review and Assessment - in this area certain information types could be developed to support the process, depending on the categories of information pertinent to any particular topic of science policy that is current at a specific point in time. As part of this process, it would be useful to consider the development of impact and effectiveness indicators.

* Internal Staff Skills - it was suggested that in view of the varying technological and science disciplines and experience required in the Ministry, combined with the factors of high skill level required and a relatively high rate of replacement as new areas of of interest emerge, that an inventory of staff skills and experience would be useful.

B. OPERATIONAL ENVIRONMENT

In accordance with Federal Government policy on bilingualism, due consideration was given to the needs in this area. As well, the sensitive natureof the material involved has been appropriately considered so that provision may be made for adequate security arrangements.

1. Bilingual Capability

An important factor that emerged relative to a data storage and retrieval system is the requirement to interrogate the system in either English or French. There are two requirements to be considered:

(a) English and French interactive capability for the operations staff using the system.

(b) Provision of automatic translation equivalents for selected keywords.

2. Security Requirements

The question of security arose in a number of areas, and it is clear that, in the long term, any storage and retrieval system must provide an adequate level of security. Greatest security can be assured by storing information and materials on the Ministry's premises and making use of the PDP 11/45. This approach necessitates the development of new computer software with implied higher initial costs.

3. It is foreseen that the computer-based system will be accessed by the user in two alternative ways:

(a) Directly - in this mode, the user personally will enter requests for data directly through computer terminals. The physical operation will not be difficult to learn, but it may take time for the user to access the material required in the most effective manner.

(b) Through the Information Exchange function - in this mode, the user will relay his requirements to the Information Exchange function who will, in turn, enter requests through the computer terminals, obtain the required results, and relay them back to the user.

C. GENERAL IMPLICATIONS

The analysis of requirements described in the first part of this section of the report confirms the need for:

* The creation of a computer-based information system to provide storage and retrieval capability for document abstracts and bibliographies for the categories of material and documents identified in this section of the report that are not otherwise available through other services;

* The development of adequate manpower resources to maintain the information data base and to assist the staff to access the information; and,

* The development of a system to provide a framework for the classification of science policy related documents. This will enable the retrieval system to function effectively in the storage and retrieval of data and documents.

environment for the processing, transmission and storage of data, by external service bureau organizations. Those who merit serious consideration for the processing of the Ministry's data take extensive security precautions which, in some cases, have been approved by the RCMP and the Department of Supply and Services.

Our survey of some twenty organizations who indicated a capability to provide the services found that the most suitable, satisfying all the identified requirements, is the VIP system provided by COMSHARE Limited. The requirements indicated were for a general purpose storage and retrieval system able to store document abstracts with related key words and bibliographic and classification information. The system would operate on an interactive environment with data searches occurring by use of combinations of specific references and key words. The system would be flexible and able to support the variable quantities and formats of bibliographic data for the different storage requirements represented by each different category of documents.

The VIP system would enable the Ministry to implement a selected portion of its overall documentation storage and retrieval system requirements in a relatively short period of time. While permitting the Ministry to move rapidly in this area, it would also provide experience in the use of such systems. Furthermore, this option would allow the conversion of the Ministry's present files and documents to a computerized form that could also be converted to operate on an "in-house" system.

Another option, the use of the PDP-11/45 computer, is more suitable to the Ministry in the longer term because reference and abstract information can be retained entirely on the Ministry's premises. This provides the most secure environment for sensitive material and documents which the Ministry has in its possession. However, despite an extensive survey in Canada and the U.S., our study was unable to locate any software available for use on the PDP-11/45 which satisfies the range of requirements defined above. However, a number of developed programs that satisfy some of the requirements were identified.

In addition, there are a number of organizations with experience in the development of software systems of the type described. Preliminary estimates indicate that the requisite software can be developed for application on the PDP-11/45 in 9 to 18 months for a cost of $45,000 to $150,000, depending on the ultimate degree of sophistication required. Some of the factors that would impact on the cost and timing are:

* the extent to which the software is parameterized for general application;

* the incorporation of a "key word in context" capability for the abstracts;

* the inclusion of a technical synonyms capability; and,

* the degree to which a bilingual capability is incorporated.

B. DOCUMENT RETRIEVAL TECHNIQUES

The retrieval of documents ideally is effected by the use of key words in combination with a policy classification system. The key word system searches the data files for documents which contain the words specified in the search criteria. The policy classification system enables the user to obtain all references to documents in a particular area of policy.

C. MANPOWER DEVELOPMENT

Whatever approach is selected, there is a need within the Ministry, to upgrade the capability of the information gathering and dissemination function to meet the increased demands inherent in the planned system development. Such a function would develop and maintain an awareness of external data bases and provide the capability to obtain data from the data base. Systems already available would include major data bases in use by the federal government such as the CANOLE and WATDOC bibliographic access systems.

Manpower will also be required to provide the staff of the Ministry with assistance in submitting data to the data base and performing data retrieval searches on their behalf. The facility also should exist for the staff to carry out these functions on their own behalf, although not all staff members will wish to operate in this manner.

As part of the overall data gathering function for the total system, primary responsibility for the content of portions of the data base may reside with selected individuals or groups. For example, foreign government intelligence information may be the responsibility of one group within a branch. The central function must support and coordinate these groups in their use of the system.

The approaches identified in this section incorporate the use of the latest computer hardware equipment in combination with state-of-the-art software development. The implementation of such a system is well within the capabilities of the services available to the Ministry.

responsibility for the ongoing operation of the information storage and retrieval capability.

The information exchange function will provide the services associated with abstracting, document storage, computer input and document searches. The function also will have responsibility for maintaining awareness of other documentation systems available to the Ministry from other sources.

* An indexing system of keywords should be developed.

This task should be undertaken early, since the availability of a suitable thesaurus will significantly affect the success of the storage and retrieval system. The development of the thesaurus must take account of the requirements for bilingual capability, and accordingly, synonyms should be developed for application in both languages.

The indexing system would make use of keyword and bibliographic data based on policy classification, for data storage and retrieval purposes.

VI. A PLAN FOR IMPLEMENTATION

This section of our report details an approach to implementation that will provide a sound basis for implementing our recommendations and a framework for the management of the process. Exhibit 1 overleaf, shows a phased work program with parallel activities on which the approach is based, identifies whether the activity is carried out by MOSST or externally, shows the man-time requirements, and identifies likely external costs and the time frames involved.

Inherent in the approach is the need to provide capability for document storage and retrieval at an early stage while at the same time making it part of the longer term process to establish a computer software system that will operate on the Digital Equipment Corporation, PDP-11/45, which is planned for installation at the Ministry. The approach has seven major activities which are outlined in more detail in the remaining part of this section.

