FINAL REPORT

PREPARED FOR

DEPARTMENT OF COMMUNICATIONS

OFFICE AUTOMATION FIELD TRIAL PLAN

JANUARY 1983

HICKLING-PARTNERS INC.

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BY

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Preface

This report was prepared by Hickling-Partners Inc. as the final contractual deliverable under DSS contract number 21ST.36100-2-4019. The cooperation and assistance of DOC staff is gratefully acknowledged. In particular, the coordination provided by Ken Dagg of DCB as DOC project manager enabled us to complete our schedule in reasonable time.

Four interim reports were prepared in the course of the study. This volume provides the consolidation of these reports into one. The material is restructured to provide a consistent final report.

OFFICE AUTOMATION FIELD TRIAL PLAN

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EXECUTIVE SUMMARY

This report presents the plan for the Office Automation Field Trial to be conducted within the Department of Communications. It documents the selection of Trial participants, the identification of Trial services, the design of the system configuration, and the detailed schedule and costs.

In overall summary, the characteristics proposed and recommended for the Field Trial are as follows:

- Trial participants are to be selected from the Department's Senior management team and staff of the Policy Sector.
- A total of 50 Office Automation work stations are to be installed, serving directly 72 people in the Department.
- The principal services to be offered by the Trial address the verbal and text communications flows within the Trial sites, and provide aids to personal information management processes.
- The proposed system configuration provides operational, proven services, as well as innovative Office Automation functions.
- Phase II of the Field Trial should commence immediately, with the operational period extending from mid 1983 to March 1985.
- The conduct of Phase II of the Trial can be accomplished within a budgetary ceiling of $600K.

- Significant benefits from the Trial are anticipated to accrue to the Department, the Federal Government and to Canadian Industry.

The Field Trial offers an excellent opportunity to improve the productivity of the Department, and, at the same time, both explore the impact of Office Automation on an operational environment, and promote the Canadian office equipment industry. The Trial plan has been developed to meet these objectives; it is fully anticipated that implementation of the plan will realize them.

The process of developing the Field Trial plan has taken nearly six months. In that time, the methodology employed has actively involved a large number of the staff of the Department, at all levels of the organization. Their expressed level of interest in the Field Trial is very high. People are, in general, very keen to be participants and interested in its outcome. It is critical to the success of the Field Trial that this momentum not be lost.

Office Automation today embodies many different concepts. Automation has already had significant impact on offices through the introduction of word-processing, microreproduction, and computerized applications. However, the work style of many office workers is not characterized by the regular iterative processes addressed by much of the automation to date. It is characterised by interaction and informality, concerned with the processing of unstructured information according to undefined procedures.

This is true of the Federal Government, in general, and in particular, of the work environment of the Department of Communications. The work style of the management of DOC involves considerable interaction between people, allied with iterative document preparation processes. The challenge in introducing automation into this environment lies in the opportunity to augment human interactive processes through the assistance provided by inhuman machines.

The plan has been prepared to meet a number of objectives that were established at the start of the study. Elements of the plan address each of these different objectives, objectives that relate both to DOC's own effectiveness and to the goals of the OCS program:

1. Improve DOC operational productivity.

2. Study the Human Factors impact of Office Automation.

3. Evaluate Productivity Potential.

4. Promote the progressive image of the Department.

5. Lead to the development of new Canadian products.

The plan also recognizes and makes allowances for a number of issues and concerns which were raised by personnel throughout the Department. These are addressed in detail in the body of the report. In particular however, it should be noted that questions of the appropriate intervention strategy for the introduction of Office Automation; of the health issues concerning the use of electronic office equipment; and of the interfaces between automated and non-automated offices, are all explored. Resolution of these issues are not all provided in this plan. They need exploration during the Field Trial. Further planning of various of these activities is planned for in the overall plan. Some are legitimately the result of research over the course of Phase II of the Field Trial.

RECOMMENDATIONS

It is our prime recommendation that the Department proceed immediately to the implementation of Phase II of the Field Trial. Within that overall recommendation a number of other recommendations have been developed.

1. It is recommended that participants for the Field Trial be selected from the Department's senior management team and from the Policy Sector. This includes staff in the offices of the Minister, Deputy Minister, all Assistant Deputy Ministers, D.G. Personnel and Administration, the Director of Planning, all DG's in Policy Sector and the staff of Broadcast and Social Policy Branch. The staff of National Telecommunications Branch is recommended as a control group to enable objective determination of Field Trial benefits. This choice of staff involvement offers several advantages for the operation of an Office Automation Field Trial.

   A. It addresses and promotes DOC management effectiveness. The involvement of senior management represents a major commitment by the Department to improve management effectiveness and efficiency.

   B. It provides a "classic" knowledge worker environment. Much of the benefit to be derived from Office Automation lies with professional and managerial staff. In the past, little realization of this benefit has been achieved. The style of work in these two sites, provides an opportunity to fully explore this potential to DOC's advantage.

   C. It facilitates research into Human Factors and productivity measurement issues. It is necessary to quantify, as far as possible, benefits of Office Automation in terms of Human Factors and productivity. The characteristics of these sites provide excellent opportunities of this research.

D. Full vertical communication strongly linked to the management team is provided. Both a horizontal and vertical communications slice through DOC are shown in the site organizations. This should improve communication effectiveness within the Senior Management team and Policy Sector. Vertical communications will provide electronic linkages from the Minister's office to all ADMs and throughout the Policy Sector. By the nature of their involvement, all ADMs will share in a horizontal link between their offices.

E. It will provide first-hand technological exposure for senior staff involved in the promotion of new communications and office automation technologies, as well as visibility to external agencies of DOC's involvement.

F. There is significant potential for innovative, Canadian products. A number of new services have been identified that potentially may result in Canadian products.

G. Last but not least, the two sites enable a manageable Field Trial. Largely co-located and of a reasonable total size, the organization, implementation and management of the Field Trial will not present unnecessary difficulties.

Selection of specific sites as Trial participants does not preclude other sites in DOC from "involvement" with the Trial. For the Trial to be a success it is essential that the services provided are integrated with other services and processes in the Department. The Trial will explore the benefits and impacts of new technology on a specific trial population, in terms of organizational impact, human factors, and costs versus benefits. These benefits and impacts will not be fully determinable in an independent, unintegrated trial.

2. It is recommended that a broad set of complementary office automation services be supported by the Field Trial. They are grouped for presentation purposes into four sets of features, though they are intended to be provided in an integrated, user-friendly fashion.

A. Document Handling

Full support is to be provided for the electronic preparation, manipulation and communication of textual material. The complex process of document handling within the Department is to be modelled flexibly to provide control and monitoring facilities.

B. Electronic Communications

As well as enabling the electronic flow of formal documents within the Department, facilities are to be provided to enable informal textual communications (electronic messaging) and voice messaging. Voice messaging provides a complement to use of the telephone which will in turn be augmented with computer assisted call placement and logging facilities.

C. Management Aids

A set of tools are to be provided to enhance the effectiveness of Departmental managers. These tools provide electronic analogues of existing procedures in terms of time management (calendar) and reminders (B/F or Tickler Files). Automation enhances the way in which these things can be done. Additional tools such as a "spread-sheet" capability, budgeting and project management tools are recommended.

D. Information Access

Besides having access to the range of capabilities and information provided by the Trial System, communication facilities will be provided to enable access to many other computer-based sources of information. Telidon capability is to be provided to enable access to local and remote Telidon systems. Other Departmental systems will be accessible such as the CRC computer facility (the financial system), as well as private sector services.

3. It is recommended that the equipment for the Field Trial be based on equipment of Canadian manufacturer that represents the most recent innovation in office automation equipment. It is likely that pre-production equipment will be available and necessary to meet the specifications of the Field Trial. Four types of equipment should provide the machinery of the trial:

   - o Office Workstations, ergonomically designed, supporting the identified functions, in a user-friendly manner;
   - o Cluster Controllers, supporting bulk storage capabilities, specific application processing and inter workstation communications;
   - o Local network capability enabling linkage between cluster controllers and access to other internal and external computer resources;
   - o Interface Devices, printers and optical character readers to enable transparent flow between the Trial population and the rest of the Department.

4. It is recommended that the Trial support as large a population of users as is both possible and practicable. We recommend a Trial population of 50 workstations, that directly will support about 72 staff and indirectly provides shared access for the full complement of staff in the Field Trial sites.

5. It is recommended that the interest developed and expressed by Departmental staff, be capitalized upon in the further planning and implementation of the Field Trial. In particular, we recommend that the User Working Groups established to promote the involvement of DOC staff for Phase I of the Field Trial, continue to operate throughout the Field Trial as a means of promoting the use of Field Trial Services and as a means of soliciting feedback on Trial progress.

6. It is recommended that a prime contractor be selected for the management and conduct of Phase II. It is unlikely that a single manufacturer will

be able to supply all the hardware and software needed for the DOC trial. It is however necessary in order to promote Canadian enterprise that a private sector company be selected as overall manager of the trial.

7. It is recommended that serious consideration be given to the collection of medical data related to the health of Trial participants. Considerable concern and interest has been expressed during our study, as well as publicly, in the health issues of office automation. The conduct of a Trial offers an excellent opportunity to examine these health issues. The use of the control group that has been established provides the basis for a proper experimental environment.

8. It is recommended that as many other organizations within DOC as possible be encouraged to link their own office equipment to the Field Trial.

SECTION 1. INTRODUCTION

INTRODUCTION

Hickling-Partners Inc. (HPI) was retained to develop the plan for a Field Trial of Office Automation in the Department of Communications (DOC). The preparation and presentation of this plan completes Phase I of the Field Trial. Phase II is the operational period of the Field Trial and Phase III is its formal evaluation.

The implementation plan was developed through a process involving four tasks: Feasibility Study, Functional Specifications, System Definition, and Implementation Plan. The product of these four tasks is detailed in Sections 3 - 6.

The Feasibility Study established the objectives for the Field Trial, and determined in broad terms its scope and characteristics. The Functional Specifications provide a descriptive model of the sites within the Department that will participate in the Trial. The model was developed based on data collected within those sites, and enabled a functional specification for the Field Trial. System Definition resulted in a set of detailed equipment configurations and a benefits analysis. A chosen configuration was the basis for the development of the Implementation Plan, which details the schedule for development, introduction, implementation and operation of the Field Trial in DOC.

There is a tremendous challenge in Office Automation. It promises to radically improve productivity. At the same time it threatens in its change, well established and accepted practices. The introduction of Office Automation intimately affects everybody in the operation. Everybody accordingly has a view as to what changes they would prefer to see, and not to see.

It is essential, therefore, to plan carefully and to involve the ultimate users of the new technology and procedures in that planning. Office Automation does not necessarily displace office workers. It can best be viewed as augmenting office work, providing a mechanical assist to

existing paper and people processes. Through the involvement of the users the most equitable as well as beneficial system changes can be determined.

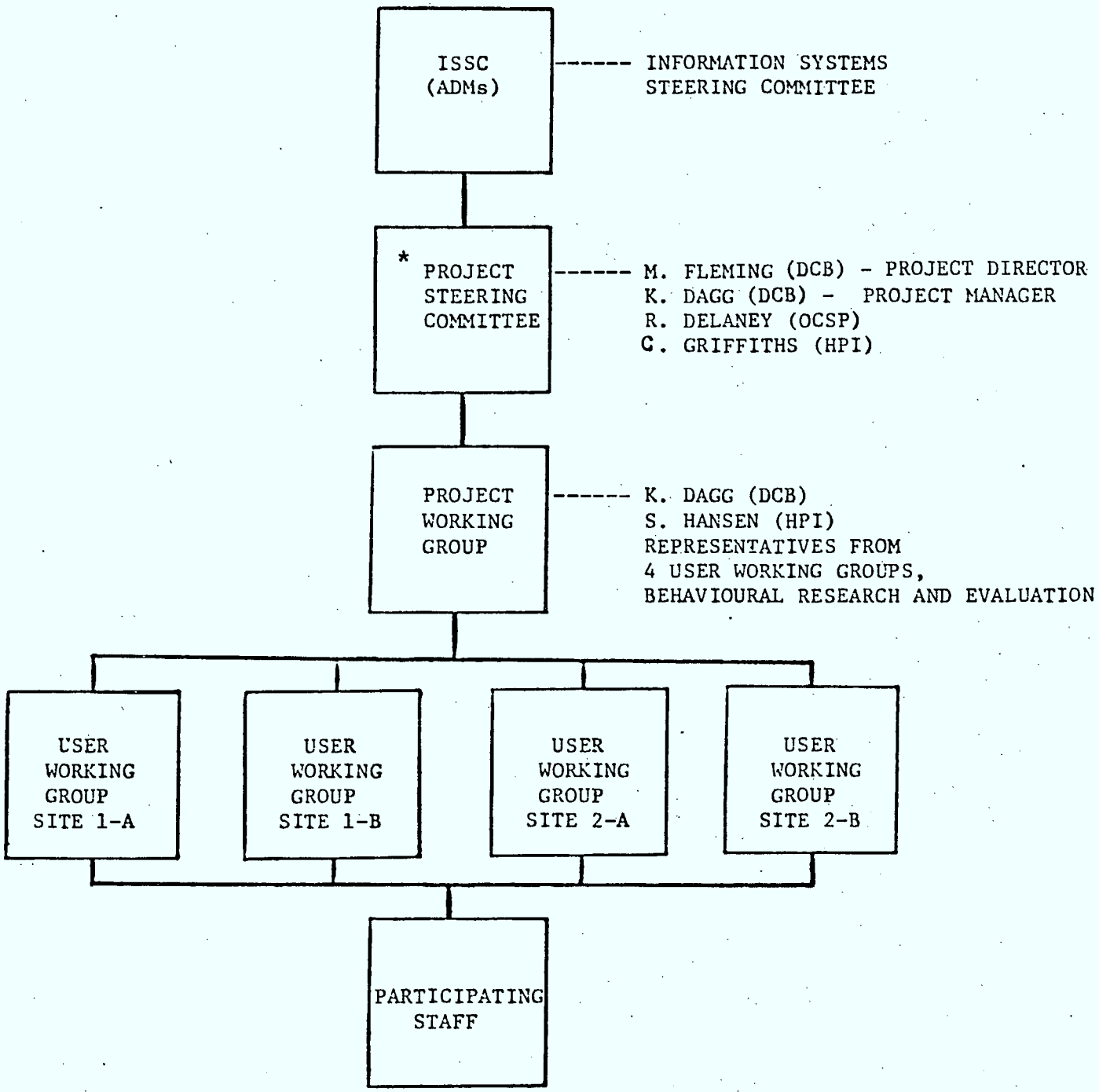
Our process followed the methodology established by Hickling-Partners Inc. in a previous contract with the Office Communications Systems Program of the Department of Communications, known as the "Office Automation Analysis Strategy". This strategy, aimed at comprehensible simplicity, requires the constructive involvement of the staff to be involved in the Office Automation. We believe the process has been successful.

The overall involvement of DOC personnel in the development of this plan and their proposed involvement in the Field Trial is shown in the accompanying figures.

Figure 1 shows the committee structure established for the Field Trial. The ISSC -- a sub-committee of the Senior Management Committee -- has an overall brief for the orderly establishment and management of information systems in the Department. Project responsibility rests with DGPA, the Project Director having been selected from DCB. User Working Groups were established in each site selected as participants in the Field Trial, with co-ordination through a Project Working Group. The Project Steering Committee has met monthly through the study of Phase I of the Field Trial.

Figure 2 shows the proposed staff participation in the Field Trial.

PROJECT CONTROL AND PARTICIPATION



* The DOC Office Automation Field Trial is under the management of the Computer and Information Systems Branch, DCB, and the Office Communications Systems Program, OCSP.

FIGURE 1: DOC OCS FIELD TRIAL STRUCTURE

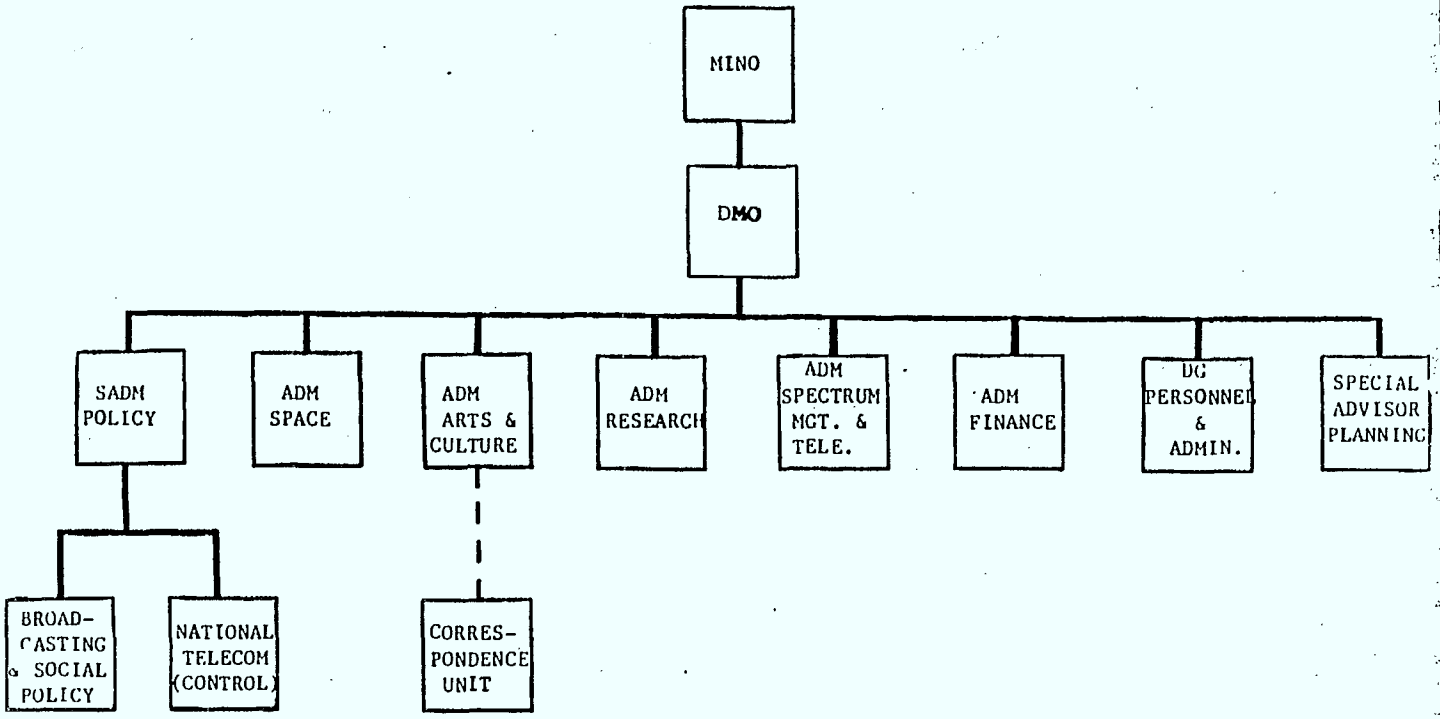
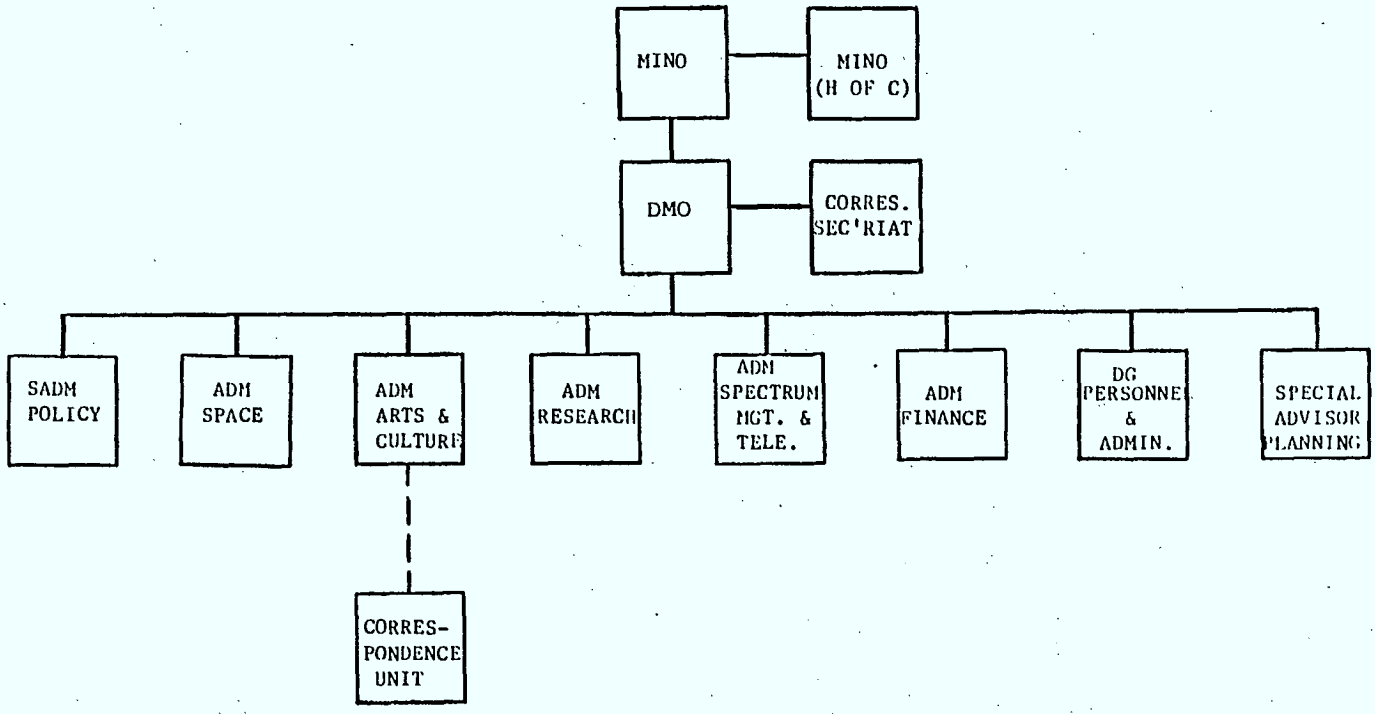


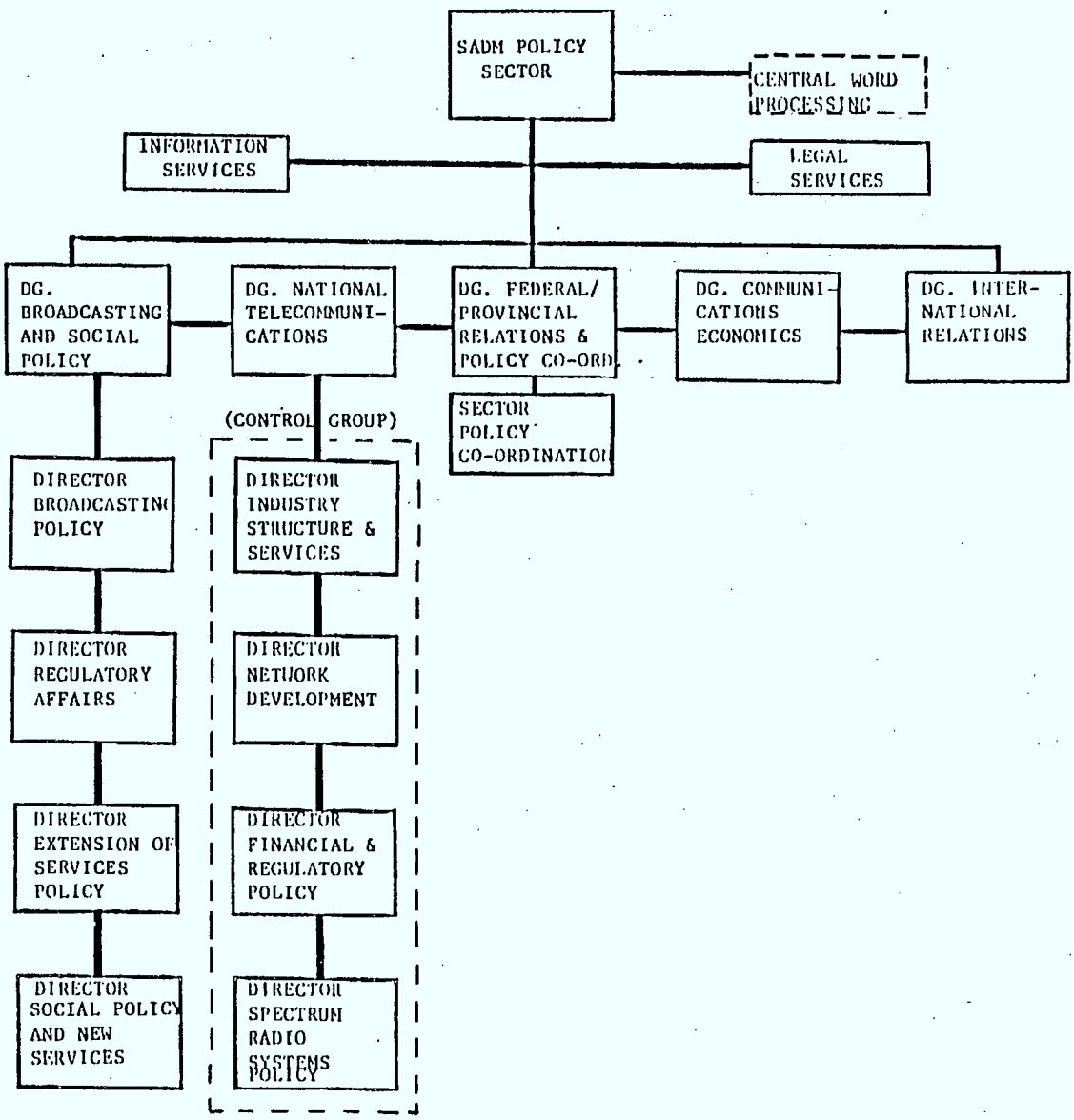
FIGURE 2.1: DOC OCS FIELD TRIAL SITES



2 USER WORKING GROUPS:

- o MINO, DMINO and Special Advisor Planning
- o ADMs, DGPA

FIGURE 2.2: SITE 1 - SENIOR MANAGEMENT TEAM



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SECTION 2. METHODOLOGY

SECTION 2

METHODOLOGY

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1.0 FEASIBILITY TASK I

The prime objective of Task I of the study was to establish the broad principles for the Field Trial. This was to be achieved through careful planning and assessment of the Departmental situation through interviews with management personnel. Five activities were identified at the start of the project:

1. Planning and goal agreement
2. Organizational Scan of the Department
3. Synthesis of Field Trial principles
4. Documentation of results, findings and recommendations
5. Decision on Field Trial sites

During the planning phase direction was given to the project team by the steering committee as to the overall scope and goals of the project. The principal criteria for success were identified as:

- Plan congruent with DOC management objectives
- Uses DOC technology, for example Telidon
- Meets common needs for process assistance across the Federal Government
- Has Canadian content
- Has an R&D component
- Offers an implementation model for other Government Departments
- Impacts productivity in DOC

These criteria were adopted as overall project goals, and incorporated in the site selection process.

The Organizational Scan involved a series of fourteen interviews with twenty senior departmental personnel.

The interviews were aimed at developing information and our understanding in a number of areas:

1. Perceived objectives of the Field Trial. Interviewees were asked to rank and elaborate on the objectives.
2. The mission of DOC.
3. Perceived constraints on the operation of a Field Trial.
4. Personal views of Office Automation and personal workstyles.
5. Perceived technological opportunities.

The synthesis of Field Trial principles was based on the knowledge collected in the Organizational Scan. It was conducted by consensus amongst HPI project team members and the DOC project manager.

The technique used during the synthesis was one of Decision Analysis. The collective ranking provided by the interviewees of the objectives enabled a ranking of the site selection criteria that were developed. A weight related to this ranking was assigned to each criterion. Each of the proposed sites was judged on its merits with respect to each criterion. This judgement was to some extent arbitrary based however on our collective perception of the characteristics of each site. The judgement was quantified and weighted to yield an overall score for each site. The scores developed through this formal Decision Analysis process were the basis for ranking sites as potential Field Trial candidates.

2.0 FUNCTIONAL SPECIFICATONS TASK II

The principal objective of Task II was to develop the functional design of the office automation system recommended for implemention within the Field Trial sites. The following steps outline the office automation analysis methodology employed during this work:

1. Project definition.
2. Identify user requirements.
3. Translate user needs into technological opportunity.
4. Verify models and results.
5. Produce one or more conceptual designs.
6. Evaluate the design(s) in terms of overall Field trial objectives.
7. Achieve consensus on a functional definition for the Trial system.

Each step is described below.

2.1 PROJECT DEFINITION

Task II work began with a series of kick-off project meetings within the selected sites for the purposes of informing all interested parties about the project, and to actively involve staff participation through the creation of User Working Groups. Several meetings were held to select the participating offices on the basis of criteria reflecting Trial objectives and practical operational and evaluative considerations.

Two branches were chosen to participate: Broadcasting and Social Policy Branch as active users of automated workstations, and National Telecommunications Branch as a control group for purposes of project evaluation. Task II data collection and modelling efforts were extended to include several support areas to be associated with the Field Trial.

2.2 IDENTIFY USER REQUIREMENTS

This step consisted of the collection and reduction of data from project participants to identify their requirements for assistance within their areas of functional responsibility. Office Automation requirements are derived from an analysis of office missions, and of the processes involved in achieving them. A variety of data collection techniques were employed:

- o organizational scan (24 interviews with senior staff during Task 1);
- o Structured interviews (40 interviews)
- o User Working Group discussions;
- o Telephone Communications Activities Logs;
- o Review of existing documentation and statistics.

A principal objective of the fact gathering task is user involvement through active participation. The User Working Group meetings were effective in this regard, and also proved invaluable in assisting the consultants with the appropriate scoping of the data collection exercise itself. The requirements identified in Task I were reviewed with the User Working Groups, and key individuals were identified for subsequent structured interviews.

Initial plans to collect extensive data on communications activities (telephone use and meeting activity) were reduced in response to advice from the user representatives regarding the atypical characteristics of the period available for study. Since the House of Commons was not in session, and key management and other staff participants were not available, it was agreed to sample phone activity over a five-day period, relying on the structured interview format for the bulk of the fact gathering.

2.3 TRANSLATE USER NEEDS INTO TECHNOLOGICAL OPPORTUNITY

The next step consisted of the translation of user requirements expressed in terms of office process into a statement of potential for automated assistance. Based on a knowledge of available (or attainable in this case, because of the developmental aspect of the Trial) office technology, user requirements are restated in terms of office processes which may benefit from automation.

2.4 VERIFY MODELS AND RESULTS

The analysts' perceptions of the users' needs must be verified with the users to ensure validity and to achieve a mutual understanding of the functionality of the system. The models that were developed describing participants activities and the restatement of requirements into technological opportunity for system functions, were reviewed with User Working Groups and with other key individuals.

2.5 PRODUCE CONCEPTUAL DESIGNS

This task consisted of synthesizing the possible set of technological opportunities into one or more integrated sets of system requirements, still expressed in terms of functionality. This step is combined with the following evaluation step in an iterative process until the optimal set of system functional specifications is derived.

2.6 EVALUATE DESIGNS AGAINST OBJECTIVES

During the iterative process of converting users' functional requirements into a statement of system functional specifications, the overall Field Trial objectives were constantly applied as the criteria against which design alternatives were compared. The recommended set of integrated system functions is based on achieving the following Trial objectives:

- improve DOC operational productivity,

- o provide an environment in which to study human factors impact of office automation,
- o evaluate productivity potential of office automation,
- o improve the Department's image and level of experience regarding office technology,
- o promote the development of Canadian products in this area.

The recommended functional design best addresses the full set of objectives, while remaining feasible within the specific constraints of the project.

2.7 ACHIEVE CONSENSUS ON FUNCTIONAL DEFINITION

Agreement on the definition of system functionality for the Field Trial as documented in this report was affirmed through User Working Group meetings. Representatives from the Field Trial Sites reviewed and concurred with the set of system functions described herein.

Further agreement on this statement of system functionality resulted from participation by the Project Steering Committee in its design. Additional OCS staff contributed during its preparation. General agreement on the functional requirements of the Trial system has been achieved. Additional user participation is required for successful implementation and evaluation of the Field Trial system.

3.0 SYSTEM DEFINITION TASK III

In developing a set of system alternatives, consideration has been given to a number of factors:

1. The functional needs of the Department.
2. The objectives of the OCS program.
3. The need to identify new product potential.
4. The need to provide an operational system.
5. Likely cost ceilings.

Our process involved discussions within the project team. We have held a large number of discussions with representatives of both Canadian and U.S. suppliers of office automation equipment. These discussions have enabled us to confirm the degree of innovation in the proposed Trial System and to confirm the estimates of Trial equipment costs.

4.0 IMPLEMENTATION PLAN TASK IV

The process of preparing the implementation plan was essentially iterative. A preliminary statement of a plan was prepared early in the study. As the study proceeded the contents of this plan were refined and extended to accomodate the issues and concerns that were raised. Discussions on the plan were held with DOC personnel at the project steering committee, various DOC management levels and with the Information Systems Steering Committee. The final stages of the process involved the consolidation of the various reports into this document, and formal delivery to DOC.

SECTION 3. FEASIBILITY STUDY

SECTION 3

FEASIBILITY STUDY

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1.0 INTRODUCTION

The prime objective of Task I of this study was to establish the broad principles, objectives and structure for the Field Trial. This was achieved through interviews with the senior management of the Department. It resulted in the determination of:

- o Field Trial Objectives
- o Field Trial Services
- o Field Trial Participating Sites

These are documented in chapters 2 and 3 of this section.

2.0 SITE SELECTION CRITERIA

2.1 INTRODUCTION

This chapter elaborates the overall Field Trial Objectives. From these objectives we developed the specific Site Selection Criteria. The objectives, while not vague, are not stated in quantifiable terms: they are qualitative trial goals. In order to objectively select Field Trial sites it was necessary to develop a measurable set of criteria related to these objectives.

2.2 OBJECTIVES

Three sets of objectives were identified during the planning of the Feasibility Study. These relate to the OCS Program, the Field Trials themselves and to the Department. As ranked collectively by the interviewees, the objectives are as follows:

1. Increase DOC operational effectiveness
2. Study Human Factor Implications of Office Automation change
3. Evaluate productivity potential
4. Develop departmental image and experience
5. Develop a Canadian product

These objectives are elaborated in the following text:

1. Increase DOC Operational Effectiveness: The Office Automation Field Trial is welcomed by most Departmental executives as an opportunity to solve operational difficulties caused by increasing complexity and volume of workload in the face of static or diminishing personnel resources. Specific problems in the areas of communications, information access, and correspondence and dossier control emerged as common themes across the interviews.

2. Study Human Factor Implications. The experimental nature of the Field Trial is perceived as an opportunity to study and analyse the human impact of Office Automation. While recognizing that these human factors are inextricably related to productivity, the first three objectives are distinct in their emphasis; they will be viewed both independently and dependently. This objective focuses on individual factors relating to the quality of work life; organizational factors such as staff turnover, communications patterns, and the decision making process; and societal factors such as union participation, training requirements, and job classification implications.

3. Evaluate Productivity Potential. This objective reflects management's need to identify areas of office activity which can benefit from the application of technology, and their requirement for methods by which the impact on productivity can be evaluated. These methods and techniques are also needed by systems analysts and designers.

4. DOC Departmental Image. The Field Trial affords an opportunity for Departmental senior management to experience the introduction and use of Office Automation on a first-hand basis. It will also promote the DOC Departmental Image within the Federal Government and with the public, through a showcase of modern office technology and procedures.

5. Develop a Canadian Product. Although the development of internationally competitive Canadian products is a primary objective of the OCS program, it is ranked lower than the previous four objectives by DOC managers with other program and operational responsibilities.

The relationship between these revised objectives and the original sets of objectives is shown in Table 1. All objectives except one are directly embodied in the revised set. The one objective not included (general methodological development) is recognized as being met through the work of the project team and does not appropriately feature as an objective of the operational Field Trial sites.

Table 1: Relationship of Project Objectives to Original Statement of Objectives

Initial Statement	Revised Objectives (by number)
1. OCS Program Objectives	
a) Increase productivity of Canadian office work force through office technology	1, 5
b) Stimulate development of Canadian-based Office Automation industry	5
c) Facilitate introduction and use of Canadian Office Automation technology	2, 5
2. Field Trial Objectives	
d) Development of design and product specifications for Canadian manufacturers	5
e) Experimentation with new Office Automation Systems	2, 3
f) General methodological development	-
g) Research sites for economic, social and behavioural aspects of Office Automation	2
3. Departmental Objectives	
h) Visibility at senior levels in the Department	1, 4
i) Communication links across DOC	1
j) Use of Telidon	4, 5

The advantage of a single set of five objectives lies in the focusing a single, ordered set provides. The ten original objectives had some overlap, shown by the fact that several original objectives relate to one or more of the revised set.

It is recognized that there are some overriding constraints imposed by the source of the project funding which will influence the Field Trial. These are not reflected in the objectives. The use or involvement of Telidon is accepted as mandatory. The provision of bilingual facilities is seen as essential, as is the integration of the Trial with other DOC services. These constraints are dealt with in the development of the Field Trial plan in Section 6.

2.3 SITE SELECTION CRITERIA

Based on the objectives, a number of measurable site selection criteria were developed. Each site was subsequently judged against these criteria.

The criteria developed for site selection are as follows:

1. User Identified Need
2. The Human Factor Climate
3. User Availability
4. Ease of Implementation
5. Prior User of Technology
6. Potential for a Control Group
7. Level of Exo-site interactivity
8. Potential for Innovation

Table 2 indicates the relationship of these criteria to the previously established objectives, and the weight assigned to each criterion.

At first sight, this list may appear to introduce more complexity, by expanding the single ordered set of five objectives to eight criteria. These criteria, though, have been developed specifically

to enable site selection. Direct measurement or ranking of the various sites against the objectives was not possible. It was necessary, for example, to evaluate the application of technology to each site, and the potential for a manageable Field Trial. These concerns are not represented directly in the objectives. As shown in Table 2, though, each selection criteria relates to the revised project objectives.

TABLE 2: Criteria, Related Objectives And Weights

Criteria	Related Objectives	Weight
User Identified Need	1	8
Human Factor Climate	1,2	7
User Availability	1,2	6
Ease of Implementation	1,3	5
Prior User of Technology	2,3	4
Potential for a Control Group	2,3	3
Level of Exo-site Interactivity	3	2
Potential for Innovation	4,5	1

These criteria are elaborated as follows:

1. User Identified Need is judged the most important criterion and given a weight of 8. The identified needs of each site were judged in terms of the level of expressed needs and their fit to the anticipated applications of the Field Trial. Without strong perceived needs, the site cannot be considered a good site for a Field Trial. It is also directly related to the prime objective of increasing DOC operational productivity.

2. Human Factor Climate is judged a close second to the identified need criterion, and ranks high (with a weight of 7) because of objective number two. This criterion assesses the suitability and potential of each site for the study of human factors which may be affected by the introduction of technology into the office. These include the exploration of job satisfaction and organizational perceptions, and work content characteristics. Sites known to be very resistant to change or particularly eager to automate would score low on this item. Conversely, sites with unformed expectations (and the prospect of a stable management environment during the Trial period) would be ranked high. Sites which afford a representative set of staff responsibilities (managerial, professional and clerical) common to bureaucratic offices would also rank well.

3. User Availability ranked third with a weight of 6. There was concern that a successful site would need to exhibit good user availability for discussions with the project team, trial system familiarization and training, and subsequent usage. A site comprising geographically, co-located personnel would require minimal disruption (and loss of productivity) during these activities and thus would rank high. A geographically dispersed site would tend to exhibit worse scheduling difficulties and work disruptions.

4. Ease of Implementation ranked fourth with a weight assigned of 5. This criterion is a complex value judgement involving the practicality of the various applications (Table 4) proposed for the Field Trial, the level of interest expressed in each site, and preliminary assessment of the implementation complexity.

5. User Naivete (the level of technological experience of staff in each site) ranked fifth and was weighted 4. This criterion aims to judge the extent to which office technology might be familiar or foreign to the staff of a site. Staff who are totally familiar with office technology would be undesirable. Their pre-formed expectations and experience would not afford a sufficient learning experience. Similarly, staff to whom office automation would be completely foreign or who might find it so alien that they would adversely react to its use would be undesirable. This criterion judges these situations.

6. Potential for a Control Group ranked sixth with a weight of 3. Related to the need to conduct human factors research, it is desirable but not essential to be able to identify a control group to be monitored in parallel with the site operating with Field Trial equipment. This criterion judges the potential of being able to establish a control group for each site considered.

7. Level of Exo-site Interactivity, or the bounded nature of each site, ranked seventh and was weighted 2. In setting up an experiment it is highly desirable to have limits. This criterion attempts to judge how "bounded" each site was likely to be. This again is a complex judgement. "Bounded" refers to the extent to which the overall process of the site being evaluated, occurs within the site. Strong orientation towards internal information flows and communication patterns ranks high. Sites whose process involves extensive information exchange external to the site would rank low. No site will be completely internal in its operation, and thus the judgement is very much one of degree.

8. Innovation Potential ranked least important, though embodying significant project constraints, and was assigned a weight of 1. The extent to which the mix of site and appropriate applications offers potential for innovations in technology is judged by this criterion.

3.0 FIELD TRIAL SITE SELECTION

3.1 INTRODUCTION

The project team was directed by the Department to consider certain sites as candidate sites for the Field Trial. The process that was followed through the organizational scan resulted in several other sites being added to the list. All of these sites were considered in the light of the criteria identified in Section 3 and judged on their merits as determined through the interview process and our understanding of the structure and mission of DOC.

3.2 THE SITES

The sites that were considered are as follows:

1. The Senior Management Team.

2. The Toronto regional office.

3. The Policy Sector.

4. Arts and Culture Sector.

5. Space Sector.

6. Research Sector.

The Senior Management Team comprises the offices of the Minister, the Deputy Minister and all Assistant Deputy Ministers and the Director General Personnel and Administration. Significant levels of communications occur both vertically and horizontally within this group, both in terms of interactions and paper flows. This site represents the horizontal communications element in the Field Trial, although it is felt

that the level of horizontal electronic communications will increase through stimulation and peer pressure caused by use of vertical electronic communications. Direction was provided that the Senior Management Team be strongly considered as part of the Field Trial. This and other considerations led to the selection of the Team for the Trial.

The Toronto regional office had submitted an interesting proposal for the "explosion" of the office to several widely separated Toronto locations. Co-location for reporting and responsibility purposes would not necessarily occur, staff being distributed through all locations. There would be an evident need for efficient electronic communications. The arrangement would offer an excellent vehicle for exploring productivity and human factors issues of such an "explosion," an arrangement that is aligned with many Office of the Future scenarios.

The Policy and Arts and Culture Sectors were considered from the point of view of providing a vertical slice through the Department. The characteristics of both sites potentially matched a number of our criteria, particularly in terms of their representative work content and communications requirements that involve interaction with the Senior Management Team.

Space and Research Sectors exhibit distributed management structures, for which office automation offers potential assistance. Both sectors have considerable technological awareness, with Research in particular involved in the promotion of Canadian technology. Both sectors are split geographically with staff at Shirley's Bay Research Centre and in the Journal Towers in Ottawa. A line-of-sight radio communications link exists between the two sites and interest exists in exploring its potential in an Office Automation environment.

3.3 SITE SELECTION

Table 3 shows the ratings and overall rankings developed in the Decision Analysis process. Each site was ranked either High, Medium or Low with respect to each criterion. These were scored 3, 2, and 1 respectively to yield a numerical weighted score when multiplied by the weighting of the applicable criterion. The sum of these weighted scores yielded the overall rankings.

As described earlier, the individual rankings were developed from our collective understanding of each site as revealed during the interview process. That process not only explored the perceptions of interviewees' own areas of responsibility, but also explored their perceptions of other areas of the department. We believe that reasonable consensus emerged, reflected in the ratings we assigned and ultimately in the overall rankings.

The overall rankings show Policy and Space Sectors about equal as candidate sites for the Trial, and better choices than the other sites. Research Sector ranked third, marginally better than the remaining three sites which were grouped closely together. The merits of the Decision Analysis technique lie not so much in presenting absolutes but rather in indicating relative differences. Thus, a selection of Policy or Space is to be preferred over the other sites considered, whilst amongst the other sites, no one is evidently superior. Other considerations need to be taken into account. These are explored below in Section 4.6.

Space and Policy scored equally against six of the eight criteria. The differences in the other two ratings support a choice of Policy sector. It was felt that the Trial management issues of ease of implementation and the potential for a control group were likely to be more easily resolved within Policy than within Space.

TABLE 3: SITES RANKED BY SELECTION CRITERIA

SITE SELECTION CRITERIA	WT	SENIOR MANAGEMENT TEAM	TORONTO "DISTRIBUTED" OFFICE	VERTICAL SECTOR COMMUNICATIONS LINKS			
				POLICY (HQ)	ARTS & CULTURE (HQ)	SPACE (HQ-CRC)	RESEARCH (HQ-CRC)
USER IDENTIFIED NEED	8	High 24	Low 8	Med 16	High 24	Med 16	Med 16
HUMAN FACTOR CLIMATE	7	Low 7	Med 14	High 21	Low 7	High 21	Med 14
USER AVAILABILITY	6	Low 6	Med 12	High 18	Low 6	High 18	High 18
EASE OF IMPLEMENTATION	5	Med 10	Low 5	High 15	Low 5	Med 10	Med 10
USE OF TECHNOLOGY NAIVETE	4	High 12	Med 8	Med 8	High 12	Med 8	Low 4
CONTROL GROUP	3	- 0	High 9	High 9	Med 6	Low 3	Low 3
BOUNDED	2	High 6	Med. 4	High 6	Low 2	High 6	High 6
INNOVATIVE	1	High 3	High 3	Low 1	Med. 2	Low 1	High 3
TOTAL		68	63	94	64	83	74
RANK (1 = highest, best)		4	6	1	5	2	3

3.4 APPLICATIONS

A consensus on opportunity for Office Automation applications within the Department emerged from the management interviews. The identifed set of applications are listed in Table 4 and are called collectively "Information Management and Communications Applications."

This set of applications was common across all sites considered. Differences between sites were in degree -- not in the composition of the application set. The need for Document Management was strongest within the Senior Management Team, reflected to a slightly lesser extent in Policy and Arts & Culture. Electronic Communications was a close second in all sites. (In view of the poor experience with the Displayphone trial, extreme care will have to be taken with the introduction of this element in the Trial). Text Processing is a necessary component in support of Document Management and Electronic Communications tools. To provide a usable integrated tool, the provision of Personal Management Aids and General Information Access tools (strongly expressed needs by some interviewees) will be examined. Consideration of this set of applications and the needs expressed by the sites led to both the priority ordering of the application set and the rating of the sites for expressed need and ease of implementation.

3.5 TECHNOLOGY

It is recognized that certain technologies will be represented in the Field Trial. Departmental interest in and commitment to the use of Telidon guarantees its inclusion. Other technologies such as voice messaging, portable workstations, and full word processing terminals are likely components of a trial system.

One service seen as a highly desirable feature of the Trial is electronic authorization. Reduction of paper volumes and of circulation delays can

TABLE 4: INFORMATION MANAGEMENT AND COMMUNICATIONS APPLICATIONS

DOCUMENT MANAGEMENT

- o DOSSIER AND CORRESPONDENCE CONTROL
- o ELECTRONIC AUTHORIZATION

ELECTRONIC COMMUNICATIONS

- o ELECTRONIC MAIL
- o ELECTRONIC MESSAGING
- o VOICE MAIL
- o TELECONFERENCING

TEXT PROCESSING

PERSONAL MANAGEMENT AIDS

- o TICKLER
- o CALENDAR/AGENDA
- o DECISION SUPPORT TOOLS
  (CALCULATOR, GRAPHICS, MODELLING)

INFORMATION ACCESS

- o PUBLIC
- o INTERNAL (FINANCIAL)

be achieved through electronic distribution. Much of the process of the Department depends on signification that documents (memos, letters, dossiers, etc.) have been reviewed or approved by specific individuals. Electronic distribution will not be acceptable without some form of electronic signification/authorization. This is likely to require technological development of both hardware and software, since we know of no such service provided by commercially available equipment, either Canadian or American.

3.6 OTHER CONSIDERATIONS

There are requirements imposed on the Field Trial not fully factored in the Decision Analysis Process for site selection. Consideration of these led to final selection of Trial sites. Three of these requirements in particular were critical.

Visibility is required for the Department and its senior managers by virtue of its hosting of the OCS Program. The Field Trial is not the only effort within the Department exploring new office technology. It is however, the prime vehicle, that will receive considerable attention and publicity. The alignment of the Trial with critical processes in the Department in areas which afford maximum visibility is thus a requirement.

The Trial is required to lead to the development of Canadian products and Canadian industry. While supplier involvement is unknown at this time, the Trial must make use of existing Canadian technology and offer the potential for the development of innovative Canadian products.

The Field Trial is required to serve as a research site for studies of the impact of Office Automation on behaviour and productivity in offices. The selection of sites that exhibit good research potential, including commonality of function with a wide range of other Government offices is thus critical.

There are also a number of concerns that need to be expressed and subjected to further examination as the Field Trial proceeds. In brief,

at this time, these are: Field Trial costs, security considerations, development lead times and system acceptability.

Costs are elaborated in Section 6. It is understood that a ceiling of six hundred thousand dollars is set, and that a desirable configuration for the Trial should cost less than this limit.

Security concerns have been expressed with respect to the use of electronics for handling secret and top secret material. It is desirable that these concerns do not constrain the extent to which Office Automation technology is used within the Senior Management Team. Full adherence to security standards may require adoption of acceptable compromises between cost and utility of the Field Trial applications.

It is anticipated that the Field Trial will commence in 1983. This schedule will depend to some extent on the need for development of new equipment and software, the lead times for which may not be within the planned time scale.

Finally, it is critical to develop acceptance of the Field Trial services by users, management and unions. Careful planning and staff involvement should accomplish this. The project is being structured to ensure acceptance through heavy user working group participation in data collection, presentations, and the wide distribution of announcements describing the Field Trial.

3.7 SITE SELECTION

Taking all these factors into consideration, selection is recommended of the Senior Management Team and Policy Sector as the two sites for the Field Trial. Within Policy Sector it was decided that Broadcast and Social Policy Branch would be prime participants while National Telecommunications Branch would be the Control Group.

SECTION 4. FUNCTIONAL SPECIFICATIONS

SECTION 4

FUNCTIONAL SPECIFICATIONS

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ADDENDUM: Further Identification of User Needs

1.0 INTRODUCTION

The principal objectives of Task 2 of the study were to:

- Foster user involvement in the Trial;
- Identify user requirements for automated applications via a consultative and participative process;
- Achieve consensus on the translation of user-identified needs into a conceptual design, or functional specification;
- Determine what baseline data should be collected for evaluation purposes;
- Provide the basis for reporting to the ISSC in September on the recommended system design (Task 3), and its implications in terms of costs, timing, other resource requirements, and project objectives.

This section documents the results of Task 2 Model Development work. Chapter 2 presents functional models of the Field Trial sites. The conceptual design of the proposed Field Trial system is detailed in Chapter 3.

2.0 MODELS OF FIELD TRIAL SITES

2.1 USER-IDENTIFIED NEEDS*

In the course of task 2 data collection, forty interviews were conducted at all staff levels within the two participating sites. The structured format of these interviews focussed on analyzing the work content of each position in terms of the functions, tasks and activities which were performed.

Because the selected sites span many offices which perform a variety of functions, it was decided to focus the analysis mainly at the task level to define a set of processes with wide applicability. These tasks were then analysed to identify a set of user requirements for automated assistance. Table 1 illustrates the principal tasks engaged in by Trial participants, loosely grouped into several position categories.

The key information inputs and outputs associated with each job were identified and described during the interviews. Based on the significance of these information entities (usually paper documents), and on the estimated percentage of time devoted to specific activities, interviewees were asked to identify problem areas and areas of opportunity for automated assistance. This information was first solicited in a free, unstructured format, and then in a guided format based on the interviewer's insight into the practical, automated solutions which could be applicable. A sample of the structured interview format used is included as Appendix IV.

These data were analysed in conjunction with data from the twenty-four interviews done at the senior management level during the task 1 organizational scan. User Work Group discussions also identified particular areas of both concern and opportunity. A variety of studies and reports were reviewed, particularly in the area of major paper flows throughout the Department. Of particular concern in the recent past was

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* Further elaboration of user-identified needs is found in the Addendum to this section.

TABLE 1: PRINCIPAL TASKS BY POSITION GROUPINGS

POSITION	TASKS
ADMs, DGs, Exec. Assts.	Advising Deciding Planning Coordinating Negotiating, Public Relations General and financial administration Document handling (review, approval, delegation)
Directors, Legal Counsels, Officers Analysts	Advising Document handling (preparation) Researching Analysing Coordinating
Special Assistants	Liaising, public relations Advising Coordinating Document handling (preparation, review, control)
Support and Services	Document handling (preparation, revision, control) General administration, report preparation Scheduling, communicating

the processing of Ministerial and Deputy Ministerial correspondence. The other major document activities examined were enquiries of the Minister, the preparation of press releases, and the processing of policy documents.

All of the process-related data collected were then assessed for automation potential. The needs and opportunities for operational efficiencies, expressed by participants in terms of office processes, were restated in terms of system functions. Figures 4.1 and 4.2 illustrate the various levels of requirement for system functions identified by the different groups of participants.

Across all groups a strong need for access to Departmental information was indicated. This system function is described in Section 5.7, and comprises access to information such as:

- Document control data (Ministerial correspondence logs),
- Minister's agenda,
- Deputy Minister's agenda,
- Departmental Calendar.

These categories are included in Figures 4.1 and 4.2 as "Access to Trial Information," since the storage and processing capacities required to provide such information are well within the scope of the Trial office automation system. The system function shown in the figures as "Access to External Information" comprises categories of information requiring vast storage and processing resources, implying linkage to mainframe computers. Examples include access to Departmental financial information available currently at the Department's computing facility at Shirley's Bay, Telidon databases, historical compilations of correspondence and policy data, and other public and private data resources.

For all groups except the ADMs, and including the ADMs' staff, assistance with the control and transmission of documents was identified as the strongest need, both in terms of a problem area and a significant opportunity for improved operational productivity. Effectiveness and

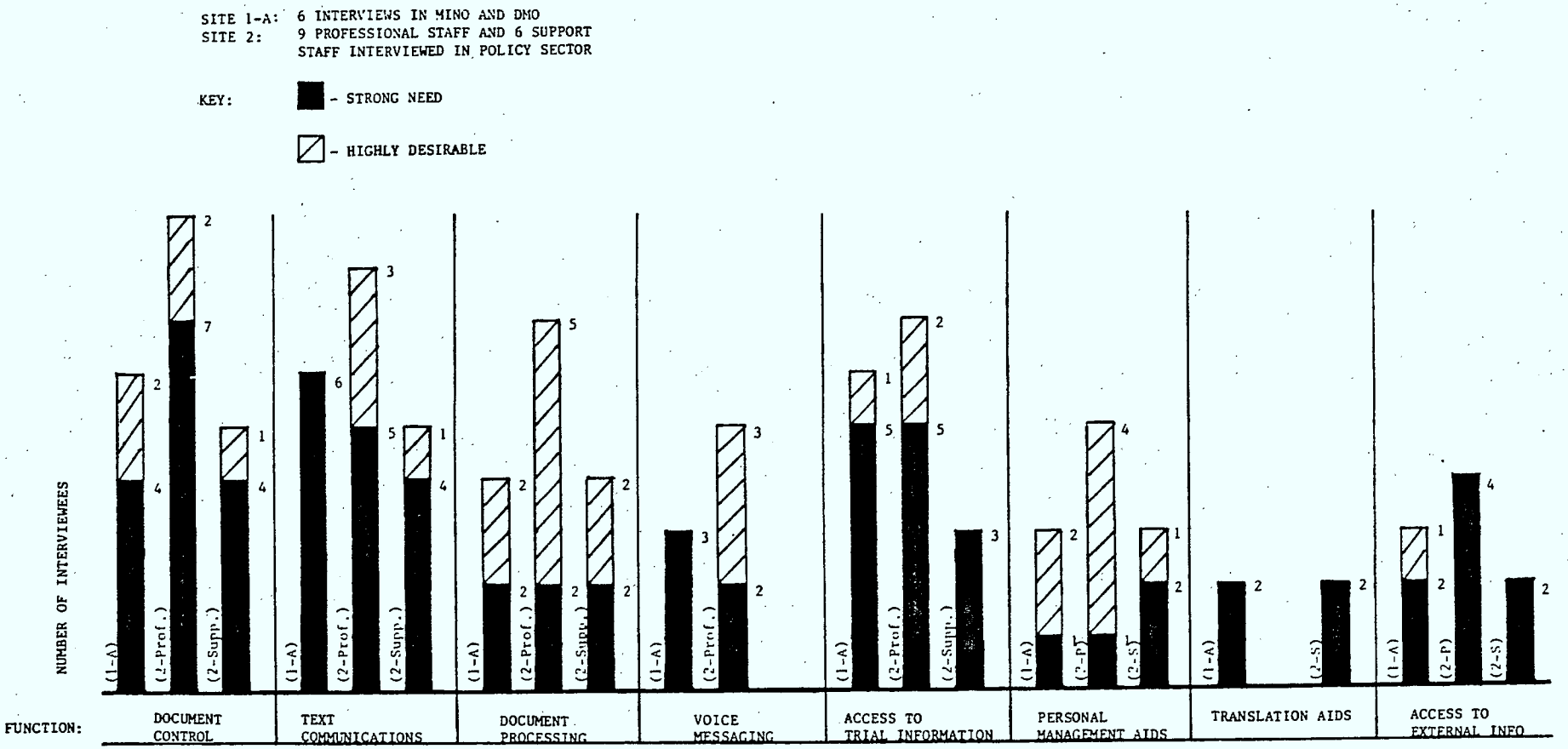

FIGURE 1.1: USER-IDENTIFIED NEEDS: SITES 1-A AND 2

SITE 1-B: 8 INTERVIEWS WITH ADMs, DGPA, PLANNING ADVISOR
10 INTERVIEWS WITH SUPPORT STAFF IN ADMs' OFFICES

KEY: ■ - STRONG NEED

▨ - HIGHLY DESIRABLE

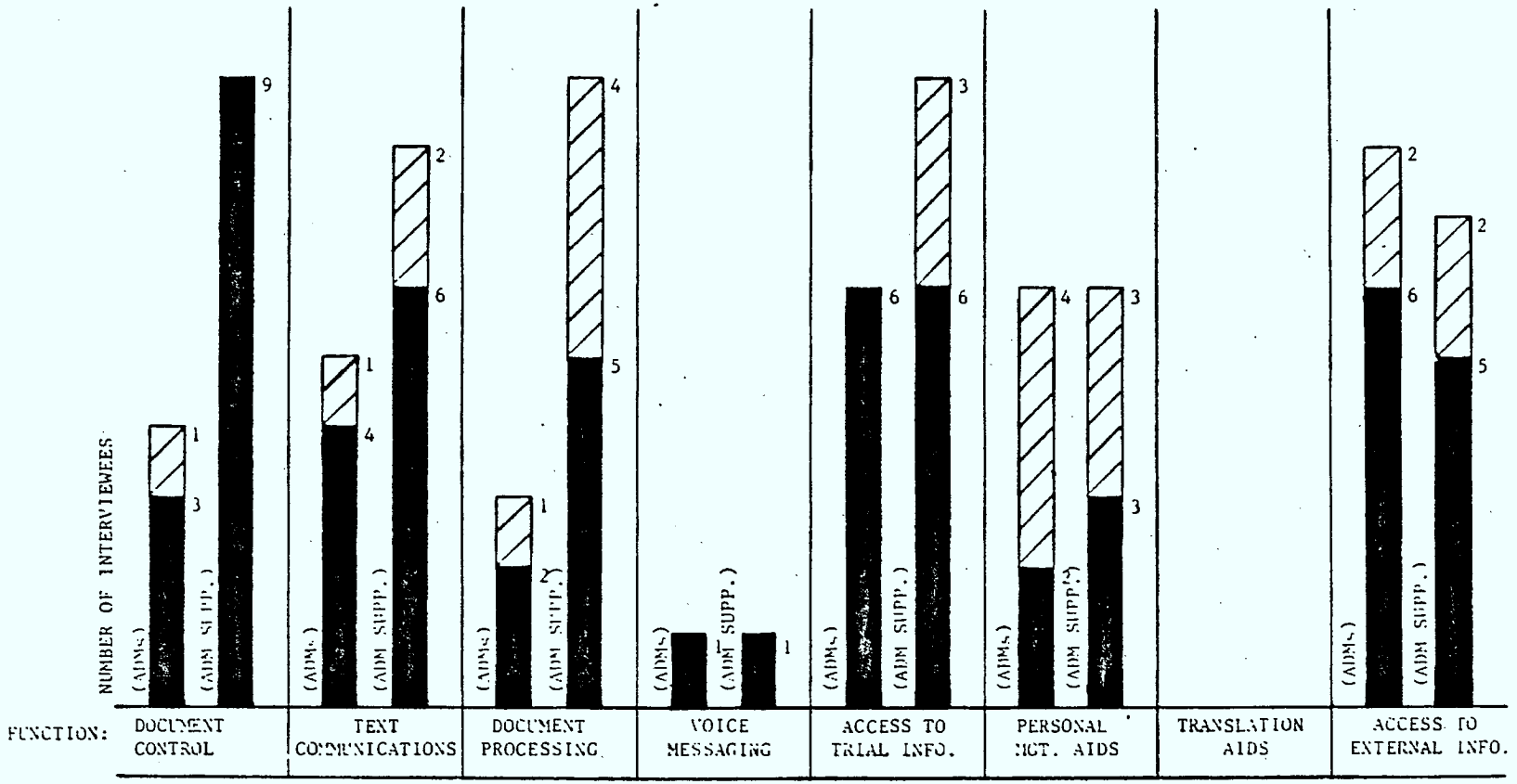

FIGURE 1-2: USER-IDENTIFIED NEEDS: SITE 1-B

efficiency benefits are widely anticipated in this area, providing excellent opportunity for perceived benefit essential to successful implementation. While the ADMs concurred that improvements in operational productivity could be realized in this area, they identified "better access to information" as a higher personal priority. However, information about documents in process within the Department (provided by the Document Control function) was one of the categories of information for which they desired improved access.

2.2 VOICE COMMUNICATIONS ACTIVITIES

Participants in the Field Trial were asked to record data on telephone activity to identify their communications patterns and needs. After discussions with all three User Work Groups, it was decided to restrict the scope of the data collection activity to the recording of the first twenty phone calls (placed or received) each day for five consecutive days. The period available for data collection was known to be atypically slack since the House of Commons was not in session and key participants were not available for a variety of reasons. It was agreed that the phone data would be useful to confirm participants' perceptions of volumes, patterns and problems with intra-Departmental communications.

Tables 2 and 3 present the findings from this logging of telephone activity between 9 and 13 August, 1982. Samples of the data collection form and the completion instructions are provided in the Appendices. During the process of data reduction, inconsistent and incomplete data were excluded from the sample. For example, if a call was not identified either as incoming or outgoing, it was not compiled in the activity statistics. Similarly, if data were not recorded for at least three of the five days by a majority of the respondents in a particular office, no findings are reported.

Table 2 illustrates the patterns of phone traffic reported by 61 Trial participants during the five-day period. The patterns are represented as percentages of the total 2,752 identified calls which were logged. The majority of the 343 unidentified calls were incoming calls received for

TABLE 2: TELEPHONE COMMUNICATIONS PATTERNS OF TRIAL PARTICPANTS

(Figures indicate the percentages of identified calls within and between offices)

SOURCE/ DESTINATION	RESPONDENTS MINO	DMO	ADM	DGS POLICY	DIRS BSP	POLICY ANALYSTS	DLS
MINO	12.5	2.3	4.4	10.0	1.0	0.5	2.0
DMO	1.5	0.3	5.6	3.0		0.5	3.0
ADMO/DGPA/PA	3.0	9.8	27.4	21.0	8.0	0.5	8.0
DG-POLICY	1.0	7.5	6.6	6.0	6.0	0.5	4.5
DIR-BSP	0.5	0.3	2.7	2.0		4.0	1.0
DIS	2.5		2.3	1.0	4.0		
OTH DOC-HQ	9.5	33.5	24.0	12.0	15.0	51.0	32.0
OTH DOC-CRC		2.5	3.9	1.0	3.0	1.5	1.0
DOC REGIONAL			4.9			0.5	3.0
EXTERNAL TO DOC	67.0	42.8	17.6	45.0	54.0	37.0	42.0
CBC	1.5	3.5	0.4		4.0	1.0	1.5
CRTC	2.0	0.3	1.4		7.0	3.5	2.5
*TOTAL	101.0	102.8	101.2	101.0	102.0	100.5	100.5
IDENTIFIED CALLS	524	610	745	121	114	368	270
UNIDENTIFIED CALLS	96	83	73	7	1	13	70
# OF PARTICIPANTS	12	13	13	3	3	11	6
AV. # OF DAYS LOGGED	4.3	4.5	4.5	4.3	4.7	4.4	4.7

* Total percentages in excess of 100% due to rounding.