1. Project Management

It is important in a project of this kind that an integrated approach to the overall management of the work program be established to ensure adequate control and supervision throughout all the phases. The project manager should be familiar with both the user environment and the technologies involved in view of the on-going requirement for liaison and supervision with MOSST officers, and with computer/technical personnel. Additionally, the project manager will participate in other activities inherent in the program, including the development of the information exchange organization.

2. User Coordination

In order to provide ongoing MOSST involvement and increasing responsibility, the primary user team interface should involve a responsible staff member from MOSST. This will also ensure that an adequate knowledge of the system and its development remains with MOSST throughout the implementation phase, as well as ensuring maximum co-operation and participation of MOSST branches in the development program.

3. Detailed Systems Design

During this activity, a conceptual design should be prepared after having examined and analyzed the details of existing systems. Following this, an assessment can be made of the implications on the computer hardware/software systems and on the user operations. Finally, detailed specifications can be developed for computer software development.

4. Computer Software Development

Using the specifications developed in activity 3, the computer programs should be developed and tested. Maximum advantage should be taken of utilizing existing techniques, methodologies and logic for storage and retrieval.

5. Classification System and Thesaurus Development

The classification system should be conceived and examined against the framework of general criteria developed to assess its viability. Following this, a detailed design should be developed and an acceptability test conducted. Instructions can then be prepared for using the system.

The thesaurus concept should be developed having regard to the maximum desirable size, and the approach adopted to French/English equivalents. A search should be made of other available thesauri which relate to the science and technology field, and also to the type of documents in use by MOSST.

6. Implementation

This process relates to a number of objectives, including the implementation of the system on an external computer service bureau using existing software, the training of staff, the preparation of procedure documentation required to implement, operate and use the systems, and the subsequent conversion of the system to the Ministry's PDP-11/45 computer. The process will be ongoing from the inception of the project, and will initially include data gathering for document analysis and for eventual system definition.

7. Organization Development

This activity is concerned with the ongoing ...g for, and staffing of, the information exchange fu... that will be responsible for the operation of the ...n. It is envisaged that this group will be involved ...intaining and searching the document data bank of ...f of staff of the department and, where required, ...isting the staff to carry out this function on their own. ...nore detailed description of the functions of this ...ization is contained in Section IV of this report.

ANNEX II

S. P. I. R. S.

SUBJECT

SEARCH

TERMS

5 September 1975

Abstract	Résumé
Access	Accès
Accounting	Comptabilité
Accuracy	Précision
Achieve	Réaliser
Achievement	Réalisation
Acknowledge	Reconnaître
Acronym	Acronyme
Act	Loi
Acting	Intérimaire
Action	Action
Activity	Activité
Addition	Addition
Address	Adresse
Adequate	Adéquat
Adjustment	Ajustement
ADM	Sous-ministre adjoint
Administer	Administrer
Administration	Administration
Admission	Admission
Advertising	Publicité
Advice	Conseil
Advise	Conseiller
Adviser	Conseiller
Advisory	Consultatif
Aeronautics	Aéronautique
Africa	Afrique
Agency	Organisme
Agenda	Ordre du jour
Agreement	Accord
Agriculture	Agriculture
Aid	Aide
Air Canada	Air Canada
Alaska	Alaska
Alberta	Alberta
Algeria	Algérie
Alienation	Aliénation
Alliance	Alliance
Allocation	Allocation
Alphabet	Alphabet
Alternate	Alternatif
Alternative	Alternative
Altitude	Altitude
Amendment	Modification
American	Américain
Analog	Analogue
Analysis	Analyse
Announcement	Annonce
Annual	Annuel
Antarctica	Antarctique
Appeal	Appel
Application	Application
Applied	Appliqué
Appointment	Nomination
Approval	Approbation
April	Avril
Architecture	Architecture
Arctic	Arctique
Area	Région
Argentina	Argentine
Arts	Arts
Article	Article
Asia	Asie
Assessment	Evaluation
Assignment	Tâche
Assist	Assister
Assistance	Assistance
Association	Association
Astronomy	Astronomie
Atlantic	Atlantique
Atomic	Atomique

Attention	Attention
Attitude	Attitude
Attribute	Attribut
AUCC	AUCC
August	Août
Australia	Australie
Austria	Autriche
Authority	Autorité
Authorization	Autorisation
Automation	Automatisation
Background	Arrière-plan
Balance	Balance
Bank	Banque
Basic	Fondamental
Basis	Base
B.C.	C.B.
Begin	Commencer
Behind	Derrière
Belgium	Belgique
Believe	Croire
Benefit	Bénéfice
Best	Meilleur
Bibliography	Bibliographie
Bilateral	Bilatéral
Bilingual	Bilingue
Biography	Biographie
Birth	Naissance
Board	Comité
Bolivia	Bolivie
Book	Livre
Brain-drain	Fuite des cerveaux
Branch	Direction
Brazil	Brésil
Breakthrough	Percée
Brief	Mémoire
Briefing	Instruction
British Columbia	Colombie-Britannique
Broadcasting	Radiodiffusion
Budget	Budget
Budgeting	Budgétisation
Building	Edifice
Bulgaria	Bulgarie
Bureau	Bureau
Business	Affaires
Cabinet	Cabinet
Calculate	Calculer
Calendar	Calendrier
Calgary	Calgary
Canada	Canada
Canada Council	Conseil des Arts
Canadian	Canadien
Cancel	Annuler
Cancellation	Annulation
CBC	Société Radio Canada
Capability	Capacité
Capital	Capital
Career	Carrière
Caribbean	Caraïbes
Carleton	Carleton
Casual	Occasionnel
Catalogue	Catalogue
Cease	Cesser
Central	Central
Central America	Amérique Centrale
Centralization	Centralisation
Chairman	Président
Chairmanship	Présidence
Challenge	Défi
Chance	Chance
Change	Changement
Chapter	Chapitre