TABLE 3: TELEPHONE ACTIVITY FAILURE RATES

CALL ATTRIBUTES	RESPONDENTS MINO	DMO	ADM	DGS POLICY	DIRS BSP	POLICY ANALYSTS	DLS	TOTALS
OUTGOING	340	338	406	75	68	259	124	1,510
SELF-DIALED	311	334	283	66	68	259	121	
PLACED BY ANOTHER	3	2	54				2	
*NO ANSWER	29	12	6	2	7	25	6	87
*BUSY	18	14	8	7	3	16	15	81
TRY LATER	15	19	6	3	3	31	11	
NO FURTHER ACTION			20					
INCOMING	280	363	376	53	46	107	217	1,442
CALL FOR SELF	178	184	197	49	44	96	78	
TRANSFERED TO OTHER	63	102	136		1	5	115	
*WRONG NUMBER	8	25	20	1		1	4	59
*PARTY UNAVAILABLE	133	124	192	22	16	7	95	589
MESSAGE - CALL BACK	92	93	154	21	10	7	90	467
% CALL BACK MESSAGE	69	75	80	95	63	100	95	79%
TOTAL CALLS	620	701	782	128	114	366	341	3,052
*TOTAL FAILED	188	175	226	32	26	49	120	816
% FAILED	30	25	29	25	23	13	35	27%

*A failure rate for phone activity was calculated by aggregating the volume of outgoing calls which were logged as "no answer" or "busy," and all calls recorded as "wrong number" and "party unavailable."

another party for which the source was unknown. With the exception of ADMs' offices, close to half of the phone activity logged involved a source or destination external to the Department (and excluding CBC and CRTC). Within Site 1, and extending to the DG level within Site 2, there appears to be sufficient volume of activity among the Trial participants to evaluate the utility of voice messaging within the scope of the Field Trial.

Table 3 documents the telephone failure rates experienced by respondents during the sample period. Of 3,052 calls logged, 816, or 27%, were incomplete due to no answer, busy signal, wrong number, or party unavailable. Of these 816 failed calls, 589 were situations in which a call-back message could have been taken or left (19% of total calls failed due to party unavailable). In 79% of those situations (467 calls), the call-back option was exercised. Based on other organizational statistics, and on perceptions of participants, we estimate that this figure is actually significantly higher during periods of normal or peak activity. This again supports the utility of voice messaging to Trial participants.

An interesting observation was made by several interviewees regarding the superiority of voice messaging to text messaging. In addition to the obvious advantage of avoiding the need for typing skills, some participants felt that the efficiency of voice messaging greatly exceeds that of typed text because of greater informality. Especially at the support staff level, they would feel constrained to edit and carefully craft written messages to a degree not imposed by voice communications.

Appendix 3C provides additional detailed data compiled from the logging of telephone activity. Respondents' identities have been removed in accordance with the assurance of anonymity provided to participants throughout data collection activities.

3.0 CONCEPTUAL DESIGN

This section describes the attributes of an automated office system which meets the requirements identified by participants in the DOC Field Trial. These attributes are specified in terms of the functions that the system must be capable of performing.

Following a description of the overall system and the workstation through which it is accessed, seven major functional areas are addressed. Although the areas overlap and mutual dependencies exist, the six areas can be considered as separate system components.

The section concludes with a description of system support functions and future requirements.

3.1 SYSTEM OVERVIEW

The DOC Field Trial office system will provide automated assistance in the functional areas of:

- Document handling:
  - automated document control,
  - text communications,
  - document processing;
- Voice messaging;
- General information processing:
  - online access to information,
  - personal management aids,
  - translation aids.

This integrated set of automated capabilities is designed to assist office workers in processing information. The system will provide a flexible kit of tools which can be incorporated selectively and gradually into an individual's work style. These tools can also be combined into a well-defined set of procedures to be followed by one or more individuals in support of a specific office process - called a system application. The primary Field Trial application requirement is for Automated Document Control (Chapter 3.3). This requires the cooperation of many participants in defining detailed requirements and developing specific procedures.

The distinction between office system tools and formal office system applications is important in planning for the implementation of the Trial system. Tools can be implemented more readily than applications, and gradual exposure to new methods of performing individual tasks can greatly ease the transition into an automated application. Experience with tools can also be invaluable in helping users to identify productive applications.

The integrated office system for the DOC Field Trial is required to exhibit the following attributes:

- o Consistency of dialogue across all system functions:
  - actions required of a user to produce a particular effect (e.g., select an item, exit from an activity) will be the same regardless of which tool or system function is in use.
- o Ease of use:
  - varying levels of screen assistance (beginner, intermediate and experienced user support);
  - varying levels of operation or interaction may be selected;

- the ability to define user profiles to the system to facilitate frequent interactions (sign-on procedures initiating selected defaults);
- full documentation support (accurate, complete, comprehensible, accessible);
- full training support (classroom instruction, self-training through manuals, cassettes and/or interactively, examples or review problems);

o Reliability:

- safeguarded against hardware, software and operator error;
- backup and recovery utilities provided;

o Modularity and Extensibility:

- the ability to select the required level of hardware and software functionality on an individual workstation basis;
- the ability to upgrade total system capacity and individual components to accommodate changing requirements;

o Fully Bilingual.

Additional system attributes are described in Section 3.10.

3.2 WORKSTATION

Field Trial participants require access to the integrated office automation system from personal workstations. These workstations will provide a convenient, bilingual method of interacting with the system to enter, transmit and retrieve data. All workstation equipment must be designed in an ergonomically responsible and user friendly way

(adjustable, reliable, tolerant, simple to operate, consistent, logical and esthetically pleasing). Specific ergonomic and other technical details are covered in Section 5, System Definition.

3.3 AUTOMATED DOCUMENT CONTROL

This system function enables the creation and maintenance of electronic logs for tracking various categories of documents throughout production, transmission and authorization processes. The primary application area is the replacement of existing manual correspondence logs with online terminal access to electronic logs. This will eliminate redundancies and inconsistencies among the various manual logging systems now in use within the Trial sites, while providing an accurate and timely method of tracking specific documents and expediting their production. It also provides an efficient method of disseminating information about documents in process to all Trial participants, leading to more effective (timely, consistent, and complete) correspondence replies. Eventually, customized document control systems can be developed for the other primary paper flows handled within the participating sites (enquiries of the Minister, press releases, policy documents).

Access to each document control system is provided interactively. In addition to flexible and simple access to information about documents in process, this function will provide online modification to document information in accordance with hierarchical authorization levels: different users will be able to modify different fields of information. This authorization hierarchy can differ for each document control application, and is modifiable only at the topmost applications security level.

As the document proceeds through the production process, tracking and status data are updated at each step. The system automatically prompts for anticipated action dates associated with events, and can generate reports, displays or messages for follow-up. Specific features are itemized below.

This function includes the ability to create document control systems easily by prompting the user/designer for record definitions, screen formats, and printed report definitions.

Automated Document Control Features:

- o Online access to current production status of various document types (electronic logs):
  - selection of a subset of information,
  - selection of a subset of documents,
  - sorting on various fields,
  - print directly to slave terminal printer or queue for printing elsewhere.
- o Security of access:
  - multiple levels of access for both display and modify functions.
- o Ease of use:
  - help provided by the system,
  - format and syntax compatible with other system functions,
  - simple, interactive, helpful, tolerant retrieval and reporting commands,
  - the ability to create customized sets of instructions which can be stored, modified and executed simply.
- o Ease of implementation:
  - applications design software provided which prompts the user/designer through the creation of a new document control system,

- prompting for record definitions, screen formats, report definitions, authorization levels,
- easy editing of existing applications into new ones.

o Automatic tracking and action requests:

- document events can be associated with dates,
- provision for automatic transmission of action requests, or production of action reports.

o System generation of historical data for retention:

- transaction records created automatically to provide the basis for production statistics,
- historical data records created as processing is completed for individual documents.

3.4 ELECTRONIC TEXT COMMUNICATIONS

The system will provide for the communication of text messages and documents, providing confirmation of receipt as required. Standard distribution lists can be stored and associated with specific documents. This communications function is the requisite link which ties the other system functions into an integrated office automation system. By expediting the flow of information among Trial participants, productivity improvements can be realized in terms of both effectiveness and efficiency. When automated document control and electronic document processing are supported by full text communications capabilities, production delays (waiting for word processing services, distribution by hand, telephone tag, multiple logging, tracking and follow-up exercises) can be greatly reduced.

Electronic Text Communications Features:

o Transmission of text documents and dossiers:

- automatic distribution, sequentially or synchronously, of a document or dossier according to a stored or entered list, including transmission of blind copies,
- automatic timed distribution of a document, including priority status,
- ability to scan incoming documents by name (author or sender), identifier (file no., fields, central registry no.), date, time, priority, and other fields, and retrieve selected items easily,
- ability to review, store and delete incoming and outgoing documents and dossiers.

o Flexible communications support:

- convenient cross access between document processing and text communications systems, with consistent format and syntax presented to the user,
- secure access to information - only authorized users can access or even have knowledge of messages and documents in the system,
- confirmation of receipt sent to originator upon request when message or document is accessed by recipient,
- standard communications protocols supported to permit access to public networks, Departmental host computer, other communicating terminals and systems.

3.5 ELECTRONIC DOCUMENT PROCESSING

This system function provides full word processing capabilities to authors, editors, and support staff while facilitating joint authorship and authorization of documents which go through many draft and approval stages. Ideal applications within the participating sites are correspondence, press releases, policy documents, and answers to questions of the Minister. Sub-functions include control of access to documents and automated signification of approval.

Word processing features are provided at several levels of sophistication to support individual work styles. Authors and editors can choose manual or electronic methods for creating and revising documents. They can review documents on a screen or on paper and collaborate with their support staff to expedite the overall production process of a specific document.

Access to a document is at the discretion of the author. Access may be permitted for information purposes (the document may be read only, not modified or copied), for joint authorship (a copy may be made and subsequent revisions made), or for approval (control of the document has been passed on to the recipient). Used in conjunction with voice and/or text communications, this function can significantly reduce document preparation time.

Electronic Document Processing Features:

- o Document creation and editing:
  - simple text entry and editing capabilities based on a full screen editor,
  - final output format displayed on screen, including upper-case accented French characters,
  - revision indicators on screen and hard copy when requested (default),
  - document based editing and formatting,
  - independent column editing and formatting,
  - word, sentence, paragraph and page functions,
  - simple document cut and paste operations (creation of a new document by combining new material with data from several other stored documents),
  - bilingual spelling dictionaries, including extensive technological vocabularies and access to glossaries of expanded terms,

- the system facilitates document creation by prompting the user to supply required fields of directory information;
- varying levels of user sophistication are accommodated.

o Document formatting:

- full range of formatting capabilities (balanced columns, tabular work, decimal and comma alignment, document repagination, contiguous (protected) text, footnotes and tables, headings and footings, wide text scrolling, vertical spacing for sub and superscripts and scientific and mathematical notation,
- optional operator review of page breaks, hyphenation, global search and replace, "widow and orphan" lines,
- highlighting, multiple fonts, centering, justification, underlining,
- stored formats,
- variable formats within a document, including variable vertical spacing.

o Shared access to documents:

- varying levels of access may be associated with the logical transmission of a document (read only, copy, modify),
- access to a document is at the discretion of the document owner; a document only exists to its owner and to the specific individuals or groups to which some level of access is granted,
- access to document directories or indices is similarly subject to various levels of authorization,
- support of dossier processing: a logical dossier can be created which comprises one or more subsets of documents,
- electronic filing support at both the individual document and dossier levels.

- o Electronic signification:
  - the ability to associate with a document a personal identifier that signifies approval,
  - automatic system verification of signification activities.

3.6 VOICE MESSAGING

The system will provide for the transmission and receipt of recorded audio messages in a simple and readily accessible fashion. This capability will reduce the necessity for repeated occurrences of failed calls necessitating call-back messages.

Voice Messaging Features:

- o Recognizable voice reproduction
- o Convenient recording and receipt of messages:
  - control for speed, volume, fast review, editing,
  - automatic distribution of voice messages according to a stored or entered list,
  - ability to scan incoming messages and retrieve selected message easily,
  - ability to review, store and delete incoming and outgoing messages.
- o Privacy ensured
- o Support for hearing-impaired users
- o Phoning Convenience:
  - automatic dialing from abbreviated directories,
  - automatic redialing on busy.

3.7 COMPUTERIZED ACCESS TO INFORMATION

This functional area consists of the set of tools which enables users to access both online (current) and passive (historical) databases from their individual workstations. Initially, the following online databases are envisioned:

- o Document Control Data
- o Documents-In-Process Indices
- o Minister's Schedule
- o Deputy Minister's Schedule
- o Departmental Calendar
- o Departmental Directory

The first two databases are integral parts of the first two functional areas described above. For each Automated Document Control application which is developed, users will be able to query the system from their terminals for information about the status, location, timing, and other attributes of individual and groups of documents. As part of the Electronic Document Processing tool kit, document indices will be available to users (subject to access authorization) to guide them in locating and accessing documents relevant to their areas of responsibility. This electronic filing capability is intended to facilitate the current practice of many Trial participants of working extended hours when normal support services are not available.

Access to timely, accurate information about the Minister's and Deputy Minister's schedules will eliminate many scheduling and communications problems now experienced by Site 1 participants in particular. Similarly, every professional staff member questioned on the subject indicated that knowledge of pending Departmental events (e.g., press releases, speeches, conferences) would be useful. Eventually, this function could be expanded into a hierarchical information and project

control system, expanding critical events on the Departmental Calendar into individual projects with associated activities, milestones and responsibility centres. Interdependencies between calendar events, projects and sub-projects could be identified and monitored as well.

Convenient, online access to an accurate Departmental Directory (individual's name, physical location and position) has also been identified as an aid to intra-Departmental communications.

Another online information requirement which was frequently identified by users is for access to financial and administrative data. Current commitment and budget data, person year data, operational plans, minutes of meetings, and a number of other Departmental reports would be most welcome online. (Preparation of such reports is discussed in Section 5.8, and also falls under Section 5.5.)

Incremental, historical databases containing information about inactive dossiers or documents will also be accumulated and available for perusal. Ministerial correspondence and enquiries, policy papers, press releases, press clippings, Access to Information records, and other subject matter linked to Central Registry records are all potential candidates for inclusion in computer accessible databases.

Computerized Access to Information Features:

- Database management:
  - capture of information as it is created and transformation into database format,
  - ability to create, modify and expand all database components easily,
  - built-in data integrity and security features, including multiple levels of access authorization,
  - automatic administration of storage space utilization, including re-use of deleted record space,
  - optimization support of system resource utilization.

- o Database user support:
  - the ability to easily search stored information bases and retrieve specific documents or items by key words, subject, author, addressee, data, category, and other attributes,
  - provision of flexible and easy-to-use report formatter.

3.8 PERSONAL MANAGEMENT AIDS

The utility of a personal workstation will be enhanced by access to a variety of personal management aids such as:

- o Personal appointment calendars:
  - online viewing,
  - printed formats available,
  - repeat appointments generated.
- o To Do files:
  - maintenance of dated and timed To Do lists or tickler systems,
  - maintenance of personalized lists.
- o Group meeting scheduling:
  - review of free time spots for a group of people,
  - single request to schedule an appointment.
- o Mathematical functions:
  - calculator,
  - financial modelling and spreadsheet capability,
  - statistical functions.

- o Forms filling capability:
  - ability to easily create a form format on the screen,
  - automatic editing of form data entry according to stored edit rules,
  - consistency between forms processing and other document processing on the system.
- o Programming capability:
  - the ability to create tailored applications through the use of high-level language.
- o Graphics and plotting support

3.9 AUTOMATED TRANSLATION AIDS

Assistance with translation of documents from English to French and French to English will be provided by the Trial system. As a minimum, the ability to electronically transmit documents (3.4), coupled with support for shared authorship provided through document processing functions (3.5 - revision indicators, access security, balanced columns), will greatly reduce the overhead now associated with translation activities. The individual responsible for the production of the bilingual document will be able to monitor progress via an electronic log (3.3), and facilitate production through use of text (3.4) and voice messaging (3.6).

In addition, the flexible communication capability (3.4) provided by the system enables Trial participants to access translation service bureaus to pursue the feasibility of automatic computer translation aids. Both automated (the human translator interacts online with the computer translator) and automatic (a fully translated text is returned to the user) translation services are commercially available for evaluation.

3.10 SYSTEM SUPPORT FUNCTIONS AND OPERATING CRITERIA

In addition to the system attributes described in Section 3.1, the integrated office system is required to meet exacting performance standards to safeguard the Department's information resources and the staff's ability to utilize these resources in a reliable, timely and secure fashion. Operational support should be provided by the system in the areas of:

- o the verification of data integrity,
- o verification of system hardware integrity,
- o system performance monitoring and optimization,
- o provision of accounting and utilization statistics for resource management.

Ongoing technical support must be readily available to the Department for training, software development, system operations, system expansion, hardware and software maintenance, and problem solving.

It is anticipated that the Field Trial system will contain some innovative and therefore developmental components. In these instances, it is expected that a vendor-user dialogue be formally established, and that both parties will actively contribute to the development of a new Canadian product.

3.11 FUTURE REQUIREMENTS

The Department views the Field Trial as an opportunity to experience first hand the benefits and the associated costs and problems of introducing and using an automated office information system. If this experience is successful, it is possible that DOC will wish to expand the system both functionally and by providing wider access. Therefore, the system must provide a convenient, economical, flexible route to accommodate changing requirements.

ADDENDUM TO SECTION 4

FURTHER IDENTIFICATION OF USER NEEDS

PREFACE

This addendum provides additional information about the identification of user requirements on which the functional specifications have been based. It is structured to reflect the relationships between the operational functions of the Department, the perceived needs for assistance within the Trial sites, the appropriate automation functions, and the anticipated benefits likely to accrue. Contents include:

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1.0 MANDATE OF THE DEPARTMENT

The Department of Communications has two broad charters which lie in the two areas of Communications and Cultural affairs. Its mandate lies in the promotion, development and control of various activities in these two areas.

It addresses this mandate in a variety of ways:

- o It administers a number of programs that provide assistance to various bodies in Canadian society.
- o It engages in research activities that develop Canadian technological expertise.
- o It controls Canadian communications activities through the management of various regulatory agencies and programs.
- o It concerns itself with the equitable distribution of communications and cultural facilities to all Canadians.
- o It promotes through various national and international activities the effectiveness of the Canadian communications industry.

This variety can be considered under three functional heads:

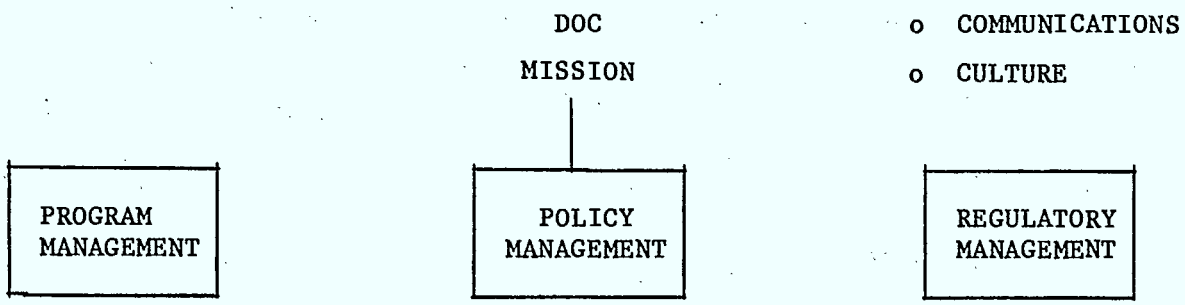
- o program management
- o policy management
- o regulatory management

Diagrammatically the mandate may be viewed as shown below (Figure A.1). Organizationally there are elements of Program, Policy and Regulatory Management that occur in nearly all sectors. The point of distinction lies in the nature of the products developed by each function and the attributes of the processes involved.

Policy Management is most clearly represented by the work of Policy Sector. While policy development responsibility may be shared by all sectors, Policy Sector is exclusively concerned with policy management. The process of policy development can be characterized as highly interactive, iterative and document intensive. It is a process involving committees, the involvement of personnel throughout DOC as well as members of the public. It is creative and proactive in attempting to promote new initiatives, yet at the same time reactive to market, political and technological forces. Its main product is documents: Policy papers, Cabinet documents, research papers, meeting minutes, briefing notes, draft legislation, etc. The documents embody ideas.

In contrast the products of program management and regulatory management, while based on policies are different. Program management produces technologies, capabilities, cultural support and in the process, technical and financial reports. Regulatory management provides services to the Government and the public.

FIGURE A.1: DOC FUNCTIONAL MANDATE



MAJOR FUNCTIONAL AREAS:

o Research	o Broadcasting	o Spectrum
o Space	o Telecommunications	o CRTC
o NL, NMC, Etc.	o Economics	o CBC
o Development Programs	o Informatics	o GTA
	o Socio-Cultural	

PRODUCTS:

o Technologies	o Documents	o Services
o Capabilities	o Ideas	o Licenses
o Cultural Support		

ATTRIBUTES:

o Technical	o Interactive	o Procedure Oriented
o Cultural	o Change Oriented	
o Financial	o Short/Long Term	o Long-Term
o Medium/Long Term	o Innovative	o Stable
o Innovative	o Reactive & Proactive	

2.0 OPERATIONAL FUNCTIONS

The feasibility study has previously identified Policy Sector as one of the sites for the Field Trial. Subsequent work elaborated the detail of the operational functions throughout the senior management team and policy sector.

Policy sector occupies a pivotal role in the execution of the Department's mandate. The communications log and the activity analysis clearly indicate a high level of interaction between policy and the other sectors of DOC. Figure A.2 presents a model of the role of policy sector with respect to the program and regulatory activities of the Department.

The examination of activity patterns throughout Policy Sector and the offices of the Minister and his Deputy are presented below (Figure A.5, A.6).

These enable a tabulation of the complete process structure for the Field Trial Sites: Mission, Function, Task and Activity. This structure is summarized in Figure A.3. Many activities are common across all Tasks; similarily many tasks are common across the Departmental functions. It has not proven possible to determine detailed time allocation across tasks and functions. Detailed data does exist for time spent according to activities.

It is worth noting from the activity detail that little (if any) time is actually spent on activity control. This contrasts sharply with strong perceived needs for such control.

FIGURE A.2: ROLE OF POLICY SECTOR

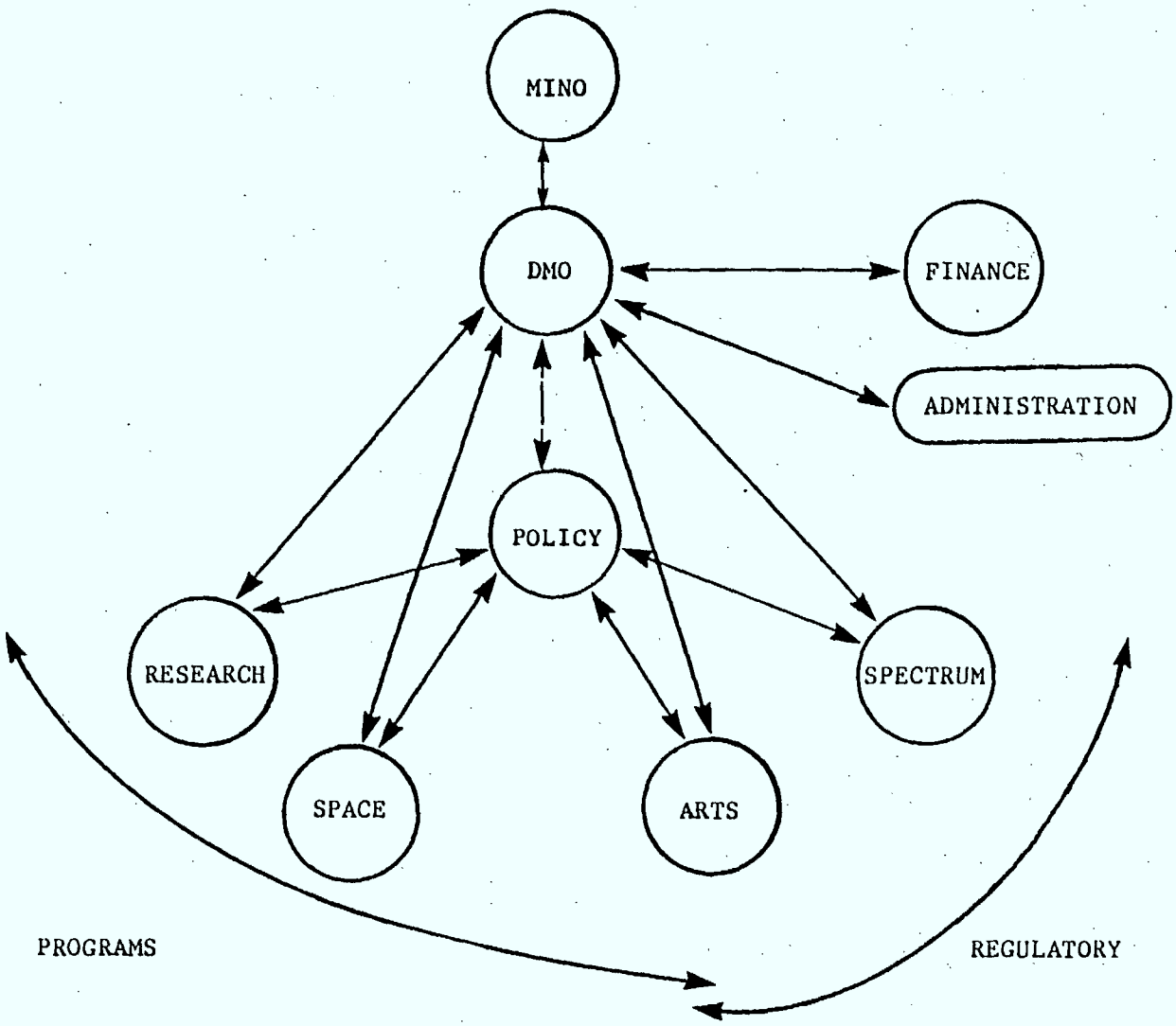


FIGURE A.3: DEPARTMENTAL PROCESS STRUCTURE

PROCESS TYPE	PROCESS NAME	
MISSION	o Communications	
	o Cultural Affairs	
FUNCTION	o Program Management	
	o Policy Management	
	o Regulation Mangement	
	o Finance	
	o Administration	
TASK	o Interaction	o Correspondence
	o Policy Work	o Admin. Financial
	o Program Work	o Admin. General
	o Regulations	o Personnel
ACTIVITIES	o Formal Meetings	o Study, Analyze
	o Informal Meetings	o Read, Concentrate
	o Phone Use	o Search, Retrieve
	o Writing	o Calculate
	o Dictation	o Plan
	o Typing, Retyping	o Decide, Choose
	o Edit, Proofing	o Approve
	o File	o Copy, Duplicate
	o Sort	o Record, Log
	o Schedule	

FIGURE A 4.1

INTERVIEWEE CLASSIFICATION: DGS, DIRECTORS, CHIEFS (13)													TASK/ACTIVITY BREAKDOWN
X	X	X	X	X	X	X	X	X	X	X	X	X	Interaction
X		X	X	X	X	X	X	X	X	X			External Committees, Agencies
X		X	X	X	X	X	X	X	X	X			Special Advisory Committees (Parliamentary)
X	X	X	X	X	X	X	X	X	X	X			Task Forces, Working Group (Departmental)
		X	X		X		X	X	X				Problem Solving
X	X	X		X	X	X	X	X	X				Liaising
X		X			X	X		X	X	X	X	X	Coordination
X	X	X		X		X	X	X	X				Policy
X		X		X		X	X	X	X				Review, Researching
X		X		X		X	X	X	X				Analysis
X		X		X		X		X	X				Development, Policy Making
X		X		X		X	X	X	X				Planning
X			X	X		X		X	X				Evaluation
X		X	X	X	X	X	X	X	X	X			Programs
X		X		X	X	X	X	X	X	X			Disseminating Info (informing, instructing, advising, reporting, requisitioning)
						X	X	X	X				Implementation
					X	X	X	X	X				Extension of Services
X		X	X			X	X	X	X	X			Relations (selling, convincing, persuading, advertising)
X	X	X	X	X	X	X		X					Regulations, Legislation
X	X	X	X	X	X	X		X					Review
	X	X	X		X			X					Decide
	X	X	X		X			X					Approve, Authorize
	X	X	X		X			X					Licence, Control
X	X	X	X	X	X	X		X					Monitor
	X	X	X		X			X					Update
X	X	X	X	X	X	X	X	X	X	X	X	X	Correspondence
X	X	X	X	X	X	X	X	X	X	X	X	X	Ministerial
X	X	X	X	X	X	X	X		X	X	X	X	Client
X	X	X	X	X	X	X	X		X	X	X		Inter-Office
X		X	X	X		X	X	X	X	X			Admin. Financial
		X		X			X	X	X	X			Bookkeeping, Accounting, Budgeting
		X	X			X	X	X	X	X			Calculating, Forecasting
							X	X					Inventorying
		X			X						X	X	Admin. General
		X		X	X						X	X	Handling Paperwork
	X	X	X	X	X		X	X	X			X	Personnel
	X	X	X	X	X		X	X	X			X	Human Relating
	X	X	X	X	X		X	X	X			X	Supervising
							X	X	X				Staffing
	X	X	X	X	X		X	X	X			X	Appraising
													Counselling
													Assisting

FIGURE A 4.2

INTERVIEWEE CLASSIFICATION: SPECIAL ASSISTANTS (INCLUDE POLICY ADVISOR) (4)				TASK/ACTIVITY BREAKDOWN
X	X	X	X	Interaction
X	X	X	X	External Committees, Agencies
X		X		Special Advisory Committees (Parliamentary)
X				Task Forces, Working Group (Departmental)
X	X			Problem Solving
X			X	Liaising
X		X		Coordination
X	X		X	Policy
X				Review, Researching
X				Analysis
X			X	Development, Policy Making
				Planning
				Evaluation
X	X	X	X	Programs
X	X	X	X	Disseminating Info (informing, instructing, advising, reporting, requisitioning)
				Implementation
				Extension of Services
			X	Relations (selling, convincing, persuading, advertising)
	X			Regulations, Legislation
	X			Review
				Decide
				Approve, Authorize
				Licence, Control
	X			Monitor
				Update
X	X	X	X	Correspondence
X		X	X	Ministerial
X		X		Client
X	X			Inter-Office
				Admin. Financial
				Bookkeeping, Accounting, Budgeting
				Calculating, Forecasting
				Inventorying
				Admin. General
				Handling Paperwork
				Personnel
				Human Relating
				Supervising
				Staffing
				Appraising
				Counselling
				Assisting

FIGURE A 4.3

INTERVIEWEE CLASSIFICATION: EXECUTIVE ASSISTANTS AND ADMINISTRATION (8)

								TASK/ACTIVITY BREAKDOWN
X	X	X	X	X	X	X	X	Interaction
	X		X			X		External Committees, Agencies
	X						X	Special Advisory Committees (Parliamentary)
	X							Task Forces, Working Group (Departmental)
		X		X			X	Problem Solving
	X	X	X	X			X	Liaising
X	X	X	X	X	X	X	X	Coordination
	X							Policy
	X							Review, Researching
								Analysis
								Development, Policy Making
								Planning
								Evaluation
			X				X	Programs
								Disseminating Info (informing, instructing,
			X					advising, reporting, requisitioning)
								Implementation
								Extension of Services
								Relations (selling, convincing, persuading,
			X				X	advertising)
								Regulations, Legislation
								Review
								Decide
								Approve, Authorize
								Licence, Control
								Monitor
								Update
X	X	X	X	X	X		X	Correspondence
			X	X	X		X	Ministerial
			X	X	X		X	Client
X	X	X	X	X	X		X	Inter-Office
X		X		X				Admin. Financial
X		X		X				Bookkeeping, Accounting, Budgeting
		X						Calculating, Forecasting
X		X						Inventorying
X	X	X		X	X			Admin. General
X	X	X		X	X			Handling Paperwork
X	X	X		X			X	Personnel
X	X	X		X			X	Human Relating
X	X	X		X			X	Supervising
X								Staffing
								Appraising
		X						Counselling
		X						Assisting