Character	Caractère
Characteristic	Caractéristique
Charge	Charge
Chart	Diagramme
Check	Vérification
Chemistry	Chimie
Cheque	Chèque
Chief	Chef
Chile	Chili
China	Chine
Choice	Choix
CIDA	ACDI
Circulation	Circulation
Circumstance	Circonstance
Citizen	Citoyen
City	Cité
Civil	Civil
Claim	Revendication
Clarify	Clarifier
Classification	Classification
Classified	Classifié
Clearing house	Centre de répartition
Clerk	Commis
Club	Club
CN	CN
Co-chairman	Président associé
Code	Code
Coding	Codage
Coefficient	Coefficient
Coherent	Cohérent
Coincide	Coïncider
Collaboration	Collaboration
Collection	Collection
Collective	Collectif
Colombia	Colombie
Comment	Commentaire
Commerce	Commerce
Commercial	Commercial
Commission	Commission
Committee	Comité
Common	Commun
Commonwealth	Commonwealth
Communication	Communication
Communications	Communications
Community	Communauté
Company	Compagnie
Comparison	Comparaison
Compensation	Compensation
Competition	Concurrence
Completed	Complété
Computer	Ordinateur
Concise	Concis
Conclusion	Conclusion
Condition	Condition
Conference	Conférence
Confidential	Confidentiel
Confirmation	Confirmation
Conflict	Conflit
Congratulation	Félicitation
Conservation	Conservation
Consideration	Considération
Constitution	Constitution
Constitutional	Constitutionnel
Construction	Construction
Consumer	Consommateur
Consultant	Consultant
Contact	Contact
Content	Contenu
Continental	Continental
Continuous	Continu
Contract	Contrat

Control	Contrôle
Convention	Convention
Conversation	Conversation
Cooperant	Coopérant
Cooperation	Coopération
Cooperative	Coopérative
Coordination	Coordination
Copyright	Droit d'auteur
Correlation	Corrélation
Cost	Coût
Costa Rica	Costa Rica
Council	Conseil
Count	Compte
CP	C.P.
Credit	Crédit
Crisis	Crise
Criterion	Critère
Criticism	Critique
Cuba	Cuba
Curriculum Vitae	Note biographique
Cybernetics	Cybernétique
Cyprus	Chypre
Czechoslovakia	Tchécoslovaquie
Damage	Dommage
Data	Données
Date	Date
Debate	Débat
Decade	Décennie
Decentralized	Décentralisé
December	Décembre
Decision	Décision
Decision-making	Prise de décision
Decode	Transcrire
Deduction	Déduction
Defence	Défence
Defer	Retarder
Define	Définir
Definition	Définition
Delay	Délai
Delegate	Déléguer
Delegation	Délégation
Demand	Demande
Demography	Démographie
Demonstrate	Démontrer
Demonstration	Démonstration
Denied	Refusé
Denmark	Danemark
Department	Département
Departmental	Départemental
Deputy Minister	Sous-ministre
Describe	Décrire
Description	Description
Design	Conception
Destruction	Destruction
Detail	Détail
Determine	Déterminer
Developed	Développé
Developing	En voie de développement
Development	Développement
Diagram	Diagramme
Dialogue	Dialogue
Dictate	Dicter
Difference	Différence
Different	Différent
Diffusion	Diffusion
Dimension	Dimension
Diplomatic	Diplomatique
Direct	Direct
Directive	Directive
Director	Directeur
Discipline	Discipline

Discrete	Discret
Discussion	Discussion
Dismiss	Congédier
Disparity	Disparité
Display	Affichage
Dispose	Disposer
Dissemination	Diffusion
Distribution	Distribution
Division	Division
DND	DN
DOC	MDC
Documentation	Documentation
Document	Document
Dollar	Dollar
Dominican Republic	République Dominicaine
Donation	Donation
DOT	MDT
Draft	Avant-projet
DRB	CRD
DREE	EER
Due	Dû
Duplication	Duplication
Duration	Durée
Dynamic	Dynamique
Earth	Terre
Eastern	de l'Est
Ecology	Ecologie
Econometrics	Econométrie
Economic	Economique
Economics	Economique
Economy	Economie
Editing	Rédaction
Edition	Edition
Edmonton	Edmonton
Education	Education
Egypt	Egypte
Electrical	Electrique
Electronics	Electronique
Eligible	Eligible
Emergency	Urgence
Employee	Employé
Employment	Emploi
Enclosure	Pièce jointe
Endorsement	Endossement
Energy	Energie
Engineer	Ingénieur
Engineering	Génie
Enlist	Enrôler
Enrollment	Enrôlement
Enterprise	Entreprise
Envelope	Enveloppe
Environment	Environnement
Equal	Egal
Equip	Equiper
Equipment	Matériel
Error	Erreur
Eskimo	Esquimau
Establish	Etablir
Estimate	Estimation
Ethics	Ethique
Ethiopia	Ethiopie
Europe	Europe
European	Européen
Evaluation	Evaluation
Evolution	Evolution
Exact	Exact
Example	Exemple
Excellent	Excellent
Exchange	Echange
Exclusive	Exclusif
Executive	Executif

Exempt	Exempt
Exercise	Exercice
Exhibition	Exposition
Exist	Exister
Expansion	Expansion
Expedite	Accélérer
Expenditure	Dépense
Expense	Frais
Experience	Expérience
Experiment	Expérience
EEC	CEE
Enforce	Appliquer
English	Anglais
Experiment	Expérience
Experimental	Expérimental
Export	Exportation
Explanation	Explication
Explore	Explorer
Exponential	Exponentiel
Extension	Extension
Extensive	Extensif
Exterior	Extérieur
External	Externe
Extrapolation	Extrapolation
Facility	Installation
Facsimile	Facsimile
Factor	Facteur
Faculty	Faculté
Failure	Défaut
False	Faux
Family	Famille
Feasability	Faisabilité
Feasible	Faisable
February	Février
Fed/Prov	Féd/Prov
Federal	Fédéral
Feedback	Rétroaction
Field	Domaine
Figure	Chiffre
File	Dossier
Film	Film
Final	Final
Finance	Finance
Financial	Financier
Financing	Financement
Finish	Finir
Finland	Finlande
First	Premier
Fiscal	Fiscal
Fish	Poisson
Flexible	Flexible
Fluctuation	Fluctuation
Focal	Focal
Food	Aliment
Forecast	Prévision
Forecasting	Prévision
Foreign	Etranger
Forestry	Sylviculture
Formal	Formel
Format	Format
Form	Formule
Formulation	Formulation
Forward	Transmettre
Foundation	Fondation
Fragile	Fragil
France	France
Franchise	Franchise
Freedom	Liberté
French	Français
Frequency	Fréquence
Fuel	Combustible

Fulfill	Accomplir
Function	Fonction
Fundamental	Fondamental
Fund	Fond
Further	Promouvoir
Future	Avenir
Futuribles	Futuribles
Futurology	Futurologie
Gain	Gain
Gap	Ecart
Gather	Cueillir
General	Général
Generate	Générer
Generation	Génération
Geneva	Genève
Genuine	Véritable
Geography	Géographie
Geology	Géologie
German	Allemand
Germany	Allemagne
Ghana	Ghana
Global	Mondial
Glossary	Lexique
GNP	PNB
Goal	But
Government	Gouvernement
Governmental	Gouverremental
Graduate	Diplômé
Grant	Subvention
Graph	Graphique
Great Britain	Grande-Bretagne
Great Lakes	Les Grands Lacs
Greece	Grèce
Ground	Sol
Group	Groupe
Growth	Croissance
Guatemala	Guatémala
Guide	Guide
Guideline	Ligne directrice
Guinea	Guinée
Haiti	Haïti
Half	Demi
Halifax	Halifax
Handbook	Guide
Hardware	Matériel
Hawaii	Hawaii
Hazard	Risque
Health	Santé
Heavy	Lourd
Heuristic	Heuristique
High	Haut
Hiring	Embauchage
Historical	Historique
History	Histoire
Holography	Holographie
Honduras	Honduras
Hong Kong	Hong-Kong
Honourable	Honorable
Horizontal	Horizontal
Hospital	Hôpital
Hospitality	Hospitalité
HQM	M.H.Q.
Hudson Bay	Baie Hudson
Hull	Hull
Human	Humain
Humanities	Humanités
Hundred	Cent
Hungary	Hongrie
Iceland	Islande
IDA	AID
Ideal	Idéal

Identification	Identification
IDRC	CRDI
Illegal	Illégal
Illustration	Illustration
Image	Image
Impact	Impact
Implementation	Exécution
Implication	Conséquence
Import	Importation
Impossible	Impossible
Improvement	Amélioration
Inaccurate	Incorrect
Inadequate	Inadéquat
Incentive	Stimulant
Incidental	Incidentel
Income	Revenu
Incompetent	Incompétent
Increase	Augmentation
Increment	Accroissement
Index	Index
India	Inde
Indian	Indien
Indian (Can)	Indien (Can)
Indicator	Indicateur
Indirect	Indirect
Indonesia	Indonésie
Industrial	Industriel
Industry	Industrie
Inefficient	Inefficace
Inexperience	Inexpérience
Inflation	Inflation
Informatics	Informatique
Information	Information
Infrastructure	Infrastructure
Initial	Initial
Initiative	Initiative
Innovation	Innovation
Install	Installer
Institute	Institut
Institutional	Institutionnel
Institution	Institution
Instruction	Instruction
Insurance	Assurance
Intact	Intact
Integration	Intégration
Intelligent	Intelligent
Intensive	Intensif
Inter-regional	Inter-régional
Interaction	Interaction
Interactive	Interactif
Interdepartmental	Interdépartemental
Interdisciplinary	Interdisciplinaire
Interest	Intérêt
Interim	Intérimaire
Internal	Interne
International	International
Interpretation	Interprétation
Interprovincial	Interprovincial
Intervention	Intervention
Interview	Entrevue
Introduction	Introduction
Invalid	Invalide
Invention	Invention
Inventory	Inventaire
Investigation	Enquête
Investment	Investissement
Invitation	Invitation
Invoice	Facture
Involvement	Implication
Iran	Iran
Iraq	Iraq

Ireland	Irlande
Irreversible	Irréversible
Irrevocable	Irrévocable
Israel	Israël
Issue	Problème
Italian	Italien
Italy	Italie
IT&C	I&C
Itinerary	Itinéraire
James Bay	Baie James
January	Janvier
Jamaica	Jamaïque
Japan	Japon
Jordan	Jordanie
Journal	Journal
Judgment	Jugement
July	Juillet
June	Juin
Junior	Junior
Jurisdiction	Juridiction
Jurisprudence	Jurisprudence
Justice	Justice
Kenya	Kenya
Korea	Corée
Kuwait	Kuwêit
Label	Etiquette
Laboratory	Laboratoire
Labour	Travail
Labrador	Labrador
Lag	Décalage
Language	Langue
Laos	Laos
Laser	Laser
Last	Dernier
Latin America	Amérique Latine
Launch	Lancer
Law	Loi
Lawyer	Avocat
Lead	Conduire
Leader	Leader
Leave	Congé
Lebanon	Liban
Lecture	Cours
Ledger	Registre
Legacy	Legs
Legal	Légal
Legislation	Législation
Legislative	Législatif
Legitimate	Légitime
Length	Longueur
Letter	Lettre
Liability	Responsabilité
Liaison	Liaison
Liberal	Libéral
Library	Bibliothèque
Libya	Libye
Licence	Licence
Licensing	Délivrance d'une licence
Life	Vie
Limit	Limite
Limited	Limité
List	Liste
Literal	Littéral
Literature	Littérature
Loan	Prêt
Location	Location
Lock	Fermer
London	Londres
London Ont	London Ont
Long-range	Long-terme
Low	Bas

Luggage	Bagage
Luxembourg	Luxembourg
Machine	Machine
Mail	Courrier
Majority	Majorité
Malaysia	Malaisie
Management	Gestion
Manager	Gérant
Mandate	Mandat
Manitoba	Manitoba
Manpower	Manpower
Manual	Manuel
Manufacturer	Manufacturier
Manufacturing	Fabrication
Man-year	Homme-année
Map	Carte
March	Mars
Marine	Marin
Maritime	Maritime
Market	Marché
Marketing	Commercialisation
Mass Media	Média
Master	Maître
Material	Matériel
Mathematics	Mathématiques
May	Mai
Mechanical	Méchanique
Mechanism	Méchanisme
Mediate	Intervenir
Medical	Médical
Medicine	Médecine
Mediterranean	Méditerranée
Meeting	Réunion
Member	Membre
Membership	Qualité de membre
Memorandum	Note de service
Memory	Mémoire
Mental	Mental
Merit	Mérite
Message	Message
Metal	Métal
Meteorology	Météorologie
Method	Méthode
Methodology	Méthodologie
Mexico	Mexique
Middle East	Moyen-Orient
Million	Million
Mines	Mines
Minister	Ministre
Ministerial	Ministériel
Minority	Minorité
Minutes	Procès-verbal
Misc	Divers
Missile	Projectile
Mission	Mission
Mistake	Faute
MIT	MIT
Model	Modèle
Modern	Moderne
Monitoring	Contrôle
Monopoly	Monopole
Monthly	Mensuel
Montreal	Montréal
Morocco	Maroc
MOSST	MEST
MOT	MT
Multilateral	Multilatéral
Museum	Musée
Music	Musique
NASA	NASA
Nation	Nation