FIGURE A 4.4

INTERVIEWEE CLASSIFICATION: OFFICERS, ANALYSTS, COORDINATORS (6)						TASK/ACTIVITY BREAKDOWN
X	X	X	X	X	X	Interaction
	X	X	X			External Committees, Agencies
	X	X	X			Special Advisory Committees (Parliamentary)
X	X	X	X			Task Forces, Working Group (Departmental)
X		X	X			Problem Solving
X	X	X	X		X	Liaising
X	X	X	X	X	X	Coordination
X		X	X			Policy
X			X			Review, Researching
X			X			Analysis
			X			Development, Policy Making
		X				Planning
X		X	X			Evaluation
X	X	X	X	X	X	Programs
X	X	X	X	X	X	Disseminating Info (informing, instructing, advising, reporting, requisitioning)
						Implementation
X	X	X			X	Extension of Services
X	X	X				Relations (selling, convincing, persuading, advertising)
X				X		Regulations, Legislation
X				X		Review
X				X		Decide
						Approve, Authorize
						Licence, Control
X		X				Monitor
						Update
X	X	X	X	X	X	Correspondence
X		X	X		X	Ministerial
X	X	X	X	X	X	Client
X	X	X	X			Inter-Office
X		X			X	Admin. Financial
		X			X	Bookkeeping, Accounting, Budgeting
X		X				Calculating, Forecasting
						Inventorying
	X	X			X	Admin. General
	X	X			X	Handling Paperwork
						Personnel
						Human Relating
						Supervising
						Staffing
						Appraising
						Counselling
						Assisting

FIGURE A 4.5

INTERVIEWEE CLASSIFICATION: SECRETARIES (4)				TASK/ACTIVITY BREAKDOWN
X	X	X	X	Interaction
			X	External Committees, Agencies
				Special Advisory Committees (Parliamentary)
			X	Task Forces, Working Group (Departmental)
				Problem Solving
X	X	X	X	Liaising
X	X	X	X	Coordination
				Policy
				Review, Researching
				Analysis
				Development, Policy Making
				Planning
				Evaluation
				Programs
				Disseminating Info (informing, instructing, advising, reporting, requisitioning)
				Implementation
				Extension of Services
				Relations (selling, convincing, persuading, advertising)
				Regulations, Legislation
				Review
				Decide
				Approve, Authorize
				Licence, Control
				Monitor
				Update
X	X	X	X	Correspondence
X	X	X	X	Ministerial
X	X	X	X	Client
X	X	X	X	Inter-Office
X		X	X	Admin. Financial
X		X	X	Bookkeeping, Accounting, Budgeting
				Calculating, Forecasting
		X		Inventorying
X	X	X	X	Admin. General
X	X	X	X	Handling Paperwork
			X	Personnel
			X	Human Relating
			X	Supervising
				Staffing
				Appraising
				Counselling
				Assisting

FIGURE A.5: ACTIVITY ANALYSIS

	INTERACTING	FORMAL MEETING	INFORMAL MEETING	PHONE USE	DOCUMENT CREATION AND REVISION	HAND-WRITTEN	DICTATED	TYPED ENT'D ON KEYBOARD	EDIT, CORRECTED, PROOFED	RE-TYPED RE-ENTERED	EVALUATION AND DECISION-MAKING	STUDY, ANALYSE, CONTEMPLATE	READ, CONSERVE	SEARCH RETRIEVE	CALCULATE	MODEL SIMULATE	PLAN, REVIEW	DECIDE, SELECT CHOOSE	APPROVE, AUTHORIZE	GENERAL ADMINISTRATION	TYPE OPERATE/WP	FILE	COPY, DUPLICATE	SORT, CODE, CLASSIFY	COMPLETE FORMS LOGS, RECORDS	MAKE ARRANGMENTS, SCHEDULE	OTHER
1. M1	55	25	--	30	23	5	--	--	18	--	20	10	5	--	--	--	1	5	--	2	--	--	--	--	--	2	
2. M2	40	5	15	20	20	5	--	--	15	--	32	15	10	5	--	--	2	--	--	8	--	--	--	3	--	5	
3. M3*	45	5	20	20	5	--	4	--	1	--	45*	7.5	7.5	5	--	--	10	15	--	5*	1	1	--	1	1	1	
4. D1	35	--	20	15	30	10	--	--	20	--	30	5	15	5	5	--	--	--	--	5	--	1	1	--	2	1	
5. D2	60	10	30	20	20	18	--	--	2	--	15	--	--	--	--	14	--	1	--	5	--	--	--	--	--	5	
6. D3*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
7. A1A	55	20	15	20	15*	3	3	3	3	3	25	--	--	--	--	--	20	5	--	5	--	1	1	1	1	1	
8. A1B	56	1	5	50	20	5	5	--	10	--	9	1	--	5	2	--	--	1	--	15	--	3	4	5	2	1	
9. P1	45	15	15	15	20	15	--	5	--	--	30	5	5	--	5	--	7.5	7.5	--	5	--	--	--	--	5	--	
0. P2	30	3	12	15	20	10	--	5	2	3	30	3	5	10	1	1	5	3	2	20	5	5	5	2	3	--	
1. P3	51	1	--	50	15	--	--	5	10	--	12	--	3	4	--	--	--	5	--	22	5	5	2	3	5	2	
2. P4	35	7	13	15	30	15	--	--	15	--	25	5	10	5	--	--	--	5	--	10	--	1	1	2	5	1	
3. P5	50	20	15	15	15	3	2	--	10	--	30	2	2	2	2	2	7	7	6	5	--	--	--	2	2	1	
4. P6	43	3	15	25	2	--	--	1	1	--	15	1	1.5	2	4	--	3	2	2.5	40	1	1	7	15	15	1	
5. P7	50	18	17	15	22*	5	5	4	4	4	25*	4	3	3	3	3	3	3	3	3	--	--	--	1	1	1	
6. P8	35	1	23	12	7	5	--	1	1	--	37	2	13	7	7	1	6	1	--	21	1	1	1	12	6	--	
7. P9	35	15	15	5	15	10	--	--	5	--	45	15	10	5	--	--	3	5	7	5	--	1	1	1	1	1	
8. P10	70	40	20	10	15	5	--	--	10	--	15	--	4	--	--	--	4	4	3	--	--	--	--	--	--	--	
9. P11	50	13	12	25	25	10	--	--	15	--	22	3	3	3	3	--	5	5	--	3	--	--	--	--	3	--	
0. P12	33	18	5	10	33	23	--	--	10	--	29	3	3	3	3	3	5	5	4	5	--	2.5	--	--	2.5	--	
1. P13	30	7	15	8	20	10	--	--	10	--	50	10	20	--	--	--	10	10	--	--	--	--	--	--	--	--	
2. P14	35	19	9	7	20	6	--	--	14	--	35	--	10	--	1	--	9	13	2	10	--	--	2	3	3	2	
3. P15	43	17	17	9	30	18	1	--	11	--	22	13	--	--	--	--	9	--	--	5	--	--	--	4	--	1	
4. P17	64	23	24	17	24	--	--	--	24	--	12	--	--	6	--	--	--	6	--	--	--	--	--	--	--	--	
5. P18	30	5	15	10	20	9	--	1	10	--	40	5	4	15	2	2	5	5	2	10	1	1	1	1	3	3	
6. P19	20	8	12	5	60	40	--	--	5	15	16	5.5	5.5	--	2	2	1	--	--	4	--	.5	.5	--	2	1	
7.	*																										
8. A2B	35	--	17.5	17.5	15	--	--	7	7	1	15	--	5	5	2	--	2	1	--	35	12	--	4	8	4	4	3
9. A3A	17	1	9	7	24	9	--	2	13	--	30	--	6	9	2	--	--	9	4	29	2	--	19	4	--	--	4
0. A3B	25	5	15	5	30	10	--	--	20	--	40	10	10	--	--	--	10	5	5	5	--	--	--	2	3	--	--
1.	*																										
2. A4A	50	10	15	25	16	3	--	--	13	--	16	--	10	3	3	--	--	--	--	18	--	1	2	7	1	--	7
3. A5A	45	--	30	15	15	5	--	--	10	--	40	10	10	10	--	5	5	--	--	--	--	--	--	--	--	--	--
4. A6A	58	3	45	10	4	1	1	1	1	--	18	1	--	1	1	6	9	--	--	20	1	1	--	1	3	--	14
5. A7A	32	16	--	16	32	16	--	--	16	--	30	6	6	5	--	2	11	--	--	6	--	--	--	--	--	5	1
6. A8A	18	1	10	7	20	3	--	7	7	3	24	--	--	7	17	--	--	--	--	38	7	7	6	--	1	3	14

*incomplete data; approximate figures

FIGURE A.5A ACTIVITY ANALYSIS BY CLASSIFICATION

PRINCIPALS
(Directors General,
Directors, and Chiefs)

	INTERACTING				DOCUMENT CREATION AND REVISION						EVALUATION AND DECISION-MAKING									GENERAL ADMINISTRATION							
1. D3*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2. P5	50	20	15	15	15	3	2	—	10	—	30	2	2	2	2	2	7	7	6	5	—	—	—	2	2	1	—
3. P7*	50	18	17	15	22*	5	5	4	4	4	25*	4	3	3	3	3	3	3	3	3	—	—	—	1	1	1	—
4. P9	35	15	15	5	15	10	—	—	5	—	45	15	10	5	—	—	3	5	7	5	—	1	1	1	1	1	—
5. P10	70	40	20	10	15	5	—	—	10	—	15	—	4	—	—	—	4	4	3	—	—	—	—	—	—	—	—
6. P11	50	13	12	25	25	10	—	—	15	—	22	3	3	3	3	—	5	4	—	3	—	—	—	—	3	—	—
7. P12	33	18	5	10	33	23	—	—	10	—	29	3	3	3	3	3	5	5	4	5	—	2.5	—	—	2.5	—	—
8. P13	30	7	15	8	20	10	—	—	10	—	50	10	20	—	—	—	10	10	—	—	—	—	—	—	—	—	—
9. P14	35	19	9	7	20	6	—	—	14	—	35	—	10	—	1	—	9	13	2	10	—	—	2	3	3	2	—
10. P15	43	17	17	9	30	18	1	—	11	—	22	13	—	—	—	—	9	—	—	5	—	—	—	4	—	1	—
11. P17	64	23	24	17	24	—	—	—	24	—	12	—	—	6	—	—	—	6	—	—	—	—	—	—	—	—	—
12. A3B	25	5	15	5	30	10	—	—	20	—	40	10	10	—	—	—	10	5	5	5	—	—	—	2	3	—	—
13. A3C*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
14. P1	45	15	15	15	20	15	—	5	—	—	30	5	5	—	5	—	7.5	7.5	—	5	—	—	—	—	5	—	—

*incomplete data; approximate figures

FIGURE A.5B: ACTIVITY ANALYSIS BY CLASSIFICATION

SPECIAL ASSISTANTS, ADVISORS

	INTERACTING				DOCUMENT CREATION AND REVISION					EVALUATION AND DECISION-MAKING									GENERAL ADMINISTRATION							
1. M1	55	25	—	30	23	5	—	—	18	—	20	10	5	—	—	—	—	5	—	2	—	—	—	—	—	2	—
2. M2	40	5	15	20	20	5	—	—	15	—	32	15	10	5	—	—	2	—	—	8	—	—	—	3	—	5	—
3. M3*	45	5	20	20	5	—	4	—	1	—	45	7.5	7.5	5	—	—	10	15	—	5	1	1	—	1	1	1	—
4. A1B	56	1	5	50	20	5	5	—	10	—	9	1	—	5	2	—	—	1	—	15	—	3	4	5	2	1	—

*incomplete data; approximate figures

FIGURE A.5C: ACTIVITY ANALYSIS BY CLASSIFICATION

EXECUTIVE AND ADMINISTRATIVE ASSISTANTS

	INTERACTING				DOCUMENT CREATION AND REVISION						EVALUATION AND DECISION-MAKING									GENERAL ADMINISTRATION							
1. D2	60	10	30	20	20	18	--	--	2	--	15	--	--	--	--	14	--	1	--	5	--	--	--	--	--	5	--
2. P8	35	1	23	12	7	5	--	1	1	--	37	2	13	7	7	1	6	1	--	21	1	1	1	12	6	--	--
3. A2A*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4. A3A	17	1	9	7	24	9	--	2	13	--	30	--	6	9	2	--	--	9	4	29	2	--	19	4	--	--	4
5. A4A	50	10	15	25	16	4	--	--	13	--	16	--	10	3	3	--	--	--	--	18	--	1	2	7	1	--	7
6. A5A	45	--	30	15	15	5	--	--	10	--	40	10	10	10	--	5	5	--	--	--	--	--	--	--	--	--	--
7. A6A	58	3	45	10	4	1	1	1	1	--	18	1	--	1	1	6	9	--	--	20	1	1	--	1	3	--	14
8. A7A	32	16	--	16	32	16	--	--	16	--	30	6	6	5	--	2	11	--	--	6	--	--	--	--	--	5	1

*Incomplete data; approximate figures

FIGURE A.5D: ACTIVITY ANALYSIS BY CLASSIFICATION

OFFICERS,
ANALYSTS,
COORDINATORS

	INTERACTING				DOCUMENT CREATION AND REVISION						EVALUATION AND DECISION-MAKING									GENERAL ADMINISTRATION							
1. D1	35	—	20	15	30	10	—	—	20	—	30	5	15	5	5	—	—	—	—	5	—	1	1	—	2	1	—
2. P2	30	3	12	15	20	10	—	5	2	3	30	3	5	10	1	1	5	3	2	20	5	5	5	2	3	—	—
3. P3	51	1	—	50	15	—	—	5	10	—	12	—	3	4	—	—	—	5	—	22	5	5	2	3	5	3	—
4. P4	35	7	13	15	30	15	—	—	15	—	25	5	10	5	—	—	—	5	—	10	—	1	1	2	5	1	—
5. P18	30	5	15	10	20	9	—	1	10	—	40	5	4	15	2	2	5	5	2	10	1	1	1	1	3	3	—
6. P19	20	3	12	5	60	40	—	—	5	15	16	5.5	5.5	—	2	2	1	—	—	4	—	.5	.5	—	2	1	—

FIGURE A.5E: ACTIVITY ANALYSIS BY CLASSIFICATION

SECRETARIES

	INTERACTING				DOCUMENT CREATION AND REVISION						EVALUATION AND DECISION-MAKING									GENERAL ADMINISTRATION							
1. A1A*	55	20	15	20	15	3	3	3	3	3	25	--	—	--	—	—	20	5	—	5	—	1	1	1	1	1	--
2. P6	43	3	15	25	2	—	—	1	1	—	15	1	1.5	2	4	—	3	2	2.5	40	1	1	7	15	15	1	—
3. A2B	35	—	17.5	17.5	15	--	—	7	7	1	15	—	5	5	2	—	2	1	—	35	12	—	4	8	4	4	3
4. A8A	18	1	10	7	20	3	—	7	7	3	24	--	--	7	17	--	—	—	--	38	7	7	6	--	1	3	14

*incomplete data; approximate figures

FIGURE A.6: ACTIVITY ANALYSIS SUMMARY - BY POSITION CLASSIFICATION

AVERAGE PERCENTAGES OF ESTIMATED TIME SPENT IN OFFICE ACTIVITIES

	INTERACTING	FORMAL MEETING	INFORMAL MEETING	PHONE USE	DOCUMENT CREATION AND REVISION	HAND-WRITTEN	DICTATED	TYPED, ENTERED ON KEYBOARD	EDIT, CORRECTION PROOFED	RE-TYPED RE-ENTERED	EVALUATION AND DECISION-MAKING	STUDY, ANALYSE INFORMATION	READ, OBSERVE	SEARCH, RETRIEVE	CALCULATE	MODEL, SIMULATE	PLAN REVIEW	DECIDE, SELECT CHOOSE	APPROVE, AUTHORIZE	GENERAL ADMINISTRATION	TYPE, OPERATE WP	FILE	COPY, DUPLICATE	SORT, CODE CLASSIFY	COMPLETE FORMS, LOGS, RECORDS	MAKE ARRANGEMENTS SCHEDULE	OTHER
DIRECTORS GENERAL, DIRECTORS AND CHIEFS	44.2	17.5	14.9	11.8	22.4	9.6	.7	.8	11.1	.3	29.6	5.4	5.8	1.8	1.4	.7	6.0	5.5	2.5	3.8	—	.3	.3	1.1	1.7	.5	—
SPECIAL ASSISTANTS AND ADVISORS	49.0	9.0	10.0	30.0	17.0	3.8	2.3	—	11.0	—	26.5	8.4	5.6	3.8	.5	—	3.0	5.3	—	7.5	.3	1.0	1.0	2.3	.8	2.3	—
EXECUTIVE AND ADMINISTRATIVE ASSIST.	42.4	5.9	21.6	15.0	16.9	8.1	.1	.6	8.0	—	26.6	2.7	6.4	5.0	1.9	4.0	4.4	1.6	.6	14.1	.6	.4	3.1	3.4	1.4	1.4	3.7
OFFICERS, ANALYSTS AND COORDINATORS	33.5	3.2	12.0	18.3	29.2	14.0	—	1.8	10.3	3.0	25.5	3.9	7.1	6.5	1.7	.8	1.8	3.0	.7	11.8	1.8	2.3	1.8	1.3	3.3	1.3	—
SECRETARIES	37.8	6.5	14.4	17.4	13.0	1.5	.8	4.5	4.5	1.8	20.0	.3	1.6	3.5	5.8	—	6.3	2.0	.6	29.5	5.0	2.3	4.5	6.0	5.3	2.3	4.3
OVERALL AVERAGE	41.7	10.0	15.1	16.5	20.7	8.4	.7	1.3	9.5	.9	26.7	4.3	5.7	3.8	2.0	1.2	4.6	3.5	1.2	11.0	1.1	1.0	1.7	2.4	2.3	1.3	1.3

3.0 PERCEIVED AND IDENTIFIED PROBLEMS

The problems identified in the course of our study fall into two categories: communications effectiveness and document process control. These relate across the board to all functions undertaken with respect to the mandate of the Field Trial Sites. Specific problems evidenced include:

- Communications Effectiveness:
  - delays in access to departmental staff
  - telephone tag
  - uncoordinated calendars
  - incompletely attended meetings
- Document Processing and Control:
  - "lost" documents, folders
  - delays in retrieval of information
  - poor responsiveness to correspondence
  - inability to readily refer to historical information
  - inherent weaknesses in paper distribution systems that masks urgencies
  - absence of knowledge of relevant "work-in-process"

The perception of these problems was shared at the clerical and support staff levels and amongst principals.

4.0 OFFICE AUTOMATION FUNCTIONAL NEEDS

This assessment of operational characteristics, activity involvement and evidenced problems, has led to the functional needs presented in the body of the report. These functional needs in summary are:

1. Automated Document Control

2. Electronic Document Processing

3. Electronic Messaging (Text & Voice)

4. Information Access

5. Personal Management Tools

6. Translation Aids

The responses generated in the course of our interviews, indicating the level of interest in each of these functional needs, and thus the perception of benefit to be derived is shown in Figure A.7. The interesting thing to note here is that personal management tools did not rate highly, in terms of expressed interest, Figure 8. We suspect that the potential benefit of spread sheet tools (e.g. VISICALC) are not fully appreciated.

These functional needs relate directly to operational functions and problems as shown in the matrix of Figure A.9.

FIGURE A.7: USER IDENTIFIED NEEDS - DETAIL*

I AUTOMATED DOCUMENT CONTROL

1	Access to Information Requests
7	Anticipated Questions
0	Motions
8	Deputy Ministers Correspondence
8	Enquiry of Ministry
15	Ministers Correspondence
7	Policy Documents
5	DOC Press Releases
6	Departmental Publications
16	Sector or Internal Correspondence

II ELECTRONIC DOCUMENT PROCESSING

8	Shared Authorship
11	Word Processing Features
17	Electronic Transmission
11	Electronic Authorization and Signification
5	Access to Current Documents in Process

III ELECTRONIC MESSAGING

6	Voice
17	Text

IV INFORMATION ACCESS:

	o **Online Data Bases**
5	Ministers Agenda
2	Deputy Ministers Agenda
2	Assistant Deputy Minister's Agenda
7	DOC Calendar of Events
3	Index of Documents in Process
8	DOC Organizational Directory of Telephone Numbers
5	Current Financial Data
4	Local Data Bases
	o **Passive Data Bases**
12	Subject Index to DOC Publications, Public Relations Material, Press Releases
13	Subject and Author Access to Minesterial and Deputy Minister Correspondence
9	Index to Newspaper Clippings by Subject
5	CRTC Legislation
3	Central Registry Files

V ENHANCED TELEPHONE SERVICES

7	Automated Dialing, Redialing of Last Number
0	Touch Tone

VI PERSONAL MANAGEMENT TOOLS

3	Personal Agenda/Schedule
1	Personal Tickler/BF
2	Calculator
2	Forms Filling
0	Math Pack (Columns Total, Percentages, Calculations)
6	Personal Directories/Lists
0	Modelling
6	Report Generation

VII MISCELLANEOUS

3	Translation
1	Facsimile
1	OCR

* The data of this table is based on 36 interviews.

FIGURE A.8: USER IDENTIFIED NEEDS - SUMMARY

NEED*		# INTERVIEWEES WHO EXPRESSED INTEREST PER TOPIC		AVERAGE NUMBER OF INTERVIEWEES WHO EXPRESSED INTEREST PER SUB-TOPIC		OVERALL RANKING OF SPECIFIC NEEDS
I	ADC	73		6.5		3
II	EDP	52		10.4		2
III	EM	23		11.5		1
IV	IA					
	Online	36	78	4.5	6	4
	Passive	42		8.4		
V	TELEPHONY	7		3.5		5
VI	PMT	20		2.5		6
VII	MISC.	5		1.6		7

* The Numbers in this column are the same as adopted in Figure A.6.

FIGURE A.9: FUNCTIONAL RELEVANCE TO DEPARTMENTAL TASKS

TASKS	AUTOMATED DOCUMENT CONTROL	ELECTRONIC DOCUMENT PROCESSING	ELECTRONIC MESSAGING	INFORMATION ACCESS	PERSONAL MANAGEMENT TOOLS	TRANS. AIDS
INTERACTION			X		X	
POLICY WORK	X		X	X		
PROGRAM		X		X		
REGULATIONS		X				
CORRESPONDENCE	X	X	X	X		
ADMIN: FINANCIAL				X		
ADMIN: GENERAL	X	X		X		
PERSONNEL			X			

5.0 POTENTIAL BENEFITS

The benefits to be derived from the Field Trial have not been identified in a quantitative sense. The evaluation process to be planned as part of the Field Trial Implementation process is intended to develop both quantitative and qualitative measures of Field Trial benefit.

It is anticipated, however, that benefits will be derived in the following areas:

- o Productivity/Effectiveness
- o Job Satisfaction
- o Dollar Cost
- o Organizational Impact
- o Canadian Product
- o Accountability and Auditability

Possible productivity measurements have been identified by the project team as follows:

QUALITATIVE	QUANTITATIVE
o Product Quality	o Text Processing Iterations
o Goal Realization	o Document Turnaround
- Projects on time	- Correspondence flow
o Comprehension Levels	o Distribution Time
o Levels of Control	o Lead Times
o Staff Morale	o Staff Changes
o Level of System Acceptance	o Costs
	o Workload Levels
o Level of "Noise"	o Patterns of System Usage - Patterns of continuance of existing tasks
	o Document Iterations

Measurement techniques in the other areas remain to be determined and documented. Dollar costs have been impossible to identify at this stage, except in the sense that overall budgetary statements are available for consideration. Unit costs of work are not identifiable.

It has been a stated objective of our deliberations that staff relocation shall not occur in the course of the Field Trial. Benefits in terms of staff cost savings will not be realized by the Trial. In the course of our study we did not attempt to identify potential redundancies.

Nevertheless it is anticipated as a result of the Trial, that judgement will be possible by the staff involved in the Trial, of appropriate staffing levels in the automated environment.

One of our major concerns in attempting to assess benefit is that many benefits are essentially non-quantifiable. The level of benefit is perceptual and not measurable. As an example the concerns expressed about Ministerial Correspondence indicate that benefit would be perceived in reducing the response delays. The benefit is a time saving, and a better image for the Department. The benefit however costs: there is no direct cost saving. Justification is thus in terms of perception of the merits of the proposed change, not objectively in terms of cost savings.

Many of the tools proposed for the Department fall into this category. They promote the effectiveness of the Department in a qualitative subjective sense. Document Control enables management to understand where their workload is and how it is progressing. Document Preparation tools increase the quality of documents and reduce delays in text preparation. Electronic messaging increased the availability of people for communications, reducing delays and increasing managerial effectiveness. (There is a potential direct cost saving, here, in terms of paper distribution costs.) Information Access Tools enable staff to be more aware of information related to their tasks.

The nature of the benefits to be derived from the Field Trial are identified with respect to operational tasks in the following table, Figure A.10. For the purposes of this table, operational tasks have been defined to exclude administrative and personnel tasks.

FIGURE A.10: OPERATIONAL BENEFITS

OPERATIONAL TASKS	BENEFIT
o Interaction	
o Meeting Attendance	o Better time scheduling
o Telephone Communication	o Reduced costs of communications delays; increased managerial effectiveness
o Policy Work	o More effective documents through reduced turnaround, better multiple authorship; better access, reference to and consistency with existing DOC policy.
o Program Work	o Lead time reductions in press release preparation
o Regulation, Legislation	o Preparation assistance, better cross-referencing to existing material.
o Correspondence	o More responsive to public needs; reduced loss of work-in-progress; better service to Minister; reduction of superfluous mail; better direction of response efforts; knowledge of work loads and status of work-in-progress.

6.0 SENIOR MANAGEMENT INTERVIEW FINDINGS

(The following results are based on ten interviews conducted during the Phase I Organizational Scan. Respondents include the SADM, five ADM's, DGPA, Sr. Planning Adviser and two Executive Assistants.)

A. OPERATIONAL PROBLEMS

	NUMBER OF RESPONSES
Telephone Tag	5
Document Transmission (CRC, Montreal, Legal and Information Services)	5
Paper Burden (document processing and control)	4
Appointment Scheduling	3
Home (Portable) Terminal Required	3
Difficulty Staffing Word Processing Positions	1

B. OPPORTUNITIES

Improved Communications	10
Provide Environment to Study:	
Human Factors (individual and organizational)	4
Effectiveness of Office Automation	3
Applications	3
Hands-on Management Experience, DOC Image	3

C. EVALUATION INDICATORS

Five of these ten respondents addressed the issue of Trial Evaluation; four believe that qualitative or subjective evaluation of effectiveness is valid, and that they could ascribe value on that basis. Quantitative indicators mentioned included measurement of average time required to answer correspondence, volumes of document types processed, system performance (response time) and acceptance (utilization and perceived utility).

D. EXPRESSED NEEDS FOR AUTOMATED FUNCTIONAL ASSISTANCE

1.	Automated Document Control	6
2.	Electronic Document Processing	6
3.	Electronic Messaging	
	Text	6
	Voice	2

(Document types mentioned include Ministerial Correspondence (4), Briefing Notes (3), and other Departmental Correspondence (memos, reports) (3).)

4.	Information Access/Retrieval	
	Departmental Financial Data (Budgets, Expenditures, Contracts, Commitments)	7
	Departmental Agendas (Minister, Deputy Minister)	5
	Index of Documents in Process (1 above)	4
	Records Management, Electronic Filing	4
	MYOP's	2
	Personnel Data	2
	Major Projects	2
	Public Data Bases	
	Telidon	4
	CISTI (CANSIM, Bibliographies, Libraries)	2
	Statscan	1
	Infoglobe	1
	Other Public	3
5.	Enhanced Telephone Features	1

6. Personal Management Tools

Agendas, Scheduling Appointments	4
Tickler/BF	1
Calculator	1
Forms Filling	1
Graphics	1
Spread Sheets	1

7. Miscellaneous

Video Conferencing	3
Teleconferencing	1
Translation	1

7.0 OVERALL SUMMARY

The tabulation of Figure A.11 presents an overall summary relating Operational Function through Needs/Problems and Automation Assistance to Anticipated Benefit. This summary reflects the emphasis we have taken in looking at Policy Management.

As indicated earlier it is difficult to identify a "one-for-one" correspondence across the scale between Operational Function and Benefit. The nature of the office processes conducted is that needs and problems exist with respect to several operational functions; that automation assistance features each address several of the needs; and that benefits are not unique to individual operational or automation functions. Nevertheless, the table can be interpreted as relating principal benefits that will result from the application of the identified tools, to the principal needs which exist with respect to the major operational functions.

In summary, the introduction of these tools will provide staff with opportunities to increase their effectiveness and the responsiveness of the Department.

FIGURE A.11: OVERALL SUMMARY

OPERATIONAL TASKS WITHIN POLICY FUNCTION	NEED/PROBLEM	AUTOMATION ASSISTANCE	ANTICIPATED BENEFIT
o Interaction	o More effective interpersonal communication	o Electronic messaging	o Reduced communications delays
	o More timely access to individuals and information		o Reduced costs of communications
			o More effective meetings
	o Calendar coordination	o Calendar assistance	o Better Scheduling
o Policy Development	o Access to information	o Document control	o More timely production
	o Speedier interative process	o Document processing	o Better quality documents
			o Reduced level of "urgency"
o Legislation	o Reference to historical information	o Information access tools	o More thorough and complete documents
o Correspondence	o Knowledge of work-in-process	o Document control	o Better responsiveness
			o More directed process
			o Less superfluous mail
Communication/ Cultural Mandates Overall	o Coordination and understanding of status of work-in-progress	o Document control	o More responsible Government
			o More competitive Department
	o More thorough information research	o Information access	o Better managed Department

SECTION 5. SYSTEM DEFINITION

SECTION 5

SYSTEM DEFINITION

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1.0 INTRODUCTION

The principal objective of task III of the study was the development of system specifications for Field Trial equipment. The set of functions described in Section 4 provide the functional specifications for the Field Trial. The specifications contained in this section identify the technical characteristics to be met by potential Field Trial equipment.

Care has been taken not to specify system requirements in such a way as to preclude any particular technological solution. Operational characteristics have been defined, which given the constraints of the services to be supplied, need to be met to provide an effective and realisable Field Trial.

2.0 SYSTEM DEFINITION

2.1 INTRODUCTION

There are three variables to be taken into account in developing system alternatives:

1. Functional capability.
2. Configuration topology.
3. Configuration complexity.

Each variable can result in several different alternatives. To reduce the complexity of the alternatives considered, a limited number of such alternatives have been examined. Two alternatives of functional capability are presented, a full function option and a minimum functional set. Topologically there is only one practical configuration, while configuration complexity is examined from the point of view of three different levels of equipment penetration in the Field Trial sites.

For each variable and alternative, strategies exist for their phased introduction into the Field Trial. This chapter is concerned with a preliminary view of the final Field Trial configuration, questions of introduction strategy being explored in Section 6.

This chapter is basically organized to present a discussion of the three variables noted above, in sections 2.3 through 2.5. Section 2.2 provides background in terms of the criteria used in system selection, while section 2.6 presents the system selection.

2.2 SYSTEM SELECTION CRITERIA

The principle selection criteria for system components and characteristics are the objectives established for the Trial. These were agreed to during Task I and are based on our interviews with senior Departmental management to be:

1. Improved DOC operational productivity;
2. Enable research into Human Factors associated with the introduction of Office Automation;
3. Enable the evaluation of productivity potential;
4. Provide enhanced Departmental image; and
5. Lead to the development of new Canadian office products.

This order reflects the priorities expressed by Departmental management in their initial meetings. The funding through the OCS program requires that objective number five receive more attention than its fifth priority might indicate.

These objectives present challenges in determining system configurations. For the Trial to realise operational productivity it must exhibit operational reliability. Yet to assist in the development of new products the system is most likely to contain new hardware and software largely unproven in a production environment. Research requires a reasonable population of users, in order to provide significant statistical results, similarly at odds with an environment in which unproven services are in use.

The resolution of these conflicts lies in reasonable compromise. The essential capability of the Field Trial needs to be provided in reliable fashion, probably depending on existing hardware and software. The innovative features can be provided as add-ons with minimal impact on basic Field Trial operations. As their reliability becomes proven, their use can be extended to additional participants.

2.3 FUNCTIONAL CAPABILITY

The functional specifications described in Section 4, provide a full functional capability to meet the needs of the Department. The key element of the functionality described is document handling, itself presented as three components:

1. Widespread word and text processing;
2. Electronic document communication; and
3. Electronic document control procedures.

The first element provides machine assistance throughout the Trial sites for document preparation; the second enables the rapid distribution of documents, aimed at improving document turnaround; and the third provides the necessary control procedures to manage the information flows within the Department.

The full functional capability provides extensive innovative features in support of these three key functions elements, providing good operational utility. Additional functional capabilities in the form of telephone assistance, personal management aids, and computer access meet other needs and can be provided with marginal increases in system complexity.

A minimal set can be defined that nevertheless meets the key functional needs. This minimal set includes basic document processing and communication, simple electronic messaging and several management aids. It excludes document control and information access facilities. In the absence of the additional features, the utility of this minimal set is itself minimal. The level of innovation is very low, and a system could be built with this level of functionality based on existing off-the-shelf equipment.

Assistance with use of the telephone has been strongly indicated as a need within the Department, particularly at the senior management level. More effective use of the telephone has been recognized for some time as an area of large potential benefit to office staff. Two features are proposed: voice messaging and computer assisted call management.

The method of implementation is at issue. The full digital integration of text, data and voice is not proposed in the DOC Field Trial. The technology is not currently available at costs within the Field Trial ceiling. Functionally, telephone assistance should be provided separately from the text and data processing capabilities of the Field Trial, yet in a way permitting service integration.

Table 1 shows the components of the full functional set and that of the minimal functional set. It is our view that the full functional set should be provided for Trial purposes. Four items of this set have been bracketed to indicate desirability but possible future implementation.

2.4 CONFIGURATION TOPOLOGY

In our proposal for the conduct of this study we identified a number of potential architectural solutions:

- o main-frame solutions;
- o integrated voice and data solutions;
- o distributed solutions;
- o personal, smart terminal solutions;
- o public network solutions;
- o local network solutions.

The understanding we have developed of the Department and of its functional needs suggests that no one of these solutions is uniquely appropriate, and indeed that a mixture of several of these architectural solutions provides the only practical solution.

Our solution involves the use of:

- o individual or shared workstations with intelligent terminal and word processor characteristics;
- o associated voice messaging device and telephone;
- o local cluster controllers offering distributed processing capabilities and local bulk storage;
- o a local area network (LAN) providing inter-cluster communications and off-site communications access;

TABLE 1: FUNCTIONAL SETS

Functional Requirement	Set A Full Functional Capability	Set B Minimal Functional Capability
I. Document Handling		
Document Control	x	
o On-line log access	x	
o On-line log updating	x	
o Ad hoc reporting	x	
Document Processing	x	x
o Word Processing	x	x
Spelling Verification	x	
o Shared Access	x	
o Electronic Signification	(x)	
o Dossier Handling	x	
o Automatic Translation	(x)	
Document Communication	x	x
o Distribution Lists	x	x
o Acknowledgements (Auto)	x	
o Transaction Journals (Auto)		x
II. Electronic Messaging	x	x
o Text Messaging	x	x
o Voice Messages	x	
o On-line Directories	x	
o Call placement assistance	(x)	
III. Management Aids	x	x
o Calendars/Agendas	x	x
o Tickler Files (B/F, todo etc)	x	x
o Modelling	x	
o Spread Sheets	x	x
o Calculator	x	x
IV. Information Access	x	
o Telidon Systems	x	
o Internal Department Data	x	
o Public Access	x	
o Archival Data Base Services	(x)	

- o host computers for bulk archival data storage, and special services.

Of the list above, this solution does not make use of integrated text and voice nor directly of public network solutions. The integration of text and voice in a single technology has still to be proven, both technically and in terms of utility. While some office automation manufacturers are now offering voice annotation, the technology is in its infancy and not regarded for the purposes of the DOC Trial as a beneficial feature. There is every reason to continue use of existing dictation equipment and of the telephone in association with Field Trial operations. The digital integration of voice and data is not strongly indicated.

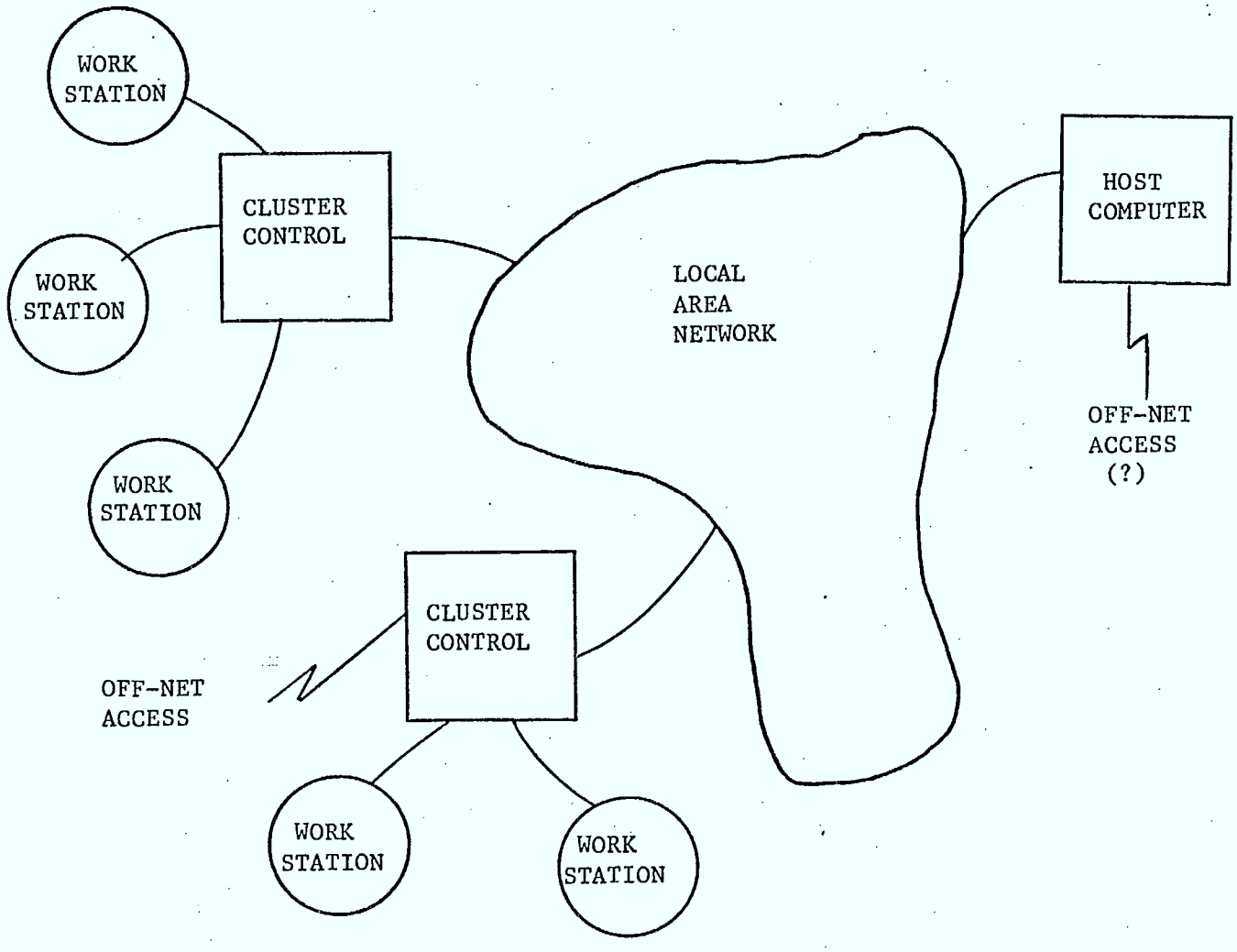
A public network solution is not regarded as practical for a variety of reasons including security, reliability, availability and likely response times. Access to public networks is a requirement and is included as a feature, but use of a public network as a central part of the Field Trial System is not considered desirable.

The solution presented includes elements of each of the other potential architectural solutions. It reflects the state-of-the-art in terms of current hardware technology and of current systems design. Figure 1 shows the overall topology of this system solution.

- o Each user accesses the "system" through a workstation. Local intelligence in the workstation provides word processing capability plus other applications facilities and communications access to the local cluster controller.

- o The local cluster controller provides bulk local storage for several workstations. Group directories to documents are maintained enabling sharing within a cluster. Communications capabilities enable inter and intra-cluster document communications.

FIGURE 1: CONFIGURATION TOPOLOGY



- The local area network links all clusters and the host computer together. It supports protocols for routing and transfer of document messages, files, etc. between the different processing nodes. Its functionality is provided in the nodes.

The detailed configurations of workstations and cluster controller are shown in Figures 2 and 3, and described below.

Workstations

Two workstation configurations are presented. The first version supports a single user, in practice potentially shared amongst several. The second version supports two users in a dual configuration permitting a more intimate shared working environment. It is intended for a principal/assistant pair (e.g. manager and secretary or executive and assistant). Neither configuration is startlingly original, based on existing technological capabilities. The innovation is provided through application functionality.

Both workstations consist of:

- o a local processor;
- o local storage, represented as dual floppy disk drives;
- o interactive devices: keyboard and display (terminal) with Telidon compatibility;
- o associated telephone and voice storage facility;
- o an optional local printer;
- o a communicatons link to the cluster controller.

The local processor requires sufficient capacity in terms of memory and CPU power to support the applications needed and provide rapid local response to the terminal.

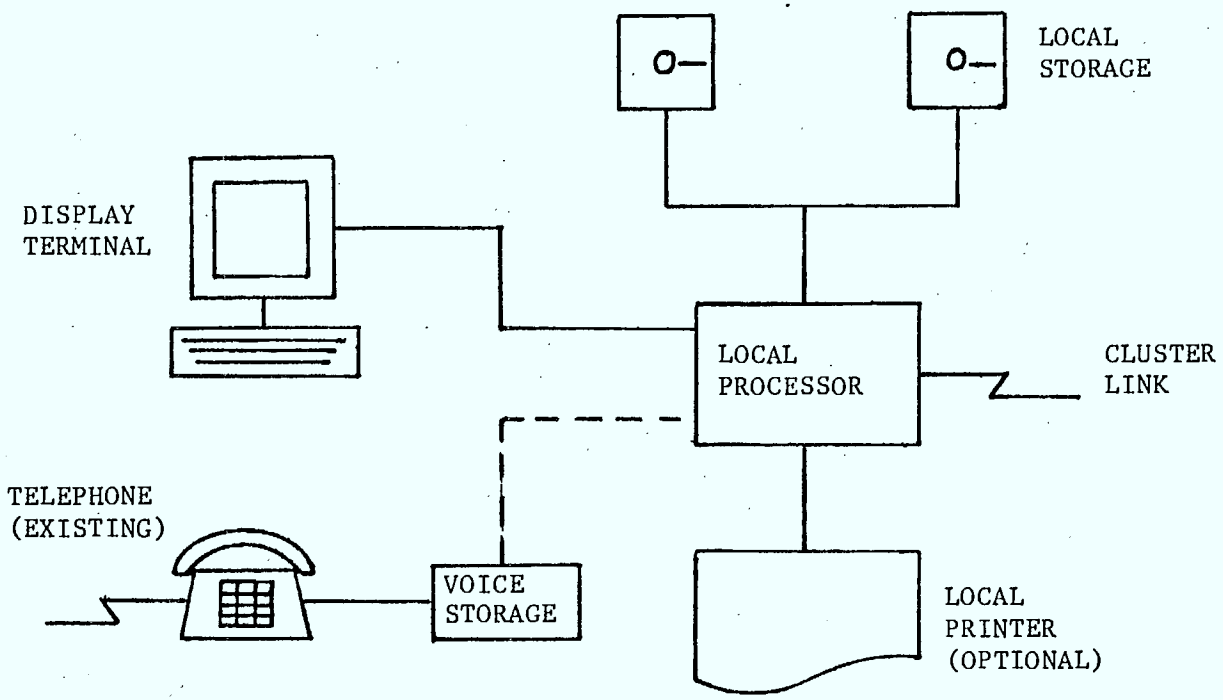
The local printer may provide draft or letter quality printing, or optionally be omitted to rely on local cluster printers.

Functionally either workstation will support (in terms of the full functional set):

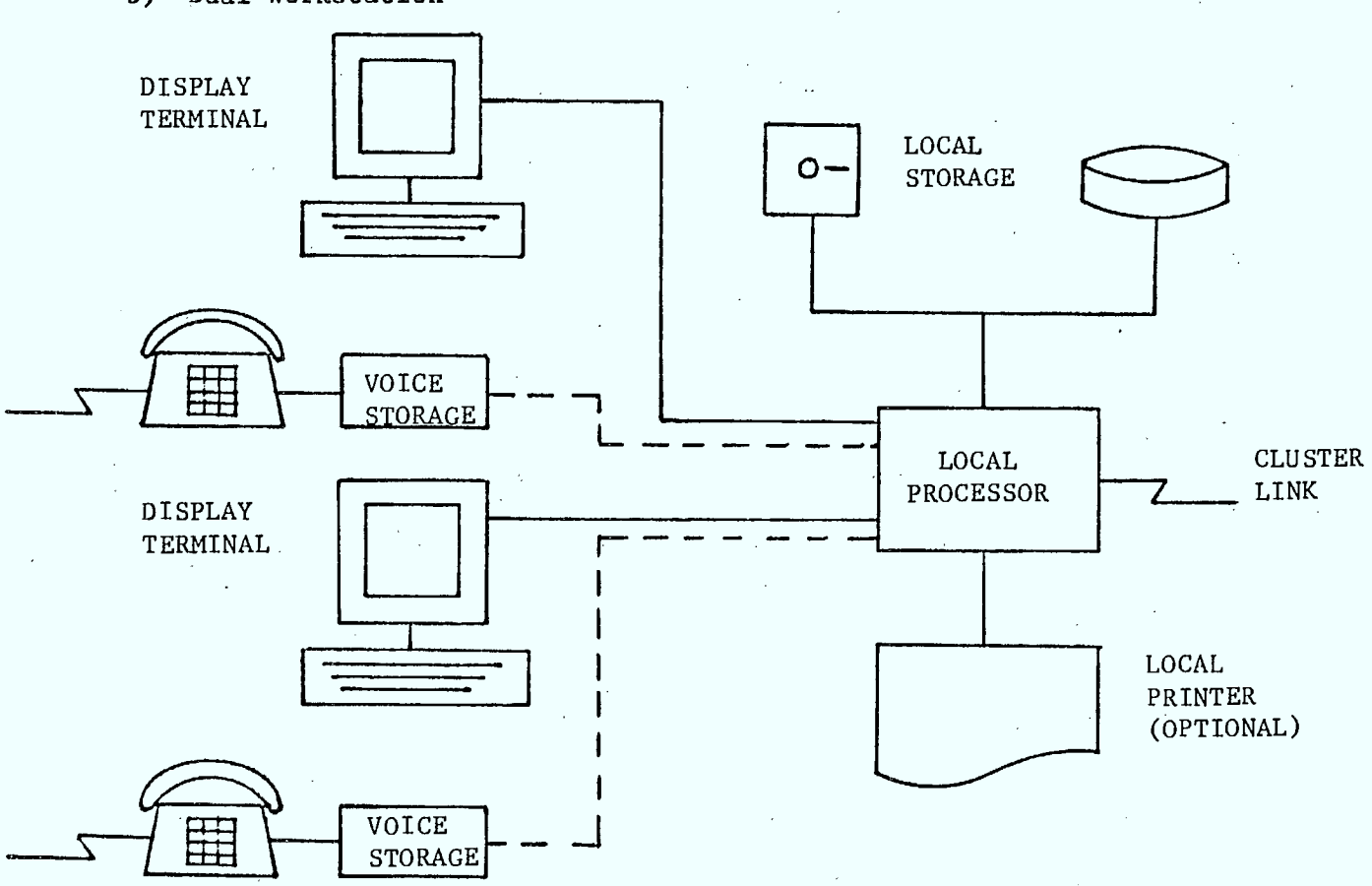
- o full local text processing capabilities
- o local data file directory capabilities
- o document storage
- o access to the cluster controller for
  - application program down-loading
  - application program process request

FIGURE 2: WORKSTATION CONFIGURATIONS

a) Single User Workstation



b) Dual Workstation



- spelling verification
- automatic translation
- local directory access
- document retrieval
- document storage
- document communications
- remote computer access

o integral personal management aids
o creation of distribution/circulation lists
o electronic signification
o user authorization
o optional telephone call management.

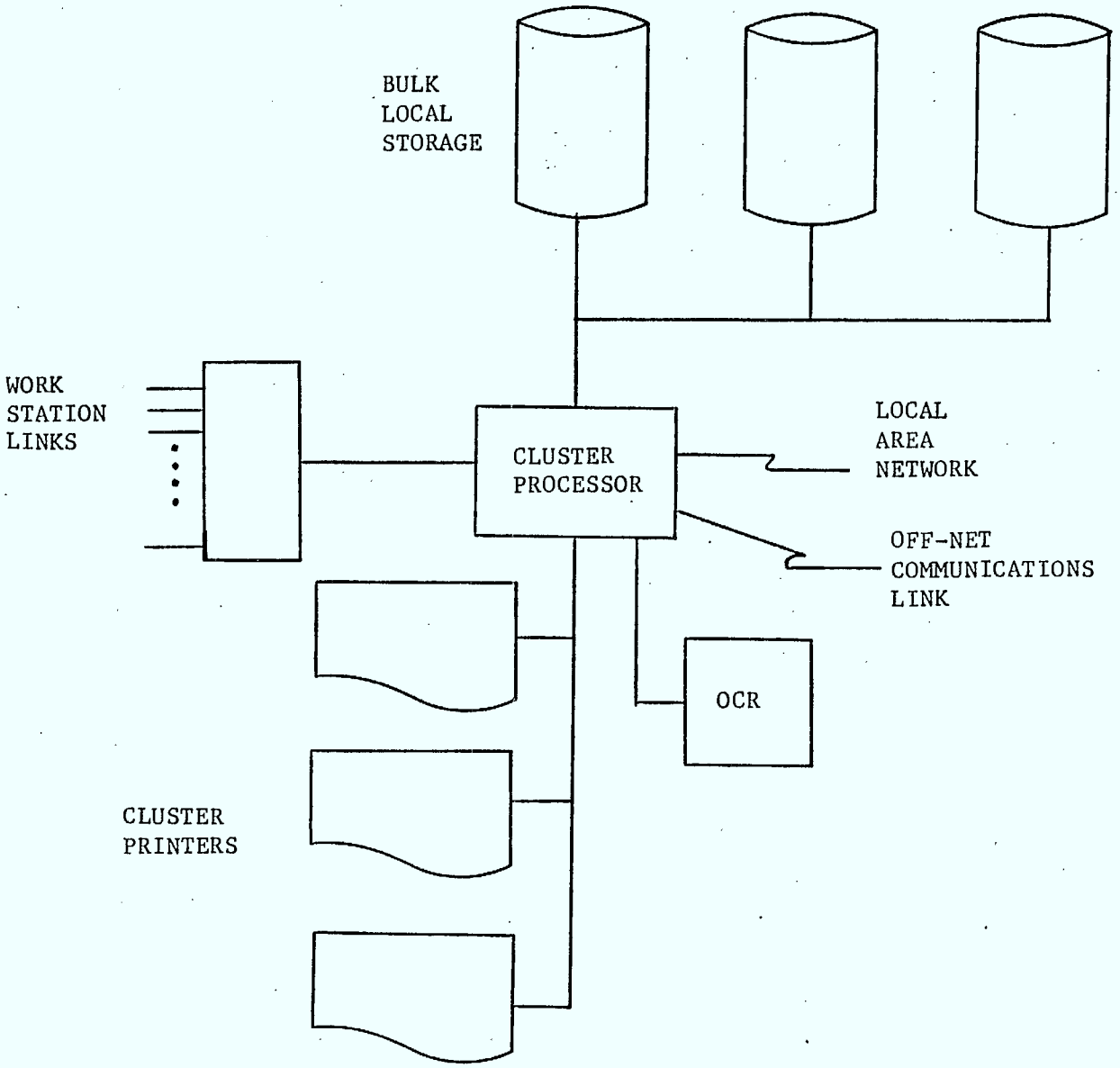
Cluster Controller

The cluster controller consists of the following complement of equipment:

o cluster processor of appropriate capacity
o bulk local storage of about 50 times the capacity of each local workstation
o simultaneous communication capability to a number of workstations, maximum 10-15
o group printers - a number of different printers could be provided:
  - high-speed draft
  - letter quality
  - graphical

  depending on the needs of the group sharing the cluster and individual workstation configurations
o an optical character reader, to provide interface to incoming paper documents
o access to the local area network providing intra-cluster communications
o optionally access to other communications networks.

FIGURE 3: CLUSTER CONTROLLER CONFIGURATION



Functionally the cluster supports:

- o local bulk data and document storage
- o document retrieval based on security requirements both to local cluster users and remote cluster users
- o document communications: distribution and circulation. The cluster controller verifies distribution lists and provides the routing.
- o program storage for down-loading to workstations
- o special applications programs for running on the cluster, e.g.
  - spelling verifier
  - automatic translation
- o document control functions
- o user directories, authorization levels etc.
- o dossier management

One workstation would be used for management of the cluster controller itself, possibly in dedicated mode. This will be needed in particular for:

- o control of the optional OCR device
- o scheduling of printer queues
- o management of user directory and data storage

2.5 CONFIGURATION COMPLEXITY

It has already been determined that the DOC Field Trial will involve two sites in the Department: The Senior Management Team and the Policy Sector. Within the Policy Sector, the Broadcast and Social Policy Branch (DGBP) has been selected as the user site, and National Telecommunications Branch (DGTN) as the control group.

Within the two user sites a total of 100 staff are employed. Configuration complexity is determined by the number of staff who have direct access to workstations. It is desirable that all user site staff have access in some sense. The variability lies in the extent to which dedicated or shared access is provided.

Three options are presented:

1. A minimal set: Workstations for key personnel only.
2. A pragmatic set: Workstations included for selected officers and principals, other staff having shared access.
3. An optimal set: Workstations for as many staff as possible within budgetary constraints.

TABLE 2: FIELD TRIAL SITE STAFFING LEVELS AND EQUIPMENT ALLOCATION

	TOTAL STAFF	WORK STATION ALLOCATION		
		MINIMAL	PRAGMATIC	OPTIMAL
SITE I				
o MINO (HQ AND H of C)	19	5	5	5
o DMO	16	8	8	9
o ADMs, DGPA and PLANNING	30	7	7	14
o ADMAC Correspondence Unit	5	1(2)	2(2)	2(2)*
SITE II (SADM)				
o Branch Managers' Offices	17	1	7	7
o DGBP Directors	4	4	4	4
o Officers and Staff	17	7	7	9
TOTALS	108	33	40	50
Control Group DGTN	42			

* It is anticipated that 2 workstations will be funded in addition to those provided by the Trial.

The staffing levels in the field trial sites and the equipment levels to meet these 3 options are shown in Table 2. The following text describing configuration options is general in nature. Considerable flexibiity exists for the assignment of equipment to staff. Staff involvement is in any case sought on a voluntary basis. These options are essentially presented for discussion and costing purposes.

A minimal set can be defined as support stations for use in direct association with principals. Functionally this could provide good horizontal and vertical document communication between the principals. Key features of textual communication, management aids and information access could be provided. Document handling in support of principals could be available. The number of staff directly involved and thus the configuration's overall utility would be limited. This set would involve 33 workstations. The full potential for document control and electronic communications cannot be realized by this set.

A more pragamatic set, providing full functionality and better utility can be provided with a configuration of 40 workstations. Full horizontal and vertical document and message communications can be provided within the Field Trial sites.

An optimal configuration is presented involving 50 workstations. This does not address the direct involvement of all staff, but provides a situation in which all personnel can have at least shared access to Field Trial services.

This discussion of configuration sets has intentionally, not distinguished single from dual (or even triple) terminal workstations. It is based on the premise that single user workstations will predominate in the configuration. Where multi-user workstations exist they will be so configured because of the close working association between each of the users. The detailed configuration proposed is contained in Section 6.

2.6 SYSTEM SELECTION

Based on the foregoing discussion of system definition variables there are six system alternatives:

Minimal functionality

1. Configuration of 33 workstations.
2. Configuration of 40 workstations.
3. Configuration of 50 workstations.

Maximal functionality

4. Configuration of 33 workstations.
5. Configuration of 40 workstations.
6. Configuration of 50 workstations.

These reflect the 2 options for functional sophistication, and the 3 options for configuration complexity.

The variable of configuration topology presented only one viable solution: a mixture of workstations, cluster controllers and local network. Special services would be available through remote host computers. This is the most likely topology given the characteristics of current technology, though the actual configuration will depend on individual supplier's implementations.

Of these six alternatives, the first 3 are not considered further because the objective of realising innovative products is not met by a functional solution available in current product lines.

Of the latter 3 the choice depends on a match against objectives and likely configuration costs. Given equal total costs that therefore can for these purposes be ignored, there are two variables to be considered:

1. Community Size.
2. Functional Sophistication.

The size of the community will determine success against a number of objectives: the larger the community the better the success. Any communications situation to have utility and therefore become acceptable needs to have as large a population of users as possible. The recent Displayphone experiment in the Department failed partly because of the small number of users and their distribution within the Department: the community offered little utility.

The larger the community of active users too, the more meaningful are the potential research projects that can be conducted. Since key objectives lie in realising operational productivity gains and in researching the impact of office automation, it is desirable to have as large a population for the Field Trial as possible. An upper bound on this size is set by costs and manageability considerations.

Functional sophistication is difficult to judge. By this term we mean the elegance and power of the user interface to field trial functions. A multi-segment view of a user's electronic work-space; a flexible command language; command language redundancy; full application and media integration, are examples of high functional sophistication.

Intuitively the greater the functional sohpistication, the greater the unit cost and thus the smaller the Trial that can be supported. At the same time, intuitively, the greater sophistication may engender better acceptance of the Field Trial services amongst participants, and thus contribute significantly to their productivity.

In examining the objectives, however, the functional sophistication of the Field Trial does not radically alter the evaluation. Greater sophistication may create a "better" product, but no more of a product than cheaper solutions. The better goal is more functionality at a lower cost.

Ranking of the three configuration alternatives 4 through 6 against the objectives is shown in Table 3. These indicate that the maximal

configuration offers the best chance of success against the overall trial objectives. Only against one objective do the other configurations score at all well.

It is our recommendation that the Field Trial be established with as much functionality as possible, and for the largest possible Trial population.

TABLE 3: OBJECTIVES ANALYSIS

Configuration	4	5	6
1. DOC Operational Productivity	L	M	H
2. Study Human Factors	L	M	H
3. Evaluate Productivity Potential	L	M	H
4. Departmental Image	L	M	H
5. Canadian Product	H	H	H

N.B. L-Low, M-Medium, H-High do not represent absolutes. H is a judgement of "better" than M, and M similarly of L.

3.0 SYSTEM CHARACTERISTICS

The system definition provided in the previous chapter provides the overall structure of the field trial, its topology and size. The functional specifications from a user's point of view are provided in the earlier Section 4. It is necessary to elaborate the system definition further in terms of a number of characterisitics and attributes. These are described in terms of:

1. Functional Characteristics.
2. User Interface Characteristics.
3. Ergonomic Characteristics.
4. Technical Characteristics.
5. System Management Characteristics.

Each of these characteristics are rated as:

M Mandatory
H Highly Desirable
D Desirable
N Nice to have feature

3.1 FUNCTIONAL CHARACTERISTICS

These have not been elaborated further at this time, since the Functional Specifications describe the functions in reasonable detail. In general the functional characteristics are to be state-of-the-art. The terms user-friendly, complete, consistent style and functional integration apply to the required functional characteristics.

3.2 USER INTERFACE CHARACTERISTICS

This statement of characteristics has been developed in part based on the concerns and constraints expressed to us in the course of the study, and in part on our experience with existing office automation equipment.

a) Bilingual capability M
Full english and french character sets must be supported for display, printer and keyboard functions.

b) Bilingual interaction M
Commands and responses must be permitted and provided in either english or french at the user's option.

c) Help facility M
The user must be able to receive on-line assistance at any point in their dialogue with the system. A trivial return to resume their process must be provided.

d) Meaningful command language M
Where commands are used they must be as meaningful and as self-explanatory as possible.

e) Understandable model of the User Interface M
For training purposes, it is essential that the basic user interface can be described in an understandable fashion: the minimum number of concepts should be used.

f) Meaningful responses and prompts M
There must be an absence of cryptic, non-self-explanatory system generated responses. For example the response:

INVALID SYNTAX

is not user friendly.

g) Flexible command language H.

As a corollary of (f) it is highly desirable that the system attempt to correct user's mistakes, prompting for confirmation of most likely correction.

h) Personalisable M

Associated with each user should be a profile. This profile should enable modification for each user of his default user environment. Besides including his own language preference, it should allow for his own command and response synonyms.

i) Screen orientation M

The user dialogue must be oriented to page at a time sequences. This should not disallow scrolling capabilities, but is intended to discourage "line-at-a-time" sequences. As a corollary of this the entire screen dialogue should be pageable and active i.e. previous commands can be reissued by cursor placement without reentry.

j) Integrated functionality H

The presentation of different applications should be consistent. Variable "window" sizes should be allowed to permit viewing multiple sets of information, subject to different application features simultaneously. Data should be readily moved between "windows".

k) Editor M

The editing capability must be provided in a single consistent fashion across all functions.

e.g. the delete line editing function should be the same for:

- deleting a line in a textfile.
- deleting a file in a directory display.

1) Asynchronous Indications M

Simultaneous asynchonous indications must be provided for several different purposes.

e.g. - receipt of incoming mail
- receipt of urgent mail
- completion of prior processing request
- date and time.

m) Security procedures M
It is essential that system access by guarded by security procedures. It is highly desirable that these be not only secure but also simple.

n) Command redundancy/transparency N
Certain commands should be considered transparent, and to be issued implicitly on other command selection. For example the omission of a "save" command after editing by a user should not lead to loss of the work.

o) Automatic Processes H.
The user interface should allow the specification of sequences to occur automatically subject to the occurence of certain user directed events. These sequences may be system defined as defaults or user specified.

3.3 Ergonomic Characteristics

No Canadian standards exists for the ergonomic characteristics of office display stations. The following are advanced as a preliminary set, in part based on the texts by Galitz, "Human Factors in Office Automation", and "Review of Health and Safety Aspects of Video Display Terminals", CRC, Department of Communications, CRC Technical Note No. 712-E.

a) Screen adjustments M
The screen of display devices must be adjustable about a vertical axis and about a horizontal axis through the plane of the display. An angle of at least 45 degrees must be provided.

b) Detachable keyboard M

The keyboard must be separable from the display device and locatable up to 60 centimeters from the display.

c) Operator Position M

The display and keyboard must allow reasonable variation in overall operator position, including standing, with reasonable use of associated furniture.

d) Ambient Lighting M

It must be possible to operate under reasonable ambient lighting conditions (e.g., ambient light level of about 300 lux).

e) Intensity variation M

The operator shall be able to vary screen intensity easily to suit his/her requirements and ambient lighting. The contrast control between ground and displayed figure must allow at least a 10:1 contrast level.

f) Flicker rate M

No detectable flicker shall be evident. A minimum refresh rate of 60 Hz is required. Refresh between 70 and 100 Hz has been recommended.

g) Character Sizes M

Character Sizes shall be such as to avoid operator eye strain. A 7x9 dot matrix is preferred. Character height of 3-4 mm. and the angle subtended of 15-20 minutes of arc are required.

h) Portability D

It is desirable that the display device and keyboard be light enough to permit its physical movement at each work station to suit operator requirements.

i) Reverse Video M

It is essential that the displays provide dark lettering on a light background (negative contrast).

j) Display Colour M

The display colour shall be such as to minimize eye strain. Yellow, Green or White are preferred in that order.

k) Screen Size M

The display screens must support a minimum of 24 lines each of a minimum of 80 characters at standard character size. Physical dimensions of the display area must be at least according to an 11" diagonal.