National	National
NATO	OTAN
Natural	Naturel
Navy	Marine
Need	Besoin
Negation	Négation
Negative	Négatif
Netherlands	Pays-Bas
Network	Réseau
New	Nouveau
New Brunswick	Nouveau-Brunswick
Newfoundland	Terre-Neuve
New Guinea	Nouvelle-Guinée
New York City	New-York (cité)
New Zealand	Nouvelle-Zélande
Newspaper	Journal
Nicaragua	Nicaragua
Niger	Niger
Nigeria	Nigéria
Normal	Normal
North	Nord
North America	Amérique du Nord
Northern	du Nord
Norway	Norvège
Nova Scotia	Nouvelle-Ecosse
Novel	Nouveau
November	Novembre
NRC	CNR
NSF	FSN
Nuclear	Nucléaire
Nucleus	Noyau
Number	Nombre
Number	Numéro
NWT	Territoires du Nord-Ouest
OAS	OEA
OECD	OCDE
Objective	Objectif
Obliterate	Eloigner
Observation	Observation
Observer	Observateur
Obtain	Obtenir
Occupation	Métier
Occupy	Occuper
Oceanography	Océanographie
Ocean	Océan
October	Octobre
Offer	Offre
Office	Bureau
Officer	Officier
Oil	Pétrole
Ontario	Ontario
Open	Ouvrir/Ouvert
Operate	Opérer
Operation	Opération
Operational	Opérationnel
Opinion	Opinion
Opportunity	Occasion
Oppose	Opposer
Opposition	Opposition
Optics	Optique
Optimization	Optimisation
Optimum	Optimum
Option	Option
Optional	Facultatif
Org-chart	Organigramme
Organization	Organisation
Organizations	Organisations
Orientation	Orientation
Origin	Origine
Ottawa	Ottawa
Outcome	Résultat

Outlook	Perspective
Overseas	Outre-mer
Overview	Vue d'ensemble
Owner	Propriétaire
Ownership	Propriété
Pacific	Pacifique
Pakistan	Pakistan
Panama	Panama
Panel	Equipe
Paper	Papier
Paraguay	Paraguay
Parallel	Parallèle
Paris	Paris
Parliament	Parlement
Part	Partie
Partial	Partiel
Participation	Participation
Partner	Partenaire
Party	Parti
Patent	Brevet
Patient	Patient
Pattern	Structure
Payment	Paiement
PEI	I.P.E.
Pending	En instance
Pension	Pension
People	Gens
Performance	Performance
Periodical	Périodique
Perish	Périr
Permanent	Permanent
Permissible	Permissible
Permit	Permis
Persistance	Persistance
Personal	Personnel
Personnel	Personnel
Perspective	Perspective
Pertinent	Pertinent
Peru	Pérou
Pharmacy	Pharmacie
Phase	Phase
Philippines	Philippines
Philosophy	Philosophie
Photograph	Photographie
Phrase	Phrase
Physical	Physique
Physician	Médecin
Physics	Physique
Picture	Image
Pilot	Pilote
Plan	Plan
Planning	Planification
Plastic	Plastique
Plenary	Plénière
Poland	Pologne
Police	Police
Policy	Politique
Political	Politique
Politics	Politique
Pollution	Pollution
Population	Population
Portugal	Portugal
Position	Position
Positive	Positif
Postponement	Ajournement
Power	Pouvoir
Practice	Pratique
Prediction	Prédiction
Preface	Préface
Premier	Premier ministre
Preparation	Préparation

Preparatory	Préparatoire
Prepared	Préparé
Present	Présent
Preserve	Conserver
President	Président
Press	Presse
Principal	Principal
Principle	Principe
Priority	Priorité
Privacy	Vie privée
Private	Privé
Prize	Prix
Probability	Probabilité
Problem	Problème
Procedure	Procédure
Process	Procédé
Processing	Traitement
Procurement	Acquisition
Product	Produit
Production	Production
Productivity	Productivité
Professional	Professionnel
Profile	Profile
Program	Programme
Programming	Programmation
Progress	Progrès
Project	Projet
Projection	Projection
Promotion	Promotion
Property	Propriété
Proposal	Proposition
Prospective	Prospectif
Prospect	Perspective
Protocol	Protocole
Provincial	Provincial
Psychology	Psychologie
Public	Public
Publication	Publication
Purchase	Acheter
Pursue	Poursuivre
Qualification	Qualification
Qualified	Qualifié
Qualify	Qualifier
Quality	Qualité
Quantitative	Quantitatif
Quantity	Quantité
Quantization	Quantification
Quebec	Québec
Querry	Question
Question	Question
Quiet	Tranquille
Quotation	Citation
Radical	Radical
Radio	Radio
Railroad	Chemin de fer
Ratio	Ratio
Rational	Rationnel
RCMP	GRC
R&D	R&D
Reactor	Réacteur
Reality	Réalité
Reason	Raison
Recall	Rappel
Receipt	Reçu
Receive	Recevoir
Recession	Récession
Recommendation	Recommandation
Record	Enregistrement
Recruitement	Recrutement
Reduction	Réduction
Refund	Remboursement

Regina	Régina
Region	Région
Regional	Régional
Registrar	Greffier
Registry	Régistraire
Registration	Immatriculation
Regression	Régression
Regret	Regret
Regulation	Réglementation
Regulatory	Réglementaire
Relation	Relation
Relationship	Rapport
Reliability	Crédibilité
Relocation	Relocation
Remote	Eloigné
Remove	Ecarter
Render	Rendre
Renovation	Rénovation
Reorganization	Réorganisation
Reply	Réponse
Report	Rapport
Reproduction	Reproduction
Request	Requête
Requirement	Exigence
Requisition	Réquisition
Research	Recherche
Researcher	Chercheur
Resignation	Démission
Resolution	Résolution
Resources	Ressources
Responsibility	Responsabilité
Restricted	Restreint
Result	Résultat
Resume	Résumé
Retrieval	Extraction
Revenue	Revenu
Review	Révision
Revise	Reviser
Revision	Révision
Revolution	Révolution
Rhodesia	Rhodésie
Risk	Risque
Role	Rôle
Romania	Roumanie
Rome	Rome
Royal	Royal
Rural	Rural
Russia	Russie
Safeguards	Garanties
Safety	Sécurité
Salary	Salaire
Sale	Vente
Sample	Echantillon
Sanction	Sanction
Saskatchewan	Saskatchewan
Satellite	Satellite
Satisfactory	Satisfaisant
Saudi Arabia	Arabie Séoudite
Scale	Echelle
Scandinavia	Scandinavie
Scenario	Scénario
Schedule	Horaire
School	Ecole
Science	Science
Science Council	Conseil des Sciences
Scientific	Scientifique
Scientist	Scientifique
SCITEC	SCITEC
Scope	Portée
Scotland	Ecosse
Sea	Mer