3.4 TECHNICAL CHARACTERISTICS

a) Telidon presentation-level protocol T.500 M

All display devices must support the Telidon presentation level protocol T.500, published by the Canadian Standards Association.

b) Asynchronous presentation protocol (ASCII). M

All screens must support asynchronous ASCII communications. It is desirable that (a) and (b) be supported simultaneously.

c) Local printers M

All screens must be capable of supporting local printer capabilities for:

- display page printing
- dialogue capture
- file display

The interfaces should be Centronics parallel and/or RS232C.

d) Communication speeds M

Terminals must support reasonable screen refresh from their associated controllers at speeds at least up to 19.2 kilobaud. Terminals may need to operate at speeds as low as 300 band.

e) Printer Capability M

A number of different capabilities must be supported.

1. High-quality letter printer, impact-based, supporting 8½ x 11, 11 x 14 sheet and friction feed mechanism.
2. Draft printer supporting 8½ x 11 paper.
3. High speed printer.

1.0 INTRODUCTION

This Section documents the strategy to be followed in implementing the Field Trial, a number of issues to be resolved and explored in the Field Trial, and the detailed schedule and costs of the Trial.

2.0 IMPLEMENTATION STRATEGY

The conduct of a Field Trial poses challenges to users, management, suppliers and researchers alike. The essential concept of a Field Trial is new equipment and procedures in an operational environment. It is a controlled change, where it is anticipated that the change will result in significant benefit, but nonetheless in which many unknowns remain to be resolved.

The principal goals of the Field Trial have been identified as the following:

1. Realize Productivity improvements
2. Research into Human Factors
3. Evaluation of productivity potential
4. Provide Departmental visibility
5. Promote Canadian products

The elements of the strategy aimed at realizing these goals are several. Together these elements embody the change to be introduced by the Field Trial, the control elements, and the potential to realize the Field Trial objectives.

1. User Involvement

   The specification, development and implementation of new office systems depends critically on active user participation in the process. This has been a key part of the process of the planning study and should continue to be the major element of the Field Trial itself. User involvement helps guarantee not only effective applications but significantly improves the level of acceptability and use of the new system.

2. Broad Functional Capability

   The successful adaptation to new office procedures depends on a perception by the staff involved, of real utility in the new procedures. The broader this set of functions the easier it is to

develop that perception. The functions that have been identified with user participation meet this capability.

3. Innovative Components

It is essential that innovation exists in the Trial. Part of the innovation lies in the introduction of existing office automation into an environment where previously it is not used. However, this is insufficient in terms of promoting new Canadian products. The Field Trial contains operational equipment in order not to adversely degrade office performance, but it also contains new features and equipment that will potentially lead to new products and new methods for the conduct of office work. Success in this latter area will contribute to the success of the OCS program in meeting its goals.

4. Maximal Trial Size

It is a characteristic of communication innovations that the population who have access to the new tools must be as large as possible to realize the tools' potential utility. Research into the impact of office automation depends on the availability of this potential utility, as much as on a large population that provides good statistical reliability. The office population of the trial sites provides a reasonable compromise between costs and these research needs.

5. Prime Contractor

In order to realize effective establishment of the Field Trial, given a composite of existing and new equipment and applications it is essential that a prime contractor be selected for the overall supply of the Field Trial components. This prime contractor should be responsible for:

- o equipment
- o software
- o hardware and software development
- o system integration

6. Staged Introduction

In order to minimise disruption during the trial, the equipment must be introduced in a staged manner. Early problems can be resolved before their impact is detrimental to a large group of trial participants. Confidence in the use of Field Trial Services can be developed carefully and as the trial expands in size can contribute to the overall success of the trial.

These elements exhibit appropriate levels of concern and prudence in the introduction of new procedures into an office environment. It will also enable the experience to be meaningful to researchers into the human factors of office automation, as well as of benefit to Canadian industry.

The broad plan for the Field Trial is seen to be:

Phase II	Preparatory activities	6 months
	Operation, Stage I	6 months
	Operation, Stage II	6 months
	Operation, Stage III	12 months
Phase III	Evaluation	3 months

3.0 IMPLEMENTATION ISSUES

A number of issues have been raised in the course of the study that have not recieved full examination. They are issues that appropriately require examination and possible resolution in the subsequent stages of the Field Trial.

3.1 INTERFACES

Given that a principal feature proposed for the Field Trial is the electronic communication of documents replacing current paper flows, medium discontinuities will exist between the Field Trial and other areas of the Department. For the Field Trial to succeed the problems at these interfaces need to be minimized. Optical character readers and printers provide ready means of conversion from paper media to electronic forms and vice versa. These devices are proposed as part of the Field Trial configuration.

The challenge in the Field Trial will be operating these interfaces such that Field Trial participant will be able to operate electronically, without concern for the ultimate delivery medium, and for non-trial participants to be similarly unconcerned. If paper flows continue unabated to trial participants then they will be disinclined to fully adapt to the electronic process. Procedures need to be developed and established to properly ensure the smooth operation of the electronic/ paper interface.

Logically these interfaces exist throughout the Trial sites, whenever and wherever communication is required with sites in the Department outside the equipment bounds of the Trial. In order to minimize concerns for transmittal and receipt media, the conversion interfaces should be centralized. Textual material to non-Trial participants (or non-electronically accessible staff) would be automatically routed to one or more printers dedicated to exo-Trial textual communications. Similarly material directed to trial participants should be concentrated for input at OCR devices. The flow of paper to and from Trial

participants will not be eliminated, but potentially reduced. The placement of these printers and OCR devices and the procedures surrounding their use remain to be determined.

3.2 EVALUATION

The evaluation of the Field Trial will be based on evaluation criteria yet to be developed. These criteria will be developed during the remainder of Phase I, partly in consultation with DOC's behavioural research and evaluation personnel.

At this time some comments on the difficulty of evaluation are appropriate.

The challenge of evaluation is to identify beforehand what must be measured in order to judge subsequently that change has occurred. Changes either predictable or unpredictable. Without an adequate baseline of data it cannot be reliably identified. There are near, medium and long-term results of the Field Trial. Some of these will be binary with respect to the stated objectives: the Trial did or did not meet its objectives. Thus in the long-term, a Canadian product was or was not developed as a result of the trial; in the short-term, Canadian technology was or was not involved in the Trial and a vehicle for research was or was not realized.

The more difficult measurements involve attempts to evaluate the extent of changes within the Department which can be attributed to the trial. This is particularly true when evaluating performance changes. Performance raises complex issues such that no one statistic will reflect a complete evaluation of the trial. At this time the following measures are under consideration with, ultimate rationalization of Field Trial success to be a judgemental process taking all factors into account.

a) Operational Costs. Direct and indirect costs, both before, during and after the Trial will need to be determined.

b) Staffing Levels. Staff complements required to achieve known levels of work before and after the introduction of Office Automation technology will need to be assessed.

c) Effectiveness Measurements. Effectiveness relates performance to goal achievement. Measurement of the extent to which individuals, within the Trial, have been able to meet their goals may be needed. These measurements will be subjective and perhaps based heavily on personal value judgements of the work product by both staff and management.

Quantity of product is not an effectiveness measure. An increase in quantity or a decrease in turn-around are not necessarily measures of effectiveness. These, though, should be measured since they are elements in the determination of effectiveness.

The principal evaluation of effectiveness remains a judgemental one of success against prior established goals.

d) Performance Measurements. Many performance measurements can be proposed but care will be needed to ensure that their interpretation is goal oriented.

- o document turn-around time
- o rate of production of text
- o number of iterations to produce clean text
- o lost time due to telephone communication delays
- o lost time due to document distribution delays
- o meeting scheduling times
- o lost time due to unproductive meetings
- o lost time due to procedural misunderstandings

  etc.

Performance measurements to be meaningful must be related to effectiveness.

e) Job Related Measurements. Office Automation introduces change into established work procedures that can influence the attitudes of office workers towards their work. Measurement will be made before, during and after the Trial of levels of Job Satisfaction, through appropriate interview and/or questionnaire formats.

f) Quality Measurements. This factor is related to effectiveness. It may be desirable to determine separately to effectiveness whether the Field Trial changes the quality of work produced. How quality improves or declines as a result of the Trial, and how it should be measured are yet to be defined, and even whether it is appropriate to define it separately from effectiveness.

This measurement is likely to be subjective and judgemental. Quality is measured by how well deliverables satisfy and lead to subsequent progress or change. In the DOC Trial environment this may be new legislation or the development or cancellation of new programs. Measurement could include:

- level of requests for change
- press reaction, public response
- level of and change in interest expressed by superiors and others external to the department
- extent to which policy documents remain unchanged over time
- rate of staff promotion tied to use of technology
- staff turnover tied to use of technology.

3.3 HEALTH ISSUES

Serious concerns have been expressed publicly and by the potential Trial participants about health issues in relation to the continuous use of modern office equipment. While doubts exist about the legitimacy of these concerns, it is necessary to examine the impact of the Field Trial environment on the health of the participants.

The question of radiation from the VDTs to be used in the Field Trial will need to be examined. Concerns have centered on this question, but wider aspects of physical activity during use of VDTs need to be explored. Posture at a terminal can for example be good or bad. Fatigue can be caused through continous working in a sitting position. Eye strain can occur with poor contrast in working materials and sharp contrast between different parts of working materials.

Several of these issues are addressed in terms of the physical and ergonomic specifications that the equipment is to meet. Complementary steps need to be taken in terms of recommendations, for changes in work habits. One suggestion that has been made, for example, is that VDT operators required to use them throughout the day, do not do so for longer than 2 hours without a break from work, to physically change position totally and relax away from the terminal.

An appropriate field of research is to document and analyse medical case histories during the course of the Field Trial. Observations of changes in work habits that may develop is also appropriate.

Observations of changes in work habits that may develop is also appropriate.

3.4 BENEFITS

Potential benefits have been addressed in the Task III report. Further work is necessary to properly identify these and has been included in the plan for Phase II of the Field Trial, as part of the evaluation process.

3.5 SIGNIFICATION

Electronic signification has been proposed as a feature of the Field Trial, essentially an analogue of the current Departmental practice of initialling documents to indicate acceptance. The information in a set of initials indicates, with security, that specific individuals have examined and OK'd a document.

At issue is the extent to which this process can reliably be implemented in an electronic system. Its reliability depends on the security with which the signification act can be captured and maintained in software. This remains to be determined in the implementation process. It may be sufficient to be assured of the origin of documents received electronically without additional evidence of signification. Security procedures will exist to provide this assurance. Further procedures may be unnecessary.

4.0 SCHEDULE

This section provides the implementation plan. It is based on the assumption that our recommendations for the Field Trial system are accepted. The broad plan for the Field Trial is seen to be:

Phase II	Preparatory activities	Oct'82 - Mar'83
	Installation, Stage I	Apr'83
	Operation, Stage I	May - Sept'83
	Installation, Stage II	Sept'83
	Operation, Stage II	Oct - Mar'84
	Installation, Stage III	Mar'84
	Operation, Stage III	Apr'84 - Mar'85
Phase III	Evaluation	Apr - June'85

4.1 STAGING

It is proposed to introduce equipment and services in three stages. The reasons for doing so have been presented in Chapter 2. The allocation of equipment within the stages is indicated in Appendix 4A. The rationale for this allocation is presented here.

In summary, the proposed equipment allocation by site, by stage is as shown in Table 1 below.

Stage I provides a reasonable penetration of Field Trial equipment within Site 1. The complement of equipment here enables communications amongst the staff in Site 1 to be handled electronically for messaging purposes. It provides consistency of approach in an initial Trial population.

Stage II adds equipment to Site 2. The two sites of the Field Trial become integrated together for message and document communications purposes. Functional capability is enhanced for document processing. It

TABLE 1: EQUIPMENT ALLOCATION BY SITE AND STAGE

STAGE	I	II		III	
		ADDITIONAL	TOTAL	ADDITIONAL	TOTAL
SITE I					
o MINO (HQ and H of C)	5		5		5
o DMO	9		9		9
o ADMS, DGPA and Planning	7		7	7	14
o ADMAC Correspondence Unit	(2)	2	2 (2)		2(2)
SITE II (SADM)					
o Branch Mgrs (DGs)		7	7		7
o DGBP Directors		4	4		4
o Officers and Staff		9	9		9
ASSOCIATED SITES					
o Project Team	2	-2	0		0
o Word Processing					
o Access to Information	(1)	(2)	(3)		(3)
o Translation Unit					
WORK STATION TOTALS	23 (3)	20 (2)	43 (5)	7	50 (5)

N.B. Figures in brackets indicate Non-OCS funded stations

is proposed that Stage II also sees the introduction of voice messaging capabilities throughout both sites.

Stage III completes the installation of Field Trial equipment, completing the complement of equipment within Site 1. Final service enhancements are provided.

It is proposed, moreover, that the principal extension to the Field Trial occur with Stage II. Stage I provides a small population with the introduction of the Field Trial. The reliability and useability of the services are established, before extending the Field Trial to the greater number of participants in Stage II. Stage II involves the integration of the Field Trial with other associated sites (e.g. word processing, access to information, and the Translation Unit), and the provision of off-net computer services access.

4.2 PHASE II ACTIVITIES

Phase II of the Field Trial, principally the operational period of the field trial, involves a number of preparatory and on-going activities. Not necessarily in their order of occurrence, the preparatory activities include:

- o system tendering
- o contractor selection
- o final user selection and training
- o completion of baseline data collection
- o software and hardware development
- o implementaion planning
- o installation planning
- o supplier liaison

- o preparation of user documentation
- o development of evaluation criteria

The on-going activities will include:

- o user assistance
- o activity measurement and monitoring
- o human factors analysis
- o vendor-user dialogue
- o evaluation

Preparatory and on-going activities are likely to overlap, consequent upon a phased introduction of both hardware and software.

Preparatory Activities

On acceptance of the plan, one of the first activities is preparation and issue of a tender (or tenders) for selection of the prime contractor. It may be desirable to issue this as a "request for proposal" to enable selection of the best mix of equipment and software to meet the overall requirements.

User selection (acceptance of volunteers) is a further early activity. The configurations outlined in this report identify broad sets of users. Within the sites it is necessary to identify the specific staff who will be assigned to workstations. A training plan will need to be established.

It is necessary to collect further baseline data describing the current office situation for evaluation purposes. These data will relate to job activities and behavioural factors, and have been identified as a responsibility of the OCS program.

As part of the Field Trial system, it is likely that new hardware and software will need to be developed. This may be accommodated within principal equipment contracts, but it is likely that further development contracts will be necessary. Detailed specifications will need to be prepared prior to letting these contracts.

The detailed installation plan needs to be developed. This will specify the schedule for equipment installation, and services introduction. It will include a system acceptance plan. It will include consideration of the detailed work activities to be undertaken by other subcontractors and agencies such as accommodation, GTA and DPW.

Throughout the pre-installation period, and to a lesser extent after installation, it will be necessary to provide liaison with equipment suppliers. They will need to be aware of the overall installation plan as it develops and to be kept up to date on modifications to services or definitions.

The training of Field Trial participants will occur late in the preparatory stage and continue through the early stages of the Field Trial itself. The details of the training requirements will become clearer as the planning and development work proceeds. It is essential, however, that user documentation be prepared before training begins, and that as part of the implementation plan, a plan for the preparation of the user documentation be established.

Finally, as a pre-Field Trial activity, the evaluation plan needs to be established. The objectives of the evaluation need to be prepared, based on other contract work of the OCS program. The objectives in turn should lead to the preparation of the evaluation plan which should identify the data needed for evaluation purposes and the processes whereby that data will be accumulated.

On-going Activities

Once the trial is operational, there will be a continuing need for assistance to users. Training and documentation should minimize the number of problems that are experienced, but typically a period of some three months is required to become fully familiar with new systems. Where use of the new system is intermittent this period may be longer.

A key goal of the trial is to determine what changes occurred and to evaluate the benefit of these changes. Baseline data collected beforehand, and post-trial data collected afterwards provide the basis for evaluation. Information also needs to be collected during the trial on activity and perceptions. Some of this data can be collected automatically while other data needs to be collected directly from Field Trial participants. This data collection should be consistent with the overall evaluation plan for the trial.

It is likely that despite best efforts and interests in the design and planning of the trial, problems of various kinds will occur. Specific responsibility for managing these situations, both technical and behavioural, needs to be assigned.

Phase II Conduct

It is our recommendation that a prime contractor be selected for the management and conduct of the activities outlined above. It is appropriate that DOC staff be involved in many of the activities outlined above. Since there is a wider objective within the OCS program to promote the introduction of office automation technology across the Federal Government, it is more appropriate that the experience be vested in groups able to most easily and effectively spread the experience.

It is our further recommendation that the contractor selected for Phase II not be the contractor selected for Phase III, the evaluation. This would represent an undersirable conflict of interest.

4.3 PHASE II SCHEDULE

Based on the previous set of activities a schedule was prepared and presented to the ISSC on September 27th '82 for the conduct of the Field Trial. This schedule assumed it would be possible to commence Field Trial operations in April '83. Events since then indicate that this start date for operational Field Trial activities, is unrealistic.

The schedule presented here in Table 2 presents a July '83 start date and documents in detail the milestones for the preparatory activities and in summary the operational period of the Trial.

TABLE 2: FIELD TRIAL SCHEDULE

MILESTONES

PREPARATORY ACTIVITIES

OCTOBER 31 '82	FIELD TRIAL PLAN TABLED
NOVEMBER 30 '82	SMC COMMITTMENT TO PROCEED
DECEMBER 31 '82	MINISTERIAL APPROVAL TO PROCEED
DECEMBER-JANUARY '83	INFORMATION SESSIONS
JANUARY-FEBRUARY '83	COMPLETION OF BASELINE DATA
JANUARY 1 '83	ISSUE PRIME CONTRACTOR RFP
NOVEMBER-JANUARY '83	DEVELOPMENT SPECIFICATION
FEBRUARY 15 '83	TENDERS CLOSE
FEBRUARY 28 '83	CONTRACTOR SELECTION
MAY '83	TRAINING MANUALS
JUNE-JULY '83	USER TRAINING
JUNE '83	INSTALLATION AND ACCEPTANCE STAGE I

OPERATIONAL START DATES

JULY 1 '83	FIELD TRAIL OPERATIONAL STAGE I
JANUARY 1 '84	STAGE II OPERATIONAL
JULY 1 '84	STAGE III OPERATIONAL
MARCH '85	END OF OPERATIONAL FIELD TRIAL

5.0 COSTS

Costs are considered for two separable items:

- Equipment procurement costs
- Manpower resources for the activities associated with Trial establishment and conduct. These are broken down into internal DOC PYs and likely contract resources.

It is understood that there is an overall budgetary ceiling for expenditures on the Field Trial of $600K. $80K of this is already spent or committed, leaving a budget of $520K for equipment and services procurement.

The figures presented below are within this ceiling over the anticipated life of the Trial. The current estimates of total costs are:

Equipment procurement at cost	$ 427,000
Software development	45,000
Contract resources for Trial Implementation	142,000
	$ 614,000

It is estimated that expenditures over the current and next two fiscal years will be as follows:

Current FY 82-83	Spent and commited	$ 77,700
	To be contracted	54,000
FY 83-84		227,700
FY 84-85		232,100
Total		$ 591,500

The following sections provide a breakdown of these cost estimates and indicate the spread of expenditures through the next few fiscal years based on the plan established for the Field Trial.

An examination of the spread of expenditures over the currently planned life of the trial indicates that expenditures are well within this ceiling.

5.1 EQUIPMENT PROCUREMENT COSTS

A detailed presentation of the equipment configuration is shown in Appendix I. This is not presented as a final statement of the configuration - it has not been considered by the user working groups - but is presented to enable consideration of the likely detailed configuration and as a means of developing more detailed cost estimates. Formal solicitation of price quotes from likely suppliers is required before final cost estimates can be determined.

Based on this configuration, the following cost estimates have been developed. The components identified in Table 3 provide an elaboration of the components identified in section 5. These are described in Appendix I. The cost estimates are based on the discussions we have held with equipment suppliers, and reflect reasonable estimates of end-user prices for the components identified.

Basic software costs are considered to be included in these estimates. Additional allowance needs to be made for funding new software development by hardware suppliers. These are shown in Table 4.

Note that the software costs presume availability of detailed functional specifications and the existence of the appropriate operating system environment in which the new products are to operate.

5.2 PERSONNEL COSTS

Table 5 indicate the resource allocation to the activities of the Trial, spread over the fiscal years of the Trial, 82/3, 83/4, 84/5.

The totals indicate that DOC should provide 4.15 PY over the life of the Trial, while an additional 2.15 PY should be contracted. At average contracted rate of $300 per day, these are estimated to cost $142,000. The table indicates the spread of these resources over the life of the Trial.

TABLE 3: HARDWARE COST ESTIMATES

Item #	Component	#Off	Unit Cost	Extended Cost
1	Office Terminal	29	$ 2,000	$ 58,000
2	Dual Work Station	22	6,000	132,000
3	Small Cluster Controller	2	10,000	20,000
4	Site Cluster Controller	4	20,000	80,000
5	Draft Printers	20	1,000	20,000
6	Quality Printer	9	4,000	36,000
7	High-Speed Printer	2	8,000	16,000
8	Optical Character Reader	2	20,000	40,000
9	Voice Storage Facilities	50	500	25,000
	Hardware Costs			$427,000

TABLE 4: SOFTWARE COST ESTIMATES

Item #	Software Product	Estimated Development Cost
12	Electronic Communications	$ 20,000
13	Document Control Facility	15,000
14	Telephone Assistance	10,000
	Software Development Cost Estimate	45,000
	Total Procurement Cost	$472,000

TABLE 5: RESOURCE ESTIMATES

Activities	Skill	DOC/ Contract	Person-Months FY82-3 (5mths)	FY83-4	FY84-5
Preparatory					
(Realise Ministerial Approval)					
o Prep. of Tender Documentation (Price & Availability)	P.Team	DOC	2		
o Prime Contractor Selection≠	P.Team	DOC	1		
o Information Seminars (UWGs)		DOC	1	1	
o Evaluation Criteria*≠Ø	Snr.Cons.	Con.& OCS Team			
o Evaluation Plan (UWGs)Ø					
o Completion of Baseline DataØ	Jnr.Snr.Cons.	Con.			
o Installation Plan≠	DGPA	DOC	2		
o Implementation Plan (UWGs)≠	P.Team	DOC	1		
	Jnr.,Snr,Cons.	Supplier			
o Contractor Liaison	P.Team	DOC	1	2	2
o User Documentation	Jnr.Cons.	Con.	3	3	
o User Training (UWGs)		DOC	1	2	
o Procedure Development (UWGs)	Jnr.,Snr.Cons.	Con.	2	2	
o Detailed System Specs (UWGs)≠	Jnr.,Snr.Cons.	Con.	2	4	
		DOC	4	3	
o Software Development (In-house)	Jnr.Prog.	DOC		6	4
		Con.	4	6	
o Installation/Implementation	P.Team	DOC	1	2	1
On-going					
o User Assistance		DOC		2	2
o Activity Meas. & MonitoringØ		Con.			
o Human Factors MeasurementØ		Con.			
o Vendor-User Dialogue (UWG)	Users	DOC		2	2
o EvaluationØ		Con.			
o Coordination≠	P.Team	DOC		2	2
Totals (Person-Months)			25	37	13
Totals (PYs)			2.1	3.1	1.1
Totals DOC (PY)			1.2	1.85	1.1
Contract (PY)			0.9	1.25	

* Dependent on other OCS Program funded deliverables.
≠ Involvement of Project Steering Committee.
Ø Funded as Separate Evaluation Project(s).

5.3 FISCAL YEAR SPREAD

Table 6 below shows the cost estimates broken down by fiscal year. The calculation of equipment costs is based amortizing the costs over a two-year period. Personnel costs are computed as described above.

TABLE 6: FIELD TRIAL EXPENDITURES BY FISCAL YEAR

	FY82-3	FY83-4	FY84-5	FY85-6	FY86-7
EQUIPMENT COSTS					
Stage I		70,500	94,000	23,500	
Stage II		27,375	109,500	82,125	
Stage III			7,500	10,000	2,500
EQUIPMENT TOTALS		97,875	211,000	115,625	2,500
Finance Charges @ 10%		9,787	21,100	11,562	250
SOFTWARE DEVELOPMENT		45,000			
Personnel (Contract)	54,000	75,000			
TOTALS	54,000	227,662	232,100 *	127,187	2,750
CUMULATIVE	54,000	281,662	513,762	640,949	643,699

* N.B. This figure indicates Field Trial within overall budgetary ceiling over the period of the Trial.

f) Noise Level H

It is desireable that the equipment noise levels (including associated printers) not exceed 55-65 dB(A).

g) Heat generation H

Individual workstations (excluding printers) should not generate more than 400W.

h) External Communications M

Communications to sites outside the Field Trial is required using standard communications facilities. These will include dedicated and switched access using asynchronous communications protocols at speeds between 300 baud and 2400 baud. Public packet network access using X.25 is desirable but not essential.

3.5 SYSTEM MANAGEMENT CHARACTERISTICS

a) Reliability

The overall Field Trial system must show high reliability and availability. It is required to operate in an operational environment in which loss of service can be critical. The following guidelines are expected to be met, to be considered exclusive of any scheduled preventative maintenance. They are based on expected performance characteristics and indicate the need for office automation equipment to be highly reliable and serviceable.

Individual Terminal

- 24 hour availability, 5 days/week
- MTBF* in excess of one year, MTTR* less than 1 hour

Group Cluster Controller

- 24 hour availability, 5 days/week
- MTBF in excess of six months, MTTR less than 1 hour

Individual Workstation

- 24 hour availability, 7 days/week
- MTBF in excess of six months, MTTR less than 1 hour

---

* MTBF: Mean Time Between Failures
MTTR: Mean Time to Repair

Cluster Controller

- 18 hour/day availability, 7 days/week
- MTBF in excess of three months, MTTR less than 2 hours

Communications Facilities

- 24 hour/day availability, 7 days/week
- MTBF in excess of 5 years, MTTR less than 2 hours

The mean time to repair guidelines apply equally at all times throughout the week.

In the event that a cluster controller shall be out of service, it must be possible to continue operation of the system with marginal degradation of functionality and performance. Hard disk duplication and/or backups are necessary.

b) User Accreditation

Because of security aspects of the Department's work it is essential that all access to Field Trial facilities be under the control of the system. Access for any and all terminals is subject to authorization procedures. Centralized control and authorization of users is required. Initial password allocation shall be subject to clerical control: users should be able to change passwords dynamically.

c) Activity Logging

A system feature should allow the accumulation of statistics on systems usage. Information should be collected automatically on:

- number of user sessions and duration
- volume of work handled electronically
- usage of system features and functions
- level of ineffective system usage e.g., miss-quoted command names or parameters

d) Operational Considerations

It is recognized that in a system as complex as that proposed for the

Field Trial there will be system operator functions. These need to be minimized, with as much of the operation of the "system" as possible being handled automatically or through normal user operations. Specific operator functions are anticipated for:

- cluster printer control
- optical character reader control
- setting of system date and time
- back-up operations
- handling of automatically generated reports

e) Security

The Department of Communications handles information that is confidential and secret to both government and commercial interests. While a trial situation is recognized as experimental, its success will lie in part in being able to handle confidential and secret information. Controls and facilities will be required that minimize the risk of compromising this information. If the risks to confidentiality are considered too high, the Trial itself may be of less benefit because of split paper and electronic work loads.

4.0 PRODUCT POTENTIAL

A principal goal of the OCS program is the fostering of Canadian Office Automation products. In that there are innovative features of the trial configuration proposed for DOC, there is inherent product potential. This chapter comments briefly on that potential.

In that the text and data equipment proposed for the trial is essentially standard, off-the-shelf equipment, there is little potential for new hardware products. It may be that the best solution is nevertheless a new manufacturer or an old supplier with a new product. Manufacturers have expressed interest in using the DOC field trial as a trial situation for their own to-be-announced products. The project lead times are, however, too short for totally new Office Automation hardware products.

In software terms, however, significant scope exists for new and/or radically enhanced products, incorporating major new features. The specifications for electronic signification, integrated document control and automatic translation represent features not currently incorporated in any OA product. The overall specification for the user interface with its requirements for integration, simplicity and utility, represents radically improved product specifications over existing products.

Voice messaging offers further product potential, in this case principally of hardware. Voice messaging or asynchronous telephony, has been proposed for some time as a valuable adjunct to use of the telephone. A significant level of frustration exists in the use of the basic communications device.

Several different approaches have been taken to voice messaging. None have been highly successful in offices for reasons of poor utility. Special systems have been built for voice messaging, and PBX enhancements have been offered. The integration of text and voice has been proposed

as a means of simplifying message handling.

The product potential visualized here, however, is based on the common voice answering machine. It involves enhancement through integration with a touch-tone telephone set, with a principal characteristic in an office environment of receptionist or secretarial control. The aim of the product is to enhance the utility of the telephone, at marginal cost, to reduce frustrations in its use, and to increase communications effectiveness. Voice will continue to be the most common form of office communication. Text messaging is a poor interim substitute for voice messaging. The product could in time be associated automatically with every telephone, a total Canadian market of $2 billion.