Secret	Secret
Secretariat	Secrétariat
Secretary	Secrétaire
Section	Section
Security	Sécurité
Selection	Sélection
Seminar	Séminaire
Senegal	Sénégal
Senior	Senior
Sentence	Sentence
September	Septembre
Sequence	Séquence
Service	Service
Session	Session
Set	Ensemble
Sex	Sexe
Short-range	Court-terme
Shortage	Pénurie
Sick	Malade
Signal	Signal
Significant	Significatif
Simulation	Simulation
Simultaneous	Simultané
Size	Grandeur
Social	Social
Society	Société
Socio-economic	Socio-économique
Sociology	Sociologie
Software	Programmerie
Solution	Solution
South America	Amérique du Sud
Sovereignty	Souveraineté
Space	Espace
Spacecraft	Vaisseau spatial
Spain	Espagne
Special	Spécial
Specific	Spécifique
Speech	Discours
Speed	Vitesse
Staff	Personnel
Standard	Norme
State	Etat
Statistical	Statistique
Statistics	Statistique
Status	Statut
Storage	Stockage
Strategy	Stratégie
Structure	Structure
Student	Etudiant
Study	Etude
St. Lawrence	St. Laurent
Sub-Committee	Sous-comité
Subject	Sujet
Submission	Soumission
Submit	Soumettre
Subscriber	Abonné
Substitute	Substitut
Substitution	Substitution
Successful	Réussi
Suggestion	Suggestion
Summary	Sommaire
Summer	Ete
Superannuation	Retraite
Supervisor	Surveillant
Supervisory	De surveillance
Supplies	Approvisionnement
Supply	Offre
Support	Appui
Survey	Enquête
Sweden	Suède
Switzerland	Suisse

Symbol	Symbole
Symposium	Colloque
Synthesis	Synthèse
Syria	Syrie
System	Système
Table	Tableau
Tactical	Tactique
Taiwan	Taïwan
Tanzania	Tansanie
Target	But
Tariff	Tarif
Task	Tâche
Task Force	Groupe de travail
Tax	Impôt
Technical	Technique
Technique	Technique
Technological	Technologique
Technologist	Technologiste
Technology	Technologie
Telecast	Radiodiffusion
Telegram	Télégramme
Telephone	Téléphone
Television	Télévision
Telex	Télex
Temporary	Temporaire
Term	Terme
Terminal	Terminal
Terrestrial	Terrestre
Testify	Témoigner
Test	Test
Text	Texte
Thailand	Thailande
Theory	Théorie
Thesis	Thèse
Third World	Tiers-Monde
Thousand	Mille
Time	Temps
Title	Titre
Topic	Sujet de discussion
Topological	Topologique
Toronto	Toronto
Total	Total
Tourism	Tourisme
Trade	Commerce
Traffic	Trafic
Training	Formation
Transfer	Transfert
Transform	Transformer
Transformation	Transformation
Translation	Traduction
Transmission	Transmission
Transparent	Transparent
Transport	Transport
Transportation	Transport
Travel	Voyage
Treasury Board	Conseil du Trésor
Treatment	Traitement
Treaty	Traité
Trend	Tendance
Trinidad & Tobago	Trinidad & Tobago
Tunisia	Tunisie
Turkey	Turquie
Uganda	Uganda
Ulterior	Ultérieur
UK	Royaume-Uni
UN	ONU
Uncertainty	Incertitude
Understanding	Entente
UNDP	PNUD
Unesco	Unesco
Uniform	Uniforme

Unit	Unité
Universal	Universel
University	Université
Unsatisfactory	Insuffisant
Urban	Urbain
Urban planning	Urbanisme
Urbanization	Urbanisation
Uruguay	Uruguay
USA	E.-U.
Usage	Usage
User	Utilisateur
USSR	URSS
Utility	Utilité
Wage	Salaire
Waiver	Désistement
War	Guerre
Warranty	Garantie
Washington	Washington
Waste	Déchet
Water	Eau
Welfare	Bien-être
West Indies	Antilles
Western	de l'Ouest
WHO	OMS
Wide	Large
Windsor	Windsor
Winnipeg	Winnipeg
Woman	Femme
Work	Travail
Working Group	Equipe de travail
World	Monde
Vacant	Vacant
Value	Valeur
Vancouver	Vancouver
Vanish	Disparaître
Variable	Variable
Venezuela	Vénezuéla
Veto	Veto
Vice-president	Vice-président
Victoria	Victoria
Vietnam	Vietnam
Violence	Violence
Visit	Visite
Visual	Visuel
Vocal	Vocal
Voucher	Bon de paiement
Year	Année
Yugoslavia	Yougoslavie
Yukon	Yukon
Zambia	Zambie
Zone	Zone

25. Title or division - as #14 but for recipient outside MOSST.

26. Organization - as #15 but for recipient outside MOSST.

27. Location - as #16 but for recipient outside MOSST.

28. SPIRS Analyst and Date - the initials of the indexe and the date the indexing was performed. This attribute is not entered in the data bank.

29. Officer and Date - not used for the pilot project. The initials of the officer to whom the index ? and document were sent for verification and the date: usually the officer listed in #20. This attribute is not entered in the data bank.

17. Journal, book or report data - if the document's are article, the name of the journal in which it is found along with the page numbers and other relevant information; if the document is a book, the name and address of the publisher; if the document is a report, all relevant data not included elsewhere such as the name of the organization(s) enter the auspices of which the report was proposed if it is not the actual corporate author; any author/publisher type information not included elsewhere.

18. Report number - the reference number of the document assigned by the originating organization. In practice this has been used primarily for OECD and UN report numbers.

19. Conference or meeting data - if the document relates to a conference or meeting, e.g. minutes, agenda, working paper, the full name location and date of the meeting.

20. To (MOSST) - the names(s) of the recipient(s) within MOSST if any.

21. Title or division - the name of the division of the recipient within MOSST or if Assistant Secretary or above the title.

22. C.R. File - the central registry file number if any.

23. Library accession - the library accession number of the document if any.

24. To (NOT MOSST) - The recipient of the document outside of MOSST. This is used for documents which originate in MOSST or which were sent from someone outside MOSST to someone outside MOSST and MOSST's involvement is as a third party.

8. Distribution restriction - not used in the pilot project, but intended to restrict documents to selected users.

9. Title or topic - of the document as given by the originator (author).

10. Abstract - a brief description of the content and purpose of the document written by the SPIRS indexer.

11. Description - subject search terms selected from the approved list (Annex II).

12. Proposed descriptions - those additional subject search terms not in the approved list which are felt by the indexer to be necessary. These are not entered in the data base unless the project coordinator approves them by entering them in attribute 11.