SECTION 6. IMPLEMENTATION PLAN

SECTION 6

IMPLEMENTATION PLAN

SECTION 6

IMPLEMENTATION PLAN

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DOC
OFFICE AUTOMATION FIELD TRIAL

PRESENTATION
TO

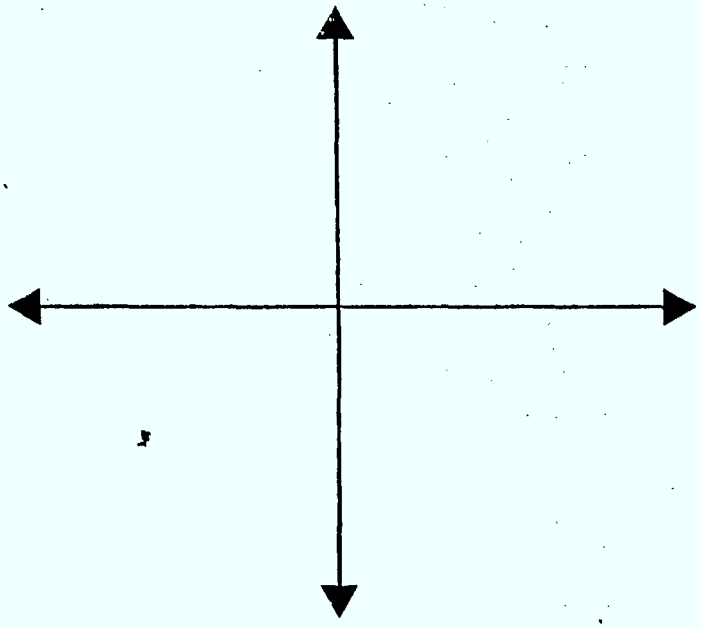
INFORMATION SYSTEMS STEERING COMMITTEE

JUNE 22ND 1982

HICKLING-PARTNERS INC. (HPI)

YOUR

APPROVAL



- VERTICAL AND HORIZONTAL INVOLVEMENT
- INFORMATION MANAGEMENT AND COMMUNICATION
- THE SENIOR MANAGEMENT TEAM PLUS POLICY SECTOR

PRESENTATION AGENDA

1. INTRODUCTION

2. PROJECT STATUS

3. FIELD TRIAL OBJECTIVES

4. SITE SELECTION CRITERIA

5. SITES

6. TECHNOLOGY AND APPLICATIONS

7. RECOMMENDATIONS

PROJECT STATUS

- COMMENCED MAY 13TH
- TASK I INTERVIEW SCHEDULE COMPLETED
- TASK II DATA COLLECTION TOOLS IN PREPARATION
- DECISION NEEDED BASED ON TASK I TO DIRECT SCOPE OF TASK II

TASK I INTERVIEWS

- ALL ADMS
- 2 EXECUTIVE ASSISTANTS
- SEVERAL DGS AND DIRECTORS
- 22 PEOPLE INTERVIEWED IN TOTAL

DOC TEST PILOT PROJECT OBJECTIVES RANKED DURING SENIOR MANAGEMENT INTERVIEWS

PRIORITY	OBJECTIVE
1	INCREASE DOC OPERATIONAL PRODUCTIVITY
2	STUDY HUMAN FACTORS
3	EVALUATE PRODUCTIVITY POTENTIAL
4	DEPARTMENTAL IMAGE AND EXPERIENCE
5	DEVELOP A CANADIAN PRODUCT

SITE SELECTION CRITERIA

8. USER IDENTIFIED NEED

7. HUMAN FACTOR CLIMATE

6. USER AVAILABILITY

5. EASE OF IMPLEMENTATION

4. USE OF TECHNOLOGY

3. CONTROL GROUP

2. BOUNDED

1. INNOVATIVE

SITE OPTIONS*

1. SENIOR MANAGEMENT TEAM

2. TORONTO REGIONAL "DISTRIBUTED" OFFICE

3. POLICY (HQ)

4. ARTS AND CULTURE (HQ)

5. SPACE (HQ-SHIRLEY'S BAY)

6. RESEARCH (HQ-SHIRLEY'S BAY)

---

* UN-ORDERED LIST

APPLICATIONS

"INFORMATION MANAGEMENT AND COMMUNICATIONS"

DOCUMENT MANAGEMENT

- DOSSIER AND CORRESPONDENCE CONTROL
- ELECTRONIC AUTHORIZATION

ELECTRONIC COMMUNICATIONS

- ELECTRONIC MAIL
- ELECTRONIC MESSAGING
- VOICE MAIL
- TELECONFERENCING

TEXT PROCESSING

PERSONAL MANAGEMENT AIDS

- TICKLER
- CALENDAR/AGENDA
- DECISION SUPPORT TOOLS
  (calculator, graphics, modeling)

INFORMATION ACCESS

- PUBLIC
- CORPORATE

TECHNOLOGY

- TELIDON
- iNET
- PORTABLE WORKSTATIONS
- ELECTRONIC AUTHORIZATION
- VOICE MESSAGING
- ERGONOMIC WORKSTATIONS

RANKING OF SITES

- SENIOR MANAGEMENT TEAM

1. POLICY SECTOR

2. SPACE SECTOR

3. RESEARCH SECTOR

4. ARTS AND CULTURE

5. TORONTO REGIONAL OFFICE

OVER-RIDING CONSIDERATIONS

- VISIBILITY
- CANADIAN PRODUCT POTENTIAL
- INNOVATION
- RESEARCH POTENTIAL

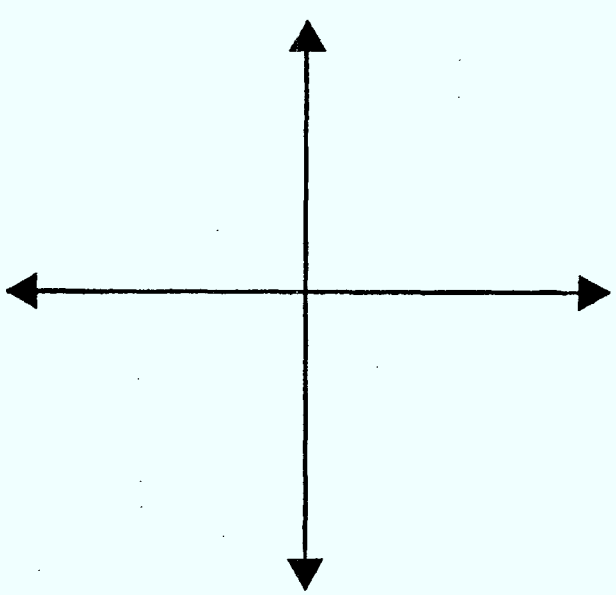
CONCERNS

- COSTS
- SECURITY CONSIDERATIONS
- DEVELOPMENT LEAD TIMES
- ACCEPTABILITY
  - o USER
  - o MANAGEMENT
  - o UNIONS

WE RECOMMEND:

- SENIOR MANAGEMENT TEAM PLUS POLICY SECTOR

1. PROMOTES DOC MANAGEMENT EFFECTIVENESS
2. CLASSIC KNOWLEDGE WORKER ENVIRONMENT
3. FACILITATES RESEARCH INTO HUMAN FACTORS AND PRODUCTIVITY MEASUREMENT ISSUES
4. FULL VERTICAL COMMUNICATION STRONGLY LINKED TO MANAGEMENT TEAM
5. VISIBILITY AND EXPOSURE
6. POTENTIAL FOR INNOVATIVE CANADIAN TECHNOLOGY
7. MANAGEABLE



APPENDIX 1.B: JULY 28TH PRESENTATION

DOC
OFFICE AUTOMATION FIELD TRIAL
UPDATE

ISSC

JULY 28TH, 1982

HICKLING-PARTNERS INC. (HPI)

- PRELIMINARY DESIGN
- PRODUCTIVITY IMPACT
- EVALUATION MEASUREMENTS

PRELIMINARY DESIGN

- SENIOR MANAGEMENT TEAM

  MINO, DMO, ADMS & PEERS

  INCLUDES ADMAC'S CORRESPONDENCE UNIT

  MAY INCLUDE SOME ADMR & ADMSP STAFF

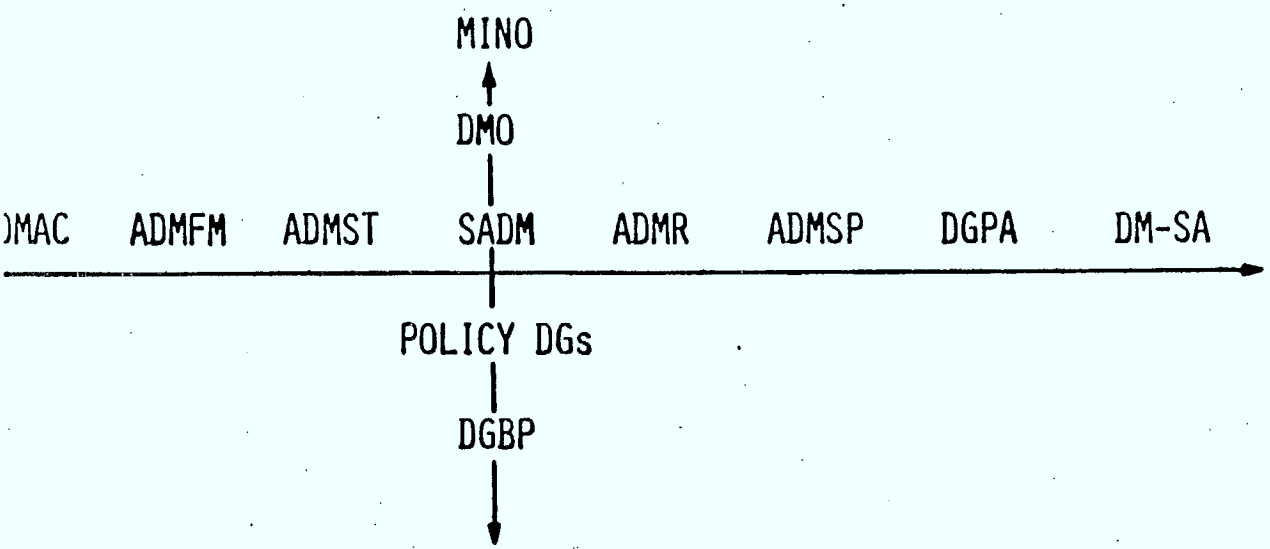
- POLICY SECTOR, SADM

  BROADCAST & SOCIAL POLICY BRANCH

  NATIONAL TELECOMMUNICATIONS BRANCH

PRELIMINARY DESIGN

2. STRUCTURE



	STAFF
MINO	19
DMO	17
)MAC, ADMFM, ADMST, SADM, ADMR, ADMSP, DGPA, DM-SA	33
POLICY DGs	39
DGBP	(±35)
	108

- VERTICAL & HORIZONTAL COMMUNICATIONS
- DOCUMENT CONTROL PROCESSING
  - DOSSIERS
  - CORRESPONDENCE
- ESTIMATED NUMBER OF WORK STATIONS 30 - 50
- INTEGRATION WITH OTHER DOC SYSTEMS

PRODUCTIVITY IMPACT

- ELECTRONIC DOCUMENT COMMUNICATION
  - FASTER DISTRIBUTION
  - BETTER TURNAROUND
  - IMMEDIATE MODIFICATION
  - RAPID RECALL
  - LOCAL AND REMOTE ACCESS
  - PAPER AS NEEDED

- ELECTRONIC MESSAGING (VOICE AND TEXT)
  - COMPLEMENT TO TELEPHONE
  - REDUCE TELEPHONE TAG
  - AVOIDS TIME CONSTRAINTS
  - FASTER NOTIFICATION
  - BETTER CONTROL

EVALUATION MEASUREMENTS

- PRODUCTIVITY/EFFECTIVENESS
- JOB SATISFACTION
- COST/BENEFIT
- ORGANIZATIONAL IMPACT

PRODUCTIVITY MEASUREMENTS (PRELIMINARY)

SUBJECTIVE	OBJECTIVE
• PRODUCT QUALITY	• TEXT PROCESSING ITERATIONS
• GOAL REALIZATION	• DOCUMENT TURNAROUND
• COMPREHENSION LEVELS	• DISTRIBUTION TIME
• LEVEL OF CONTROL	• LEAD TIMES
• STAFF MORALE	• STAFF CHANGES
• LEVEL OF SYSTEM ACCEPTANCE	• COSTS • WORKLOAD LEVELS • PATTERNS OF SYSTEM USAGE
• LEVEL OF "NOISE"	• DOCUMENT ITERATIONS

APPENDIX 1.C: SEPTEMBER 27TH PRESENTATION

DOC

OFFICE AUTOMATION
FIELD TRIAL PLAN

PRESENTATION
TO
ISSC

SEPTEMBER 27TH

BY HICKLING-PARTNERS INC.

HICKLING-PARTNERS INC.

FUNCTIONS

- DOCUMENT HANDLING
- AUDIO MESSAGING
- GENERAL TOOLS

IMPLEMENTATION PLAN

- SYSTEM CHARACTERISTICS
- PHASED INTRODUCTION
- STAFF INVOLVEMENT
- MILESTONES

COSTS

- EQUIPMENT
- DEVELOPMENT
- MANAGEMENT

1. DOC OPERATIONAL PRODUCTIVITY
2. STUDY HUMAN FACTORS
3. EVALUATE PRODUCTIVITY POTENTIAL
4. DEPARTMENTAL IMAGE
5. CANADIAN PRODUCT

DOCUMENT HANDLING

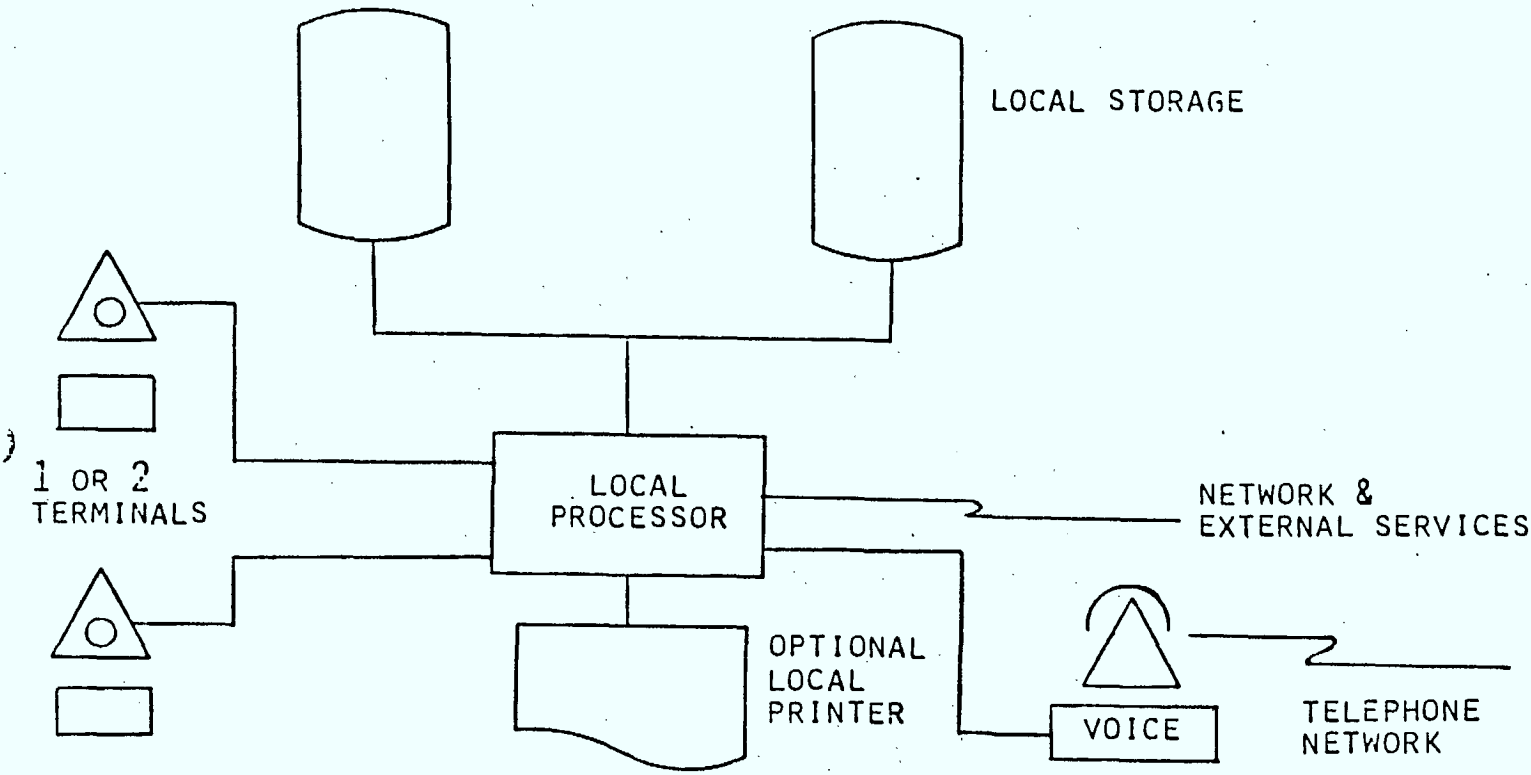
- DOCUMENT CONTROL
* - TEXT COMMUNICATIONS
    - TEXT MESSAGING
    - DOCUMENTS
- DOCUMENT PROCESSING
*   - ELECTRONIC SIGNIFICATION

* AUDIO MESSAGING

GENERAL TOOLS

- ACCESS TO FIELD TRIAL INFORMATION
- PERSONAL MANAGEMENT AIDS
    - SPREAD SHEETS
    - TICKLERS
    - CALENDAR
- TELIDON COMPATIBILITY
- AGENDAS
- ACCESS TO EXTERNAL INFORMATION
    - FINANCIAL SYSTEM
- AUTOMATED TRANSLATION AIDS
- ARCHIVAL DATA BASE SERVICES

* POTENTIAL INNOVATIVE PRODUCT AREAS



- FLEXIBLE
- FULL FUNCTIONALITY
- ERGONOMICAL
- SELF-TEACHING
- SECURE

3 STAGES OF INTRODUCTION

I.	*DOCUMENT CONTROL	SITE 1
	TEXT MESSAGING	
	MINISTERIAL AGENDAS	
	DOCUMENT PROCESSING	
	SOME PERSONAL MANAGEMENT AIDS	
	EXTERNAL ACCESS (TELIDON DATABASES ETC.)	24 STATIONS
II.	WIDER SUPPORT OF I	SITE 2
	*DOCUMENT COMMUNICATION	
	*FULL DOCUMENT PROCESSING	
	VOICE MESSAGING	
	PERSONAL MANAGEMENT AIDS	52 STATIONS
III.	*FULL COMPLEMENT	
	ELECTRONIC AIDED TRANSLATION	
	ARCHIVAL DATA BASE SERVICES	62 STATIONS

STAGE	I	II		III	
		Add'l	Total	Add'l	Total
SITE I					
• MINO (HQ and H of C)	6		6	2	8
• DMO	9		9	1	10
• ADMS, DGPA & PLANNING	7		7	7	14
• ADMAC CORRESPONDENCE UNIT	(2)	2	2 (2)		2 (2)
SITE II (SADM)					
• BRANCH MGRS (DGS)		7	7		7
• DGBP DIRECTORS		4	4		4
• OFFICERS and STAFF		13	13		13
ASSOCIATED SITES					
• PROJECT TEAM	2		2		2
• WORD PROCESSING		1	1		1
• ACCESS TO INFORMATION	(1)	(2)	(3)		(3)
• TRANSLATION UNIT		1	1		1
WORK STATION TOTALS	24(3)	28(2)	52(5)	10	62(5)

FIGURES IN BRACKETS INDICATE NON-OCS FUNDED STATIONS

PREPARATORY ACTIVITIES

- PREPARATION OF TENDER DOCUMENTATION
- PRIME CONTRACTOR SELECTION
- INFORMATION SESSIONS
- USER TRAINING
- EVALUATION CRITERIA
- COMPLETION OF BASELINE DATA COLLECTION
- SOFTWARE DEVELOPMENT
- INSTALLATION PLANNING
- CONTRACTOR LIAISON
- USER DOCUMENTATION
- INSTALLATION AND IMPLEMENTATION

ON-GOING ACTIVITIES

- USER ASSISTANCE
- ACTIVITY MEASUREMENT AND MONITORING
- HUMAN FACTORS MEASUREMENT
- VENDOR-USER DIALOGUE
- EVALUATION

MILESTONES

ASSUMPTION: FIELD TRIAL OPERATIONAL APRIL '83

SEPTEMBER 27 '82	ISSC COMMITTMENT TO PROCEED
OCTOBER 15 '82	FIELD TRIAL PLAN TABLED
OCTOBER 30 '82	MINISTERIAL APPROVAL TO PROCEED
NOVEMBER-DECEMBER '82	INFORMATION SESSIONS
NOVEMBER-JANUARY '83	COMPLETION OF BASELINE DATA
NOVEMBER 15 '82	ISSUE PRIME CONTRACTOR RFP
NOVEMBER-DECEMBER '82	DEVELOPMENT SPECIFICATION
DECEMBER 20 '82	TENDERS CLOSE
JANUARY 15 '82	CONTRACTOR SELECTION
FEBRUARY '83	TRAINING MANUALS
MARCH-APRIL '83	USER TRAINING
MARCH '83	INSTALLATION AND ACCEPTANCE STAGE I
APRIL 1 '83	FIELD TRAIL OPERATIONAL STAGE I
OCTOBER '83	STAGE II OPERATIONAL
APRIL '84	STAGE III OPERATIONAL
MARCH '85	END OF OPERATIONAL FIELD TRIAL

STAGE	I	II	III
1. DOC OPERATIONAL PRODUCTIVITY	5	8	10
2. STUDY HUMAN FACTORS	2	7	10
3. EVALUATE PRODUCTIVITY POTENTIAL	4	9	10
4. DEPARTMENTAL IMAGE	7	9	10
5. NEW CANADIAN PRODUCT	7	9	10

- BASIS THAT FULL COMPLEMENT HARDWARE AND SOFTWARE OF STAGE III FULLY MEETS STATED OBJECTIVES, AND THAT CURRENT SITUATION DOES NOT AT ALL

GIVEN:

- EXPERIMENTAL NATURE
- NEW PRODUCT DEVELOPMENT
- HUMAN FACTOR EVALUATION

THEN BENEFITS:

- OPERATIONAL PRODUCTIVITY
- USER BENEFITS
- CANADIAN PRODUCT
- EXTENSION TO ALL DOC
- DUPLICATION INTO FEDERAL GOVERNMENT

- EQUIPMENT COSTS
- DEVELOPMENT COSTS
- MANAGEMENT COSTS

EQUIPMENT

EACH WORK STATION		$ 10K
MARK-UP FOR SUPPORT EQUIPMENT:	20%	$ 2K
		$ 12K

LEASED OVER 24 MONTHS $ 7K/YR.
(BASED ON CURRENT PRIME OF 15%)

		FY 82-83 (5 MONTHS)	FY 83-84	FY 84-85	TOTAL
EQUIPMENT					
STAGE I	24		$168K	$168K	$336K
STAGE II	28		$ 98K	$196K	$294K
STAGES I + II				$364K	$630K
STAGE III	10			$ 70K	$ 70K
TOTAL ALL STAGES			$266K	$434K	$700K

CONCERN: IDENTIFICATION OF BUDGETARY RESOURCES

COST SCHEDULE 2

	FY 82-83 (5 MONTHS)	FY 83-84	FY 84-85	TOTAL
PERSONNEL				
STAGE 1				
DEVELOPMENT	.75	.25		1.0
MANAGEMENT	1.5	1.0	1.0	3.5
TRAINING/SUPPORT	.5	.5		1.0
TOTAL	2.75	1.75	1.0	5.5
STAGE II				
DEVELOPMENT		1.25		1.25
MANAGEMENT		.3	.3	.6
TRAINING/SUPPORT		1.5	.5	2.0
TOTAL		3.05	.8	3.85
TOTAL I + II	2.75	4.8	1.8	9.35
STAGE III				
DEVELOPMENT		1.25		1.25
MANAGEMENT		.3		.3
TRAINING/SUPPORT		.5	1.5	2.0
TOTAL		2.05	1.5	3.55
TOTAL ALL STAGES	2.75	6.85	3.3	12.90

CONCERN: IDENTIFICATION OF PY/CONTRACT RESOURCES PARTICULARLY IN FY 82-83

FINAL COPIES OF

- FUNCTIONAL SPECIFICATIONS
- SYSTEM DESCRIPTION

DOCUMENTATION OF FIELD TRIAL PLAN

FIELD TRIAL PLAN

- SYSTEM DESCRIPTION
- INTERFACES
- DEVELOPMENT STRATEGY
- IMPLEMENTATION STRATEGY
- MILESTONES
- COSTS
- BENEFITS
- MANAGEMENT PLAN
- EVALUATION PROCESS
- SITE PREPARATION
- HEALTH ISSUES

SUBJECT TO:

- FIELD TRIAL OBJECTIVES
- FUNCTIONAL SPECIFICATIONS
- IMPLEMENTATION PLAN
- COST CONSIDERATIONS

WE SEEK YOUR COMMITTMENT AND SUPPORT IN:

- COMPLETION OF FIELD TRIAL PLAN
- IDENTIFICATION OF FUNDING AND PY RESOURCES
- PROMOTION OF FIELD TRIAL IN DOC

APPENDIX 2

A. List of Interviewees

This list identifies the individuals within the Department who were interviewed during the Organizational Scan of Task I. Their responses have been held confidential by the project team and no attribution has been given in the body of the report for any opinions or contributions.

#	DATE	POSITION	INTERVIEWEE	#
1	Monday, May 31	ADMST	Ken Hepburn	1
2	Tuesday, June 1	ADMSP	Alex Curran	2
3	Wednesday, June 2	DGGT	Guido Henter	3
		DDE	Dan Sum	4
4		ADMAC	Leo Dorais	5
5	Friday, June 4	DSCS	Ed Harrison	6
			Roger Vermette	7
			George Dawson	8
6		EA to DM	Don Stephenson	9
7	Monday, June 7	DGPA	Frank Vieni	10
8	Tuesday, June 8	SADM	Alain Gourd	11
		SA to SADM	Mary Meloshe	12
		DGFP/PC	Art Lawless	13
9	Wednesday, June 9	EA to MIN	Joe Thornley	14
10		ADMFM	Bob Giroux	15
11	Thursday, June 10	DGSPA	Colin Franklin	16
12	Thursday, June 17	ADMR	Doug Parkhill	17
		DCS	Andre Dubois	18
13	Monday, June 21	DGRP	Syd Wagner	19
14	Tuesday, June 22	DPS	James Taylor	20

OFFICE AUTOMATION TRIAL PROJECT
DEPARTMENT OF COMMUNICATIONS
PHASE I: PRE-FIELD TRIAL PLANNING AND SITE PREPARATION

Management Interview Guide

BY HICKLING-PARTNERS INC.
OTTAWA, ONTARIO
JUNE 1982

DSS FILE NO: 21ST.36100-2-4019
HPI REF. 10594

Management Interview Guide

NAME _____

TITLE _____

INTERVIEWER _____

DATE _____ TIME _____

---

1. Discussion of project objectives (see attachment A).

   A. Comments:

B. Ranking of Project Objectives:

(Rank the objectives itemized in Attachment A in order of descending importance by listing their alphabetical identifiers on the following scale).

--- --- --- --- --- --- --- --- --- --- --- --- ---

(most important) (least important)

Comments:

2. Statement of organizational mission, decomposed into a set of practical, tangible objectives related to office functions. (Summary of multi-year operational plans, strategic overviews):

3. How do these operational plans relate to field trial project objectives? Discuss four potential areas of opportunity as identified in briefing meeting:

   - o improved communications and other services for the Minister, Deputy Minister and Assistant Deputy Ministers
   - o regional operations - proposed by Ontario Region for a "distributed office" field trial
   - o services sector -- 1980/81 Annual Report shows the following breakdown of Departmental employees by employment category:

     33.9% - administrative support
     26.1% - technical
     19.6% - administrative and foreign service
     15.7% - scientific and professional
      3.3% - operational
      1.4% - executive

   - o research sector (communications protocols, fibreoptics)

   Comments:

4. What other areas of technological opportunity are you aware of within the department? What specific operational problems might benefit from applications such as improved communications (electronic mail, teleconferencing, voice mail); information retrieval (personal electronic filing, departmental and public data bases); analysis tools; text processing; and personal support tools (forms processing, calendar management)?

5. What internal and external constraints exist on the scope of automation planning?

   - financial (existing capital investment, long-term contracts, available funding):

   - regulatory (freedom of information, international restrictions, Canadian content):

   - staffing (availability of skilled support staff impact on existing organizational structure retraining effort(:

- compatibility requirements:

- security and reliability (loss, sabotage, theft, unavailability):

- conversion effort (length and cost of effort):

- are there any idiosyncracies in current operations or any future plans within the Department that you are aware of which impact on the consideration of technological opportunity for the field trial?

6. Personal Attitudes on Office Automation

A. The technology

1. Do you believe that office productivity can be improved through automation?

2. Have you personally used a computer terminal of any kind?

For what purposes?

Do you know how to type?

Do you use dictation equipment?

Do you currently access automated information systems?

If so, by what method, how often, why?

3. What applications would you like to have available to you?

4. Do you think most of your colleagues will welcome an opportunity to use automated equipment?

What do you see as their chief concerns?

B. The Field Trials

1. What are your expectations of this project - the field trial within DOC? What do you think can be accomplished?

2. What are your primary concerns?

3. Do you have any suggestions?

7. A. Personal Attitudes

1. Have you been involved personally with any formal participative techniques such as synectics, nominal groups, Delphi, assumption surfacing?

2. Do you think such techniques are effective?

3. Are most of your interactions with employees of the Department, or individuals external to DOC?

How many members of the Department do you interact with on average in the course of a week?

How many of these are with members of your own staff?

Are most of your interactions with your staff formal (by appointment, some written record of the communication) or informal?

What problems are you experiencing in communicating with individuals external to the Department?

Within the Department?

8. Discussion of evaluation methods envisaged for system selection and for post-implementation review.

9. Recommended sources of information.

Attachment A

Project Objectives

1.1 OCS PROGRAM OBJECTIVES (RFP)

The overall objective of the OCS Program is to stimulate the development of a Canadian office automation industry to provide effective office productivity improvement tools, methods and systems for the Canadian and world markets. Specific sub-objectives include:

(a) to assist in increasing the productivity of the Canadian office force by providing effective office productivity tools, methods and systems, with particular emphasis on providing automation support to managers and knowledge workers;

(b) to stimulate the development of a Canadian-based office automation industry which will supply these tools, methods and systems;

(c) to facilitate the effective introduction and utilization of the Canadian-based office automation technology into the marketplace.

1.2 OBJECTIVES OF FIELD TRIALS (RFP)

These field trials will be undertaken to prove or to evolve prototype concepts leading to commercial products and services. Specific purposes of the public sector field trials include:

(d) the production of system designs and functional product specifications to which Canadian industry can respond with systems and that meet the needs identified, and, as well, can be developed into marketable products;

(e) experimentation with office automation systems to test these systems for their impact on productivity, organizational adjustments, user acceptance, and overall effectiveness;

(f) the development of a general methodology for carrying out office systems analysis; this general methodology will aid industry in defining and marketing office automation systems;

(g) the provision of test sites for research and analysis of economic, social, behavioural aspects of office automation.

Attachment A

Project Objectives

1.3 DOC OPERATIONAL OBJECTIVES

(h) early visibility at senior levels within the department

(i) requirements for a physical communications link across all DOC offices

(j) Telidon

1.4 OTHER PROJECT OBJECTIVES

Bilingualism

APPENDIX 3

A. LIST OF INTERVIEWS

CONDUCTED DURING TASK 2 OF THE DEVELOPMENT OF DOC'S OFFICE AUTOMATION FIELD TRIAL PLAN

Interviews: Site 1 (17)

Name	Position	Designator	Date
Georgette Barnes	Parliamentary Returns Officer	DMO	12 August
Rejeanne Bourgeois	Administrative Assistant	ADMR	10 August
Marguerite Coste	Chief, Correspondence Unit	DMO	12 August
Robbin Frazer	Executive Assistant	ADMSD	12 August
Jan Innes	Special Assistant	MINO	10 August
Sharon Jeannotte	Acting Chief, Correspondence Unit	DSG	13 August
Christianne Laliberté	Executive Assistant	ADMST	11 August
Sandra MacDonald	Policy Advisor	MINO	10 August
Mary Meloshe	Special Assistant	SADM	10 August
Chantal Pariseau	Executive Assistant	ADMFM	10 August
Toni Pilon	Administrative Assistant	ADMAC	19 August
Ann Powers	Administrative Assistant	DGPA	11 August
Dola Rivet	Administrative Assistant	DMP DPS	11 August
Diane Robinson	Secretary	SADM	10 August
Audrey Scott	Secretary	ADMSP	12 August
Don Stephenson	Executive Assistant	DMO	30 July
Joe Thornley	Executive Assistant	MINO	30 July

Interviews: Site 2 (18)

Lorne Abugov	Legal Counsel	DLS	11 August
Michel Andrieu	Director General	DGCS	19 August
R.M. Bennett	Director	DDN	12 August
E.A. Cardill	Administrative Assistant	DGTN	13 August
M. Curfoot-Mollington	Policy Analyst	DES	3 Sept.
John Gilbert	Acting Director General	DGIR	9 August
Denis Guay	Director	DRA	13 August
Vince Hill	Director General	DGTN	19 August

Interviews: Site 2 (cont'd)

Name	Position	Designator	Date
Phil Kinsman	Acting Director	DISP	10 August
Elizabeth Kriegler	Director General	DGBP	18 August
W. Longman (V. Rawat)	Acting Director	DGTN	12 August
Charles McGee	Director General	DGFP	12 August
Sharon Nugent	Secretary	DGBP	16 August
T.W.J. Rochefort	Acting Director, Director	DFR, DSIS	16 August
S. Serafini	Director	DBP	17 August
Lisette Thibeault	Coordinator	DIS	18 August
Paul Villeneuve	Enquiries Officer	DIS	13 August
Diane Wells	Policy Analyst	PCP	7 Sept.

Services and other areas

Crayden Arcand	Head, User Support	DCP	25 August
Ron Croucher	Systems Support	DCP	25 August
Judie Edey	Word Processing Co-ordinator	DATS	24 August
Pierre Forget	Director	DSG	17 August
Maria Morin	Research Psychologist	DBRE	24 August

B. SAMPLE OF TELEPHONE ACTIVITY LOG AND INSTRUCTIONS

INSTRUCTIONS TO COMPLETE
DAILY COMMUNICATIONS ACTIVITIES LOG - TELEPHONE CALLS

Please read these instructions in their entirety before you proceed with the log.

The purpose of this log is to record a sample of telephone activity by Field Trial participants during a five-day period, from August 9 to 13, 1982. Our objective is to examine patterns of communications, success ratio, time usage, the number of long distance calls, and telephone tag. All information provided by participants during this Field Trial will be used in a confidential manner and only for the specific purposes for which it has been collected.

You are asked to record data only on the first twenty (20) phone calls you participate in for each of the five days of the sample period. The Telephone Log forms have been printed in English on one side and in French on the reverse. Information about ten (10) calls can be recorded on each side of the form, so you may use two sheets per day, or you may record on both sides of one form if you prefer. If your total phone activity for a particular day involves fewer than twenty calls, simply hand in the completed form(s) at the end of the day and start a new form the following morning. We ask that you return your completed daily log to your Field Trial representative by the end of each working day.

IDENTIFICATION

Each morning, complete the top section of the log in order to identify yourself. We suggest that you keep the log on your desk by the phone. Indicate the first page by noting Page "1" of __ in the top, right-hand corner. At the end of the day, or when you have logged twenty calls, indicate the number of pages used and note on each page the total number of pages (e.g., Page 1 of 1, Page 1 of 2, Page 2 of 2).