13. From - the originator or author of the document. Only people and not organizations are listed in this attribute.

14. Title or division - the title and the names of all sub-divisions of the major organization(s) of the originator.

15. Organization - the name(s) of the organization(s) which originated the document.

16. Location - the name(s) of the city(ies) and province(s) or country(ies) in which the organization(s) listed in attribute 15 are located, or if no organizations are listed the city(ies) and province(s) or country(ies) in which the people listed in attribute 13 are located are given.

ANNEX III

SPIRS: Document Attributes

There are 29 attributes listed on the coding forms used by SPIRS indexes during the pilot project (Annex III.1, attached). Of these 26 are entered in the data bank.

A list of these document attribures with a brief description of each follows. Additional information is available in Annex IV, "Guide for Document Indexing".

1. Accession number - a unique sequential number assigned by the indexer.

2. Document Type - a brief description of the type of document e.g. letter, memo, working paper, book, article etc. see also 3 below.

3. Document Code - a numerical code indicating the type of documents. A list of codes is given in Annex III.2.

4. Issue date - the date the document was written or published.

5. Language - the language(s) in which the document is written.

6. Number of pages- the approximate number of pages in the document.

7. Security classification - as assigned by the originator of the document. No document classified higher than "restricted" was entered into the data bank.

CODE	DESCRIPTION
21	Theses and dissertations.
22	Working papers, position papers, notes to file.
23	Regulations and legislations.

ANNEX III. 2

DOCUMENT TYPES

CODE	DESCRIPTION
1	Agreements, treaties, pacts, etc. between or among countries, organizations, etc., usually governmental.
2	Contracts, memoranda of understanding or intent, between or among organizations, individuals, etc.
3	Correspondence (of a relevant and significant nature) from and to the Ministry.
4	Telegrams and Telexes.
5	Articles in periodicals, journals, newspapers, etc.
6	Books, monographs.
7	Briefings.
8	Cabinet Memoranda, Cabinet Documents, Cabinet Decisions.
9	Catalogues, brochures.
10	Charts, maps.
11	Notices and program information for meetings and conferences of scientific, technical, scholarly, or other NGO groups.
12	Proceedings and records of meetings and conferences as in 11 above.
13	Minutes and records of meetings of interdepartmental and intergovernmental (Canada) committees and ad hoc groups.
14	Minutes and records of meetings of official organizations, i.e., IGO's.
15	Notices and agenda for meetings of IGO's, e.g., NATO, OECD, UN, etc.
16	Press releases.
17	Reports.
18	Reviews and abstracts.
19	Speeches, seminar presentations.
20	Statistical compilations, presentations.

.../2

ANNEX III.1 MOSST Science Policy Information Reference System (SPIRS)

MEST Système d'information sur références en politique scientifique (SIRPS)

1. Accession number / *Numéro de référence* _____

2. Document type / *Type de document* _____

3. Document code / *Code du document* _____

4. Issue date / *Date de parution* _____

5. Language / *Langue* _____

6. Number of Pages / *Nombre de pages* _____

7. Security classification / *Indicatif de sécurité* _____

8. Distribution restriction / *Indicatif de restriction* _____

9. Title or topic / *Titre ou sujet* _____

10. Abstract / *Abrégé* _____

11. Descriptors / *Descripteurs* _____

12. Proposed descriptors / *Descripteurs proposés* _____

13. From. / *De:* _____

14. Title or division. / *Titre ou division:* _____

15. Organization: / *Organisme:* _____

16. Location: / *Emplacement:* _____

17. Journal, book or report data: / *Référence de journal, livre ou rapport:* _____

18. Report number: / *Numéro de rapport:* _____

19. Conference or meeting data: / *Référence de conférence ou réunion:* _____

20. To (MOSST): / *A (MEST):* _____

21. Title or division: / *Titre ou division:* _____

22. C.R. File: / *Dossier du registraire:* _____

23. Library accession: / *Référence de bibliothèque:* _____

24. To (Not MOSST): / *A (Autres que MEST):* _____

25. Title or division: / *Titre ou division:* _____

26. Organization: / *Organisme:* _____

27. Location: / *Emplacement:* _____

28. SPIRS Analyst: / *Analyste SIRPS:* _____ Date: / *Date:* _____

29. Officer: / *Fonctionnaire:* _____ Date: / *Date:* _____

GUIDE FOR DOCUMENT INDEXING

INTRODUCTION

The purpose of this guide is to facilitate the indexing of documents, an operation which is of decisive importance both for retrieval effectiveness and for the quality of the information retrieved.

Two types of indexing are described here: analytic and bibliographic.

Analytic indexing is intended to provide an objective analysis of the content of documents deemed relevant and significant to the science policy information reference system. Because this type of indexing tends to be subjective, however, the effectiveness of the retrieval depends essentially on the analyst performing the indexing operations. This portion of the indexing form includes the following elements:

10 - Abstract
11 - Descriptors
12 - Proposed Descriptors

Bibliographic indexing involves the assigning of descriptive elements recorded and transcribed directly from the document with no analysis required on the part of the indexer. This objective portion of the indexing form includes the following elements:

1 - Accession number
2 - Document type
3 - Document code
4 - Issue date
5 - Language
6 - Number of pages
7 - Security classification (if applicable)

...../2

8 - Distribution restriction
9 - Title or topic
13 - From
14 - Title or division
15 - Organization
16 - Location
17 - Journal, book or report data
18 - To (MOSST)
19 - Title or division
20 - C.R. File
21 - Library accession
22 - To (Not MOSST)
23 - Title or division
24 - Organization
25 - Location
26 - SPIRS analyst, date
27 - Officer, date (optional)

In the following, each descriptive element is discussed in turn.

(1) Accession number

This number is assigned by the SPIRS Analyst and is recorded on the input form and the original or registry copy of the corresponding document. The number consists of, in order, the last two digits of the year, the month of the year in numerical value, SPIRS analyst code (alphabetic) and a 3-digit sequential number of the indexed document in monthly intervals - e.g.,

Year		Month		Analyst Code		Document No.
75	/	04	/	A	/	001
75	/	06	/	F	/	101

...../3

(2) Document type

The document type should be briefly described according to Appendix A.

(3) Document type code

The numerical code, in Appendix A, appropriate to the document type, must be recorded by the SPIRS analyst.

(4) Issue date

Day, month and year, the document (the one for which an abstract is written) was issued should be listed, whenever possible. When neither the date, month or year is known, enter 0's

i.e. 00/06/75
00/00/73

(5) Language

The language of the document must be given. If the document is written in French, enter F; if the document is written in English, enter E; when in other than these two languages, enter the language in long-hand. If the document is bilingual, enter EF or clearly identify languages other than E and F.