SECTION 1 - SOURCE/DESTINATION

The first section of the log, **items 1-14**, identifies the Source (for incoming) or Destination (for outgoing) of each telephone call; check only one item per call. Items 1 through 10 refer to intra-Departmental calls. In the case of a telephone call to or from a Regional Centre (item 10), please indicate which one by noting P for Pacific, C for Central, O for Ontario, Q for Quebec, or A for Atlantic. Do not use a check mark in this box. Telephone calls not for or from DOC, CBC, or CRTC, and which can be identified as outside calls, are checked in item 11. If the Source or Destination has not been identified, then check item 14.

SECTION 2 - OUTGOING CALLS

The next section, **items 15-23**, concerns Outgoing telephone calls only. Each time you place (or have placed for you) an Outgoing call, check item 15. If the call is dialed by you, check item 16. If the call has been dialed by you for another person (e.g., placing a call for your boss) check item 17. If conference call facilities are used, then item 18 should be checked, and the total number of participants should be indicated in box 19. If the Outgoing call is unsuccessful, that is, incomplete due to item 20 or 21, please also check whether any further action is required (item 22 or 23). Please continue to item 27 to complete the record of an Outgoing call.

SECTION 3 - INCOMING

Incoming calls are identified in the next section, **items 24-26.** When you answer the phone, check item 24. If it is for you, check item 25. Check item 26 only if you transfer the call to another party.

SECTION 4 - ATTRIBUTES

Attributes common to both Outgoing and Incoming calls are identified in **items 27-37.** If the phone call has been misdirected, check item 27. If desired contact is not made, check item 28. Items 29, 30 and 31 relate to phone messages taken or left as the result of an incoming or outgoing call. Sometimes the message is simply a request for a call back, indicated by checking item 29. If another message is ticked on an Action Request, check item 30. If you leave or take a written message (longer than a tick mark), check item 31.

Items 32 and 33 indicate whether the purpose of the call could have been accomplished without a two-way discussion. For example, one-way communication would be sufficient to remind someone of an appointment, to request a document or item of information by a specific time and date, or to notify someone of a decision or change in plans. Check item 32 for calls which did not require interactive dialogue; check item 33 where discussion was required.

Indicate all known long-distance calls (including tie-line and other reduced rate calls) by checking item 34.

In item 35, you are asked to record the time of day the call was received or placed, by entering only the hour in the box. A call received at 11:45 a.m. would appear as "11," and one placed at 3:02 p.m. would appear as "3." (If you prefer to work on a 24-hour basis, please do so.) Item 36 refers to the approximate length of the conversation part of the call (recorded in minutes), excluding any significant waiting time (in excess of one minute). If more than a minute was spent on hold or waiting for someone to return to the phone, please record the number of minutes in box 37.

COMMENTS

We encourage you to use the Comments section of the form to describe any particular problems or frustrations you are experiencing with your current phone system. We also welcome any suggestions about improvements or additional features you would like to have. Since telephone activity will be sampled over a brief five-day period, we ask that you direct any questions about the log itself to your Field Trial representative, or to one of the Hickling-Partners Inc. consultants. We will be available in Room #864 (Journal North Building) at extension 5-9532 throughout this period.

Thank you for your assistance.

COMMENT REMPLIR LE RÉGISTRE DES COMMUNICATIONS PAR TÉLÉPHONE

Veuillez lire toutes les instructions avant de remplir le régistre.

Durant la semaine du 9 au 13 août 1982, certains membres de votre groupe auront à fournir de l'information pertinente à leurs appels téléphoniques. Les participants devront compléter le régistre durant chacun des cinq jours. Cet échantillon a pour but d'examiner:

(a) le profil des communications

(b) le taux d'appels acheminés avec succès

(c) le temps utilisé pour rejoindre un correspondant

(d) le nombre d'appels interurbains

(e) le nombre de communications aller-retour sans rejoindre le correspondant.

L'information fournie par les participants sera utilisée de façon confidentielle exclusivement pour satisfaire les buts éconcés ci-haut.

Les participants devront noter l'information sur les vingt premiers appels d'une journée, pendant les cinq jours en question. Le régistre des communications a été imprimé en français sur un côté et en anglais au verso. Sur chaque côté on peut y inscrire l'information pour dix appels. Il est laissé à votre discrétion de vous servir de deux formulaires par jour ou de tout simplement d'écrire sur les deux côtés d'un même formulaire. A la fin de la journée, si vous avez noté moins de vingt appels, veuillez quand même retourner le(s) régistre(s). Tous les régistres doivent être remis à votre représentant à la fin de la journée. A chaque matins, veuillez débuter avec un nouveau régistre.

IDENTIFICATION

La première tâche est de compléter la section au haut du régistre à fin de vous identifier. Nous suggérons que vous gardiez ce régistre près de votre téléphone. La première page doit être annoté en haut, à droite, comme suit: page "1" de " ". A la fin de la journée ou lorsque vous aurez inscrit les vingt appels, indiquez le nombre de pages utilisées au haut de chaque page (ex: page "1" de "1", ou page "1" de "2", ou page "2" de "2").

SECTION 1 - ORIGINE OU DESTINATION

La première section du régistre, qui comprend les articles 1 à 14, identifie, pour chaque appel, son origine ou sa destination. Pour chaque appel veuillez cocher seulement un article. Veuillez noter que les articles 1 à 10 traitent des appels faits à l'extérieur du ministère.

Dans le cas d'un appel provenant de ou allant aux bureaux régionaux (article 10), veuillez indiquer la région du bureau par un P pour le Pacifique, C pour Central, O pour l'Ontario, Q pour le Québec, ou A pour l'Atlantique. Veuillez s'il vous plaît ne pas vous servir d'une coche dans cette case. Tous les autres appels qui sont aucunement reliés au ministère (y compris Radio-Canada ou le CRTC) doivent être cochés à la case 11. Si l'origine de l'appel ou sa destination vous sont inconnus, veuillez cocher l'article 14.

SECTION 2 - APPEL A L'EXTÉRIEUR

La section suivante, comprenant les articles 15 à 23, traite seulement des appels vers l'extérieur. Lors d'un appel vers l'extérieur, cochez l'article 15. Si vous composez l'appel, cochez l'article 16. Si vous composez l'appel pour un autre, cochez l'article 17 (ex: vous composez un numéro pour votre superviseur). Si l'appel consiste d'une conférence téléphonique, cochez l'article 18 et indiquez le nombre de participants

dans la case 19. Si il n'y a pas de réponse ou si la ligne est occupée, cochez l'article 20 ou 21. Dans ce cas, si vous avez décidé de rappeler plus tard ou si aucune action n'est requise, alors cochez la case 22 ou 23. Veuillez alors continuer à l'article 27 pour compléter l'information nécessaire à cet appel.

SECTION 3 - APPEL PROVENANT DE L'EXTÉRIEUR

Les articles 24 à 26 traitent seulement des appels provenant de l'extérieur. Lorsque vous répondez, cochez la case 24. Si l'appel est pour vous, cochez la case 25. Si l'appel est ensuite transféré à un autre, cochez la case 26.

SECTION 4 - CARACTÉRISTIQUES COMMUNES

La section composée des articles 27 à 37 traite à la fois des appels vers l'extérieur et de ceux provenant de l'extérieur. Si l'appel résulte en un faux ou mauvais numéro, cochez la case 27. Si le correspondant désiré n'a pas été rejoint, cochez l'article 28. Les prochains articles, 29 à 31, concernent des messages qui ont été notés (pour des appels provenant de l'extérieur) ou laissés (pour des appels vers l'extérieur). Si le message est simplement une demande de rappeler, cochez la case 29. Mais pour tout autre message régulier sur la fiche de service, cochez la case 30. Si une remarque est notée sur la fiche de service, cochez la case 31.

Les articles 32 et 33 indiquent si l'appel nécessite une conversation réciproque. Des exemples d'une communication à sens unique sont:

(a) vous avez de besoin d'un document ou d'une information quelconque avant une certaine date

(b) vous avisez certaines personnes d'une décision ou d'un changement dans vos projets.

S'il s'agit d'une communication à sens unique, cochez la case 32. Si un dialogue réciproque est requis dans votre communication, cochez la case 33.

Si l'appel est un interurbain, cochez l'article 34. L'article 35 dénote l'heure de l'appel, en heures.

Par exemple, si vous composez un appel à "9:15", indiquez l'heure par le "9" seulement. Si vous recevez un appel à "16:30", notez "16" dans la case. La durée approximative de l'appel est notée en minutes dans la case 36. Celle-ci n'inclut pas la période d'attente. Si le temps perdu à attendre pour une réponse à votre appel dépasse une minute, indiquez cette période (en minutes) dans la case 37.

REMARQUES

En dernier lieu, nous vous prions de vous servir du bas du formulaire pour indiquer vos remarques (problèmes,...) concernant votre système téléphonique. Les suggestions sont toujours bienvenues. Puisque la durée de la période l'échantillon sera courte, nous vous demandons que toute question concernant le régistre soit dirigée vers votre représentant, ou vers l'un des conseillers de Hickling-Partners Inc. Nous serons à votre disposition durant cette période dans la salle 864 (Immeuble Journal Nord) au poste 5-9532.

Nous vous remerçions sincèrement de votre collaboration.

DAILY COMMUNICATIONS ACTIVITIES LOG - TELEPHONE CALLS

DAILY COMMUNICATIONS ACTIVITIES LOG - TELEPHONE CALLS

NAME:
POSITION:
DATE:

DESIGNATOR:
BRANCH:
FLOOR/BUILDING:

	PHONE CALLS	1	2	3	4	5	6	7	8	9	10
1. SOURCE/DESTINATION (CHECK ONE)	1. MINO HQ	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	2. MINO H OF C	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	3. DMO	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	4. ADMO/DGPA/PLANNING ADVISOR	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	5. DIRECTORS-GENERAL-POLICY	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	6. DIRECTORS-BROADCASTING & SOCIAL POLICY	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	7. INFORMATION SERVICES	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	8. OTHER DOC-HQ	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	9. OTHER DOC-CRC	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	10. DOC REGIONAL CENTRES (P,C,O,Q,A)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	11. EXTERNAL TO DOC	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	12. CBC	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	13. CRTC	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	14. UNIDENTIFIED	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2. OUTGOING CALLS	15. OUTGOING	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	16. SELF-DIALED	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	17. CALL PLACED BY YOU FOR ANOTHER	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	18. CONFERENCE CALL	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	19. TOTAL NUMBER OF PARTICIPANTS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	20. NO ANSWER	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	21. BUSY	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	22. TRY LATER	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	23. NO FURTHER ACTION	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3. INCOMING	24. INCOMING	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	25. CALL FOR YOURSELF	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	26. CALL TRANSFERRED TO OTHER LINE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4. ATTRIBUTES	27. WRONG NUMBER	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	28. PARTY UNAVAILABLE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	29. MESSAGE - CALL BACK	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	30. OTHER MESSAGE TICKED	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	31. MESSAGE - CONTENT	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	32. TYPE - ONE WAY SUFFICIENT	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	33. TYPE - DIALOGUE REQUIRED	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	34. LONG DISTANCE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	35. TIME CALL PLACED/RECEIVED (HOUR ONLY)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	36. DURATION EXCLUDING WAITING TIME (IN MIN)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	37. WAITING TIME (IN MINUTES)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

COMMENTS:

HICKLING-PARTNERS INC. JULY, 1982

RÉGISTRE DES COMMUNICATIONS PAR TÉLÉPHONE

NOM: SIGLE:
POSTE: DIRECTION:
DATE: ÉTAGE ET L'IMMEUBLE:

	APPELS TÉLÉPHONIQUES	1	2	3	4	5	6	7	8	9	10
1. ORIGINE OU DESTINATION (COCHER SEULEMENT QU'UN)	1. MINO - AC	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	2. MINO - C DES C	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	3. DMO	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	4. SMA/DGPA/CONSEILLER PLANIFICATION	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	5. DIRECTEURS GÉNÉRAUX - SADM	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	6. DIRECTEURS - DGBP	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	7. DIS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	8. TOUS LES AUTRES SECTEURS - AC	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	9. TOUS LES AUTRES SECTEURS - CRC	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	10. BUREAUX RÉGIONAUX (P,C,O,Q,A)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	11. APPELS AUTRES QUE MDC	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	12. RADIO-CANADA	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	13. CRTC	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	14. NON DÉTERMINÉ	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2. A L'EXTÉRIEUR	15. **APPEL A L'EXTÉRIEUR**	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	16. APPEL COMPOSÉ SOI-MÊME	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	17. APPEL COMPOSÉ POUR UN AUTRE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	18. CONFÉRENCE TÉLÉPHONIQUE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	19. NOMBRE DE PARTICIPANTS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	20. AUCUNE RÉPONSE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	21. LIGNE OCCUPÉE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	22. RAPPELER PLUS TARD	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	23. AUCUNE AUTRE ACTION N'EST REQUISE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3. PROVENANT DE L'EXTÉRIEUR	24. **APPEL PROVENANT DE L'EXTÉRIEUR**	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	25. APPEL POUR SOI-MÊME	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	26. APPEL TRANSFÉRÉ A UN AUTRE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4. CARACTÉRISTIQUES COMMUNES	27. MAUVAIS NUMÉRO	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	28. CORRESPONDANT NON DISPONIBLE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	29. MESSAGE - DEMANDE D'APPELER	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	30. MESSAGE - AUTRE CASE COCHÉE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	31. MESSAGE - REMARQUE AJOUTÉE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	32. GENRE D'APPEL - COMMUNICATION A SENS UNIQUE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	33. GENRE D'APPEL - COMMUNICATION RÉCIPROQUE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	34. INTERURBAIN	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	35. HEURE DE L'APPEL (INDIQUER HEURE SEULEMENT)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	36. DURÉE DE L'APPEL (MINUTES)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	37. PÉRIODE D'ATTENTE (MINUTES)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

REMARQUES:

HICKLING-PARTNERS INC. JUILLET, 1982

C. DETAILED TELEPHONE ACTIVITY DATA

DAILY COMMUNICATIONS ACTIVITIES LOG - TELEPHONE CALLS

TELEPHONE ACTIVITY

	MINO			SUB	
	I	O	I	O	TOT
MINO HQ	4	8	8	4	24
MINO H OF C	7	11	10	5	33
DMO	1	6	1		8
ADMO/DGPA/PA	2	18		1	21
DG-POLICY	1	8			9
DIR-BSP	1	3			4
DIS	1	6	2	2	11
OTH DOC-HQ	18	39	3	1	61
OTH DOC-CRC	1				1
DOC REGIONAL					0
EXTERNAL TO DOC	64	154	76	41	335
CBC		1	3	1	5
CRTC	5	6	1		12
TOTAL IDENTIFIED	105	260	104	55	524
UNIDENTIFIED	1	1	70	24	96

OUTGOING		261	79
SELF-DIALED		259	72
PLACED BY ANOTHER			3
NO ANSWER		20	9
BUSY		10	8
TRY LATER		7	8
NO FURTHER ACTION			
INCOMING	106	174	
CALL FOR SELF	100	78	
TRANSFERED TO OTHER		63	
WRONG NUMBER	3	5	
PARTY UNAVAILABLE		85	49	9
MESSAGE - CALL BACK		63	25	4

PERCENTAGE		
**********		
MINO HQ	3	8
MINO H OF C	5	9
DMO	2	1
ADMO/DGPA/PA	5	1
DG-POLICY	2	0
DIR-BSP	1	0
DIS	2	3
OTH DOC-HQ	16	3
OTH DOC-CRC	0	0
DOC REGIONAL	0	0
EXTERNAL TO DOC	60	74
CBC	0	3
CRTC	3	1
TOTAL FAILED	123	75
% FAILED	34	47

TELEPHONE ACTIVITY DATA

DMO

	I	O	I	O	I	O	I	O	SUB TOT
MINO HQ					7	10	4		21
MINO H OF C						2			2
DMO								2	2
ADMO/DGPA/PA			2	1	11	32	11	10	67
DG-POLICY			2	2	2	3	9	14	32
DIR-BSP						1	2	2	5
DIS								1	1
OTH DOC-HQ	16	20	1		28	64	48	47	224
OTH DOC-CRC						2	11		13
DOC REGIONAL							1		1
EXTERNAL TO DOC	16	10	5	7	22	54	69	38	221
CBC					1	3	8	5	17
CRTC						4			4
TOTAL IDENTIFIED	32	30	10	10	71	175	163	119	610
UNIDENTIFIED	17						63	3	83

OUTGOING		31		10		175		122
SELF-DIALED		29		10		175		120
PLACED BY ANOTHER		1						1
NO ANSWER		4				3		5
BUSY						4		10
TRY LATER		2				7		10
NO FURTHER ACTION								
INCOMING	50		9		77		227	
CALL FOR SELF	21		6		72		85	
TRANSFERED TO OTHER	15						87	
WRONG NUMBER	11	2				2	7	3
PARTY UNAVAILABLE	8	7	2			51	44	18
MESSAGE - CALL BACK	7	4	2	1	1	39	30	10

PERCENTAGE

****

MINO HQ		0		0		7		1
MINO H OF C		0		0		1		0
DMO		0		0		0		1
ADMO/DGPA/PA		0		15		17		7
DG-POLICY		0		20		2		8
DIR-BSP		0		0		0		1
DIS		0		0		0		0
OTH DOC-HQ		58		5		37		34
OTH DOC-CRC		0		0		1		4
DOC REGIONAL		0		0		0		0
EXTERNAL TO DOC		42		60		31		38
CBC		0		0		2		5
CRTC		0		0		2		0
TOTAL FAILED		32		2		60		87
% FAILED		52		10		24		31

TELEPHONE ACTIVITY DATA

ADMS' OFFICES

	I	O	I	O	I	O	I	O	I	O	I	O	I	O	I	O	I	O	I	O	SUB TOT
MINO HQ	4						3	5	1						3	4			4		24
MINO H OF C								2							1			1	3		7
DMO	3	1	3	2			1	1	6	1	3			2	8			1			32
ADMO/DGPA/PA	4	49	1			3	1	5	7	4	40	11	2		14	8	1	11		38	199
DG-POLICY	10	2						1	1						1		15	33	2		65
DIR-BSP	14	4		1			1	2							1			5			28
DIS							2	6		2			1				1	4			16
OTH DOC-HQ	18	7	5	1	14	30	2	10	8	5			15	21	8	17	6	9			176
OTH DOC-CRC							3	2	13	8			1	1							28
DOC REGIONAL	3			2	3	7	8											2			25
EXTERNAL TO DOC	25	14	7		6	9		6	14	5	2		6	14	10	4		4	4		130
CBC	1												1	1							3
CRTC	3	1			1	2		1										2	2		12
TOTAL IDENTIFIED	85	78	16	6	24	51	21	41	50	25	45	11	26	39	46	33	23	72	15	38	745
UNIDENTIFIED	35		3	2				1	12	1	16	1			1				1		73
OUTGOING		74		16		49		41		25		15		39		33		76		38	
SELF-DIALED		67		8		49		41		24		14		38		32		75		5	
PLACED BY ANOTHER		34		5												15					
NO ANSWER		1						3				1				1					
BUSY		1		1		3		2						1							
TRY LATER		1		1								2		1		1					
NO FURTHER ACTION		11		2												7					
INCOMING	121		31		23		25		3		63		26		47		21		16		
CALL FOR SELF	22		10		23		21		42		11				20		21		7		
TRANSFERED TO OTHER	43		18				3		2		47				23						
WRONG NUMBER	7								6		2				1			4			
PARTY UNAVAILABLE	63	15		1	6	10		8	11	8	12			10	11	14		23			
MESSAGE - CALL BACK	54	14	4	1	8	8	4	5	1	3	9			12	10	8		13			
PERCENTAGE																					
**********																					
MINO HQ		2		0		0		13		1		0		0		9		0		8	
MINO H OF C		0		0		0		3		0		0		0		1		1		6	
DMO		2		23		0		3		9		5		3		10		1		0	
ADMO/DGPA/PA		33		5		4		10		15		91		3		28		13		72	
DG-POLICY		7		0		0		2		1		0		0		1		51		4	
DIR-BSP		11		5		0		5		0		0		0		1		5		0	
DIS		0		0		0		13		3		0		2		0		5		0	
OTH DOC-HQ		15		27		59		19		17		0		55		32		16		0	
OTH DOC-CRC		0		0		0		8		28		0		3		0		0		0	
DOC REGIONAL		2		9		13		13		0		0		0		0		2		0	
EXTERNAL TO DOC		24		32		20		10		25		4		31		18		4		8	
CBC		1		0		0		0		0		0		3		0		0		0	
CRTC		2		0		4		2		0		0		0		0		2		4	
TOTAL FAILED		87		2		19		13		25		15		11		27		27		0	
% FAILED		53		9		25		21		33		27		17		34		28		0	

TELEPHONE ACTIVITY DATA

SITE 2

	I	O	I	O	I	O	I	O	I	O	I	O	SUB TOT
MINO HQ		3	1					3		1	7	4	19
MINO H OF C	2										1		3
DMO		1	5				2	1			3	1	13
ADMO/DGPA/PA	7	11	5	1				2	6	3	12	14	61
DG-POLICY	3	2	5	1				2	3	4	2	5	27
DIR-BSP	2	1			1			2			1	1	8
DIS									1	3		1	5
OTH DOC-HQ	16	23	38	2	12		24	54	8	9	10	4	200
OTH DOC-CRC		2	1				4	6		3		1	17
DOC REGIONAL	2	3	3				2	3					13
EXTERNAL TO DOC	24	56	33	3	2		55	162	21	40	15	39	450
CBC	2	3					3	5	3	1			17
CRTC	2	7					12	11	3	5			40
TOTAL IDENTIFIED	60	112	91	7	15	0	102	251	45	69	51	70	873
UNIDENTIFIED	3		63	4			5	8	1		2	5	91

OUTGOING		113		11				259		68		75
SELF-DIALED		111		10				259		68		66
PLACED BY ANOTHER		1		1								
NO ANSWER		4		2				25		7		2
BUSY		15						16		3		7
TRY LATER		11						31		3		3
NO FURTHER ACTION												
INCOMING	63		154				107		46		53	
CALL FOR SELF	60		18				96		44		49	
TRANSFERED TO OTHER	6		109				5		1			
WRONG NUMBER		3	1				1					1
PARTY UNAVAILABLE	1	34	59	1			7			16	3	19
MESSAGE - CALL BACK	2	37	51				8		6	4	6	24

PERCENTAGE
****

MINO HQ		2		1		0		1		1		9
MINO H OF C		1		0		0		0		0		1
DMO		1		5		0		1		0		3
ADMO/DGPA/PA		10		6		0		1		8		21
DG-POLICY		3		6		0		1		6		6
DIR-BSP		2		0		7		1		0		2
DIS		0		0		0		0		4		1
OTH DOC-HQ		23		41		80		22		15		12
OTH DOC-CRC		1		1		0		3		3		1
DOC REGIONAL		3		3		0		1		0		0
EXTERNAL TO DOC		47		37		13		61		54		45
CBC		3		0		0		2		4		0
CRTC		5		0		0		7		7		0
TOTAL FAILED		57		63		0		49		26		32
% FAILED		33		64		0		14		23		26

D. TASK 2

STRUCTURED INTERVIEW FORMAT

WORK ANALYSIS INTERVIEW GUIDE

1. Identification

Name:_____ Date:_____

Position:_____

Designator:_____ Interviewer:_____

2. Job Context

Please describe the primary functions which your job entails, and how your job fits into the overall process within your office.

3. Activity Analysis

You are asked to estimate what percentage of your work day is spent in the following activities. Four categories of activities are included, and the total of these four percentages should equal 100% of your time. We would like you to estimate how you spend your time, on average, over a week or month during your busiest work period.

A. Interacting (to inform, persuade, direct, problem solve, coordinate...)

Face-to-face:

Formal meetings (scheduled)	_____		
Informal discussions	_____		
Total face-to-face		_____	
Phone use: average time spent per day on the telephone		_____	
Total Interaction Activity			_____

B. Document Creation and Revision (Authors)

Write manually	_____		
Dictate	_____		
Type, enter data	_____		
Total document creation		_____	
Edit, correct, revise (manual)	_____		
Retype, edit on keyboard	_____		
Total document revision		_____	
Total Document Creation and Revision			_____

3. C. Evaluating and Decision Making

Study, analyse, contemplate	____	
Read, observe, research	____	
Search, retrieve	____	
Calculate	____	
Model, simulate	____	
Total evaluation		____
Plan, review	____	
Decide, select, choose	____	
Approve, authorize	____	
Total decision making		____
Total Evaluating and Decision Making		____

D. General Administrative

Type, operate word processor	____	
File	____	
Copy, duplicate	____	
Sort, code, classify, organize	____	
Complete forms, logs, records	____	
Make arrangements, schedule	____	
Other	____	
Total General Administrative		____
		100%

4. Key Information Inputs and Outputs

Description:

Trigger

Importance/priority/security:

Medium:
Volume: Size/length
Frequency/regularity

Retention/Access(Current/Future):

Format/Style/Production means(error-free, handwritten):

Process - Information flow, no. of contributors:

Distribution/copies:

Authorization:

Problems:

Suitability for Electronic Assistance:

5. Problems and Opportunities associated with heavy activity in applications areas (item 3):

6. How do your feel about the possibility of having access to a terminal?

☐ positive ☐ neutral ☐ negative

7. Do you have any questions/comments?

APPENDIX 4

A. RECOMMENDED SYSTEM: DETAILED CONFIGURATION

APPENDIX 4.A: RECOMMENDED SYSTEM: DETAILED CONFIGURATION

This tabulation provides a detailed presentation of the Field Trial configuration. Equipment is shown allocated to sites and to staff positions within the Field Trial Sites. No commitment is implied that individuals occupying those positions will actually have the equipment. The specific allocation requires discussion and agreement with the user working groups with voluntary acceptance of the allocation.

The equipment categories identified are as follows:

1. Office Terminal. The standard basic item of user equipment, provides interactive access to Trial services. Local intelligence and data storage is not provided except for intelligent display capabilities. Trial services are provided through associated cluster controllers.
2. Dual Work Station. Full local capabilities are provided in terms of data storage and shared access with two office terminals. Lesser dependence on cluster controllers is required.
3. Small Cluster Controller. Capabilities are provided to support 3-5 terminals and work stations. Working group data storage facilities are provided.
4. Site Cluster Controller. The Site Cluster Controller provides support for up to 25 terminals and work stations, with some connected through small cluster controllers.
5. Draft Printer
6. Letter Quaility Printer
7. High-Speed Printer

A variety of printers with different characteristics are included.

8. Optical Character Reader.
9. Voice Storage Facilities - The allocation of individual voice storage capabilities is indicated.

	EQUIPMENT CATEGORY								
	1	2	3	4	5	6	7	8	9
MINISTER'S OFFICE									
HOUSE OF COMMONS									
Minister									X
Private Secy									
Executive Assistant		X							X
Secy		X			X	X			
Special assistants 1.									X
Secy.									
2.		X							X
Secy.		X							
MINISTER'S OFFICE									
Policy Advisor - Arts and Culture									X
Secy	X								
Special Assistants 1.	X								X
Secy.									
2.									X
Secy.									
3.									X
Secy.									
Correspondence Assistants	X				X	X			
Clerk	X								
Receptionist									
DEPUTY MINISTER'S OFFICE				X		X		X	
Deputy Minister									X
Secy	X								
Secy									
Exec Assistant		X							X
Secy		X			X				
Secy									
Spec Asst	X								X
Clerk Asst									
Parliamentary Returns Officer									
Secy									
Correspondence Secretariat		X				X			
Correspondence Officers									
1.		X							X
2.	X								
Secy		X							
Correspondence Clerks									
1.	X								
2.	X								
3.	X								
SENIOR ASST DEPUTY MINISTER				X		X	X		
(POLICY)									
Senior Asst Deputy Minister		X							X
Secy		X							
Spec Asst		X							X
Secy		X							

EQUIPMENT CATEGORY

	1	2	3	4	5	6	7	8	9
ASSISTANT DEPUTY MINISTER (SPACE PROGRAM)									
Asst Deputy Minister		X							X
Secy		X			X				
ASSISTANT DEPUTY MINISTER (RESEARCH)									
Asst Deputy Minister		X							X
Admin Asst	X								X
Secy		X				X			
Financial Management Adv									
ASSISTANT DEPUTY MINISTER (SPECTRUM MANAGEMENT AND GOVERNMENT TELECOMMUNICATIONS)									
Asst Deputy Minister		X							X
Secy	X	X			X				
Exec Asst									X
ASSISTANT DEPUTY MINISTER (ARTS AND CULTURE)									
Asst Deputy Minister		X							X
Exec Asst									X
Admin Asst									
Secy		X			X				
Correspondence Unit	Z					X			
ASSISTANT DEPUTY MINISTER (FINANCIAL MANAGEMENT)									
Asst Deputy Minister		X							X
Exec Asst									X
Secy		X			X				
PERSONNEL AND ADMINISTRATION					X				
Dir Gen		X							X
Secy		X			X				
Dir. Planning	X								X
Staff, Ottawa	X				X				
Staff, Montreal	X								X
SENIOR ASST DEPUTY MINISTER (POLICY)				X		X			
Information Services									
Director	X								X
Secy									
FEDERAL-PROVINCIAL RELATIONS AND POLICY COORDINATION									
Dir Gen		X							X
Secy		X			X				

	EQUIPMENT CATEGORY								
	1	2	3	4	5	6	7	8	9
COMMUNICATIONS ECONOMICS BRANCH									
Dir Gen		X							X
Secy		X			X				
Statistical Liaison Officer									
Word Processing									
Records									
Reception and Mail									
Economic Policy Analyst	X								X
NATIONAL TELECOMMUNICATIONS BRANCH									
Dir-Gen		X							X
Secy		X			X				
INTERNATIONAL RELATIONS BRANCH									
Dir Gen		X							X
Secy		X			X				
Admin Asst									
BROADCASTING AND SOCIAL POLICY BRANCH				X		X	X	X	
Dir Gen		X							X
Secy		X			X				
Admin Officer	X								
Broadcasting Policy Analysis			X						
Director		X							X
Secy		X			X				
Officers 1.	X				X				X
2.	X								X
3.	X								X
4.	X								X
5.									X
Regulatory Affairs									
Director		X							X
Secy		X			X				
Officers 1.									X
2.	X								X
3.	X								X
Extension of Services Policy									
Director		X							X
Secy		X			X				
Secy									
Secy	X								X
Secy	X								X
New Services Policy									
Director		X							X
Secy		X			X				
Secy									X
Secy									X

EQUIPMENT CATEGORY

	1	2	3	4	5	6	7	8	9
Legal Services									
Senior Counsel		X							X
Secy		X				X			
GRAND TOTAL	29	* 22	2	4	20	9	2	2	50

* N.B. 44 user's are identified in this column sharing the local resources of 22 dual-user workstations.

B. ROLE OF PRIME CONTRACTOR

APPENDIX 4.B: ROLE OF PRIME CONTRACTOR

It is our recommendation that the Department select a prime contractor to be responsible for the delivery of the entire Field Trial System. A single contractor is considered desireable because:

- o equipment from several suppliers is likely to be needed. A single prime contractor provides a focus for DOC activities,
- o integration of the equipment is required before delivery to DOC,
- o Canadian industry will benefit more from the coordination of the various supply activities than if conducted by DOC themselves.

The prime contractor should be responsible as the contracted authoritiy for specification, assembly, development and acceptance of:

- o the hardware components of the Trial,
- o the new hardware and software development.

In discharging this responsibility the prime contractor will:

- o develop and agree with DOC equipment and software specifications,
- o coordinate planning activity to ensure DOC schedules can be met,
- o develop or sub-contract as necessary for hardware and software,

- manufacture or tender for any necessary hardware components,
- conduct system acceptance tests at factory sites,
- be responsible for installation at DOC,
- conduct system acceptance tests at DOC,
- provide continuing liaison and coordination through the period of the trial,
- be responsible to DOC for equipment and service evaluation from a suppliers point of view.

Given the necessity from a prime contractors point of view to be responsible for specification work and (appropriately) system acceptance work, it is desireable that the prime contractor not be a manufacturer, but an independent agency capable of developing cooperation amongst manufacturers and of promoting the experience and specifications subsequently. The specifications need to be developed in a non-manufacturer specific way to allow many (several) competing firms to take advantage of the product of the Field Trial. This again supports the idea of an independent prime contractor.

OFFICE AUTOMATION FIELD TRIAL
PLAN : FINAL REPORT