(6) Number of pages (optional)

If a document contains more than a few pages, say three, it may be helpful to an enquirer to know how large a document he is looking for. The number of pages is to include Annexes, Bibliography, Notes attached, Covering letter.

...../4

(7) Security classification

This is assigned by the issuer of the document, and the abstract may be considered to be of the same security classification as the document (see Note P.6). The categories (and terms) are: restricted, confidential, secret and top secret. The term "Unrestricted" is generally not recorded and is assumed unless otherwise noted.

(8) Distribution restriction

This restriction is used to limit distribution to a selected clientele (named individual(s), organizational entities, etc.) e.g., Limited (or Restricted) to "John Brown, Adam Smith, etc.", Limited to MOSST, Limited to MOSST and TBS, Limited to _____Branch.

(9) Title or topic

The original main heading must always be recorded in its entirety. However, when indexing a document related to a meeting or conference, the analyst may choose to only briefly describe the topic/title:

i.e. 38th Meeting
116th Session

A special field (19) is provided for meeting and conference data: title, place, date; therefore, the title (9) should give a minimum of information.

(10) The abstract

Because of their high input cost, abstracts should be kept as brief as possible. Of course, brevity should not be detrimental to quality. An abstract is defined in terms of what the document contains, and not in terms of what it doesn't. Abstracts should reproduce neither the type of the document abstracted, nor its title,

...../5

as these two fields are searchable. Whenever possible, begin abstract with verb "discusses, relates, reviews, analyzes, etc.", and finish by noting, if it is the case, existence of annexes, tables, charts, French or English version and its accession number.

Depending on the type of document (see Appendix A), the elements of the abstract to be emphasized are the purpose, scope, method, results and conclusions of the original. There follows a brief definition of each of these elements.

Purpose: States the goals, objectives, aims or reasons why the document was written.

Scope: States the extent of the work reported in qualitative and/or quantitative terms. For example, the terms "brief" or "exhaustive" may be used to characterize the original.

Method: Describes the techniques or the means employed to achieve the purpose. If the method is original or the application unusual, details should be included.

Results: Are restricted to the most significant findings or the outcome of applying the methods named. The most significant quantitative data should be provided.

Conclusions: Are restricted to the most significant conclusions or interpretations of the results. Care should be taken that this abbreviated statement does not imply concepts or conclusions broader than those supported in the original document.

...../6

NOTE: It may be necessary to omit results and conclusions from abstracts of "confidential" and above documents if abstract is to be available on retrieval by other than those with access to such classes of information.

The form, content and length of an abstract depend upon the type of the original document. However, storage limitations within computer memories and information handling systems indicate that abstracts should not exceed 100 words, if possible.

(11) and (12) Descriptors and Proposed descriptors

Descriptors should reflect the subject matter of the document and, as such, should go right to the point, i.e. words like "problem" "discussion" "miscellaneous" are meaningless from the point of view of retrieval. Whenever possible, words already contained in the keyword list should be chosen as descriptors.

- If a country (or countries) is involved, use it as a descriptor.
- Do not propose a descriptor if its synonym is already listed

Ex.:	refuse	waste
	petroleum	oil

- Always opt for the broader term.

Ex.:	naphta	oil
	corn	grain

- Use and propose only established names of organizations.

Ex.: "NEA" "IIASA"
"Ad-hoc group on ---"
"Standing group on ---"
"Committee on Naphta"

- Dates as descriptors:

for a single year use "1975"
for years in a row "1975-1976" or "1975-1980"
for separate years "1975" "1980"
for dates with month "04/1975"

- Use and propose pre-coordinate descriptors only if the combined concept represents one unit of thought and, as such, is used very frequently.

  Ex.: Systems analysis
  Science policy
  S&T

  and not: Scientific cooperation
  Waste management, Nuclear safety

- Proposed acronyms should always be followed by the full term, in parenthesis.

  Ex.: NEA (Nuclear Energy Agency)

* The number of descriptors used in indexing one document should not exceed 20.

The number of proposed terms should not exceed 10.

(13) From

The issuer of a document may be a personal author(s) or an organizational author.

If the issuer is a person, his title or function within an organization is often useful data.

Example: G.Y. Tremblay,
Assistant Secretary,
Resources and Information Branch,
MOSST.

...../8

The issuer of a document may also be an "organizational" author, such as:

- an international or foreign organization
- a federal or provincial department, agency, committee, commission
- a professional association

(14) Title or division

Titles are given, starting with "director" and up; otherwise division alone. This field should also be used for the sub-units of organizations.

Ex.: Standing Group, Environment Directorate
Ad-hoc group, etc.

(15) Organization

Only the organization is recorded here:

Ex.: OECD
UN

(16) Location

If well-known, city only should be listed.

Ex.: Paris, London, Brussels
but: Paris, Ontario
London, Ontario

(15) (16) In the case of foreign delegations, the particular country goes in (15) and the receiving country goes in (16)

Ex.: (15) Ambassade de France
(16) Canada

(17) Journal, book or report reference

If the document is an article in a periodical, journal, magazine, newspaper, etc., the following data should be given:

- Title of the respective periodical, etc.
- Volume No., and Issue No., if applicable
- Pagination of the respective article
- Date - to be entered in 4

If the document is a report, the following data must be given:

- Report number
- Issuing organization and/or
- Distributing agency
- Place
- Date - to be entered in 4

If the document is a book:

- Publisher)
- Place) must be lsited

NOTE: Author(s) are to be listed under item 13.

(18)

This new field is provided for the number given by the originating organization itself. It should be given as such, as it plays an important part in the retrieval of this particular type of document.

Ex.: (E/C.8/WG.1/L3)
(U/ENV/75.8)

...../10

(19)

This field is provided for full title of conference, seminar, meeting, etc., date in full and all other information considered useful and not duplicated in other fields.

Ex.: Science Council Meeting, Paris, 30/04/75

(20) and (21) To (MOSST)

The data to be listed are the following:

- Name of recipient*
- Title or division
- C.R. file and volume
- Library accession, if applicable

*NOTE: With several recipients, only first name will be searched; order of names can be altered.

(22) (23) (24) and (25) To (Not MOSST)

To be itemized further as for 11.

(26) SPIRS Analyst

Signature of analyst and date of indexing.

(27) Officer*

Signature of officer and date when officer reviewed input data.

*This category is optional on the input sheet in that the data recorded on the sheet will be entered to the information bank five working days after forwarding the document and input sheet to the officer if there is no action by the latter.

DATE DUE 32174
DATE DE RETOUR