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Department of Communications

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Ministère des Communications

EVALUATION ASSESSMENT

OF THE

ANIK-C AND ANIK-D PROGRAMS

Evaluation Design
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PROGRAM EVALUATION · DIVISION · DE L'EVALUATION DES PROGRAMMES

EVALUATION ASSESSMENT
OF THE
ANIK-C AND ANIK-D PROGRAMS

MARCH 30, 1984

DOC

PROGRAM EVALUATION SERIES

This assessment study was prepared by the Program Evaluation Division of the Department of Communications, Canada.

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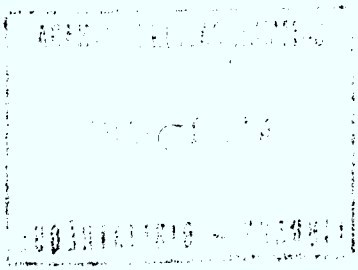

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EXECUTIVE SUMMARY

The Department of Communications took advantage of the Telesat Canada Act to obtain a higher proportion of Canadian content in the ANIK C and D satellites. In return the government compensated Telesat Canada by paying premiums in the amount of $4 million for ANIK-C and an estimated $22 million for ANIK-D (still being paid) to cover the additional cost of the higher Canadian content. Negotiating the levels of Canadian content and payment premiums, actually paying the premiums, auditing the level of Canadian content and making premium payment adjustments, if necessary, were the activities of the ANIK C and D programs.

The nominal objectives of the programs were:

(1) To increase the Canadian content in the ANIK C and D satellites; and

(2) To support the development of a Canadian communications satellite prime contractor.

Behind these objectives was the Government's goal of establishing a Canadian space products industry as a means of preserving Canadian sovereignty in the area of communications and increasing domestic employment.

The programs were part of a larger DOC effort in support of the Canadian space industry (approved at an annual expenditure rate of some $58-$59 million in the 1982-83/1983-84 period). The DOC program in turn, is part of a broader federal government space initiative (expenditures approved at $131 million in 1983-84 and $134 million in 1984-85).

The main issue addressed by this report is the appropriate scope of an evaluation of government efforts to create a viable space products industry.

SOMMAIRE

Le ministère des Communications a profité de la Loi sur Télésat Canada pour obtenir une plus forte proportion de contenu canadien dans les satellites des séries ANIK C et ANIK D. En contrepartie, le gouvernement a compensé Télésat Canada en lui versant des primes d'un montant de 4 millions de dollars pour la série ANIK C et d'un montant estimatif de 22 millions de dollars pour ANIK D (le paiement de cette dernière somme est encore en cours) pour couvrir le coût additionnel de l'accroissement du contenu canadien. Les programmes relatifs aux séries ANIK C et ANIK D avaient pour objet de négocier les niveaux du contenu canadien et des primes à payer, de verser effectivement les primes, de vérifier le niveau du contenu canadien et de faire des rajustements aux primes à payer, le cas échéant.

Les programmes avaient pour objectifs nominaux :

(1) d'augmenter le contenu canadien dans les satellites des séries ANIK C et ANIK D; et

(2) d'aider à la création d'un maître d'oeuvre pour les satellites canadiens de télécommunications.

Ces objectifs découlaient de la volonté du gouvernement d'établir une industrie canadienne des produits spatiaux comme moyen de sauvegarder la souveraineté du Canada dans le domaine des télécommunications et d'accroître le nombre d'emplois au pays.

Les programmes faisant partie d'un effort plus vaste entrepris par le MDC pour aider l'industrie spatiale du Canada (taux annuel des dépenses approuvées de quelque 58 à 59 millions de dollars au cours de la période 1982-1983/1983-1984). De son côté, le programme du MDC fait partie d'une initiative spatiale plus vaste du gouvernement fédéral (dépenses approuvées de 131 millions de dollars en 1983-1984 et de 134 millions de dollars en 1984-1985).

La principale question dont traite ce rapport est l'envergure qu'il convient de donner à une évaluation des efforts du gouvernement pour créer une industrie viable des produits spatiaux.

1.0 INTRODUCTION

Canada is a country whose communication needs are particularily well served by satellite technology. Currently, and for some time, this technology has been available from relatively few sources in the world and due to the nature of the suppliers is often subject to controls or priorities of foreign governments.

To ensure that opportunities for the use of this technology are not missed because of possible production limitations of foreign suppliers or the whim of foreign governments, it has been the policy of the federal government to maximize the Canadian content of communication satellites. By increasing the Canadian content of these satellites the government has sought to develop a Canadian space products industry. A key part of this effort has been the fostering of a Canadian prime contractor for satellites.

One of the policy instruments used by the government has been the Telesat Canada Act which allows the Minister of Communications to influence the Canadian content of satellites purchased by Telesat Canada. By paying premiums to Telesat Canada to cover the additional cost of producing a higher proportion of the ANIK C and D satellites in Canada the government was able to stimulate the space products industry and demonstrate SPAR Aerospace Limited's capacity to act as a prime contractor.

The purpose of this report is to assess the feasibility and desirability of evaluating the contributions made toward the development of the Canadian space products industry by the ANIK C and D subsidy payments.

2.0 PROGRAM PROFILE

2.1 Mandate

The programs stem from the Telesat Canada Act 1968-69 which requires Telesat Canada to submit, for the Minister's approval, requests for proposals for the construction of satellites or earth stations. The Minister of Communications then has thirty days to indicate to Telesat that he is satisfied that the request will result in proposals with a reasonable level of Canadian content. Similarly, the Minister has thirty days to review and approve or disapprove the Canadian content of submitted proposals.

In April of 1974 the Government stated its objective to maintain and improve Canadian capability to design and build space systems.

A priority objective of the Space Program was the development of SPAR Aerospace to the point where it could act as the prime contractor for the construction of communication satellites.

As part of its efforts to develop SPAR as a prime contractor and ensure Canadian content, the Government adapted the principle of reimbursing Telesat Canada for a portion of the additional costs of buying satellites with Canadian content. The satellite system in question was ANIK "C".

2.0 PROGRAM PROFILE (Cont'd)

2.2 Objectives

From the available documentation and interviews with program personnel, two immediate objectives of the program were identified:

(1) To increase the amount of Canadian content, meaning the use of Canadian design or engineering skills and the incorporation of Canadian components and materials in the ANIK "C" and "D" satellites; and

(2) To support the development of a Canadian communications satellite prime contractor.

However, as with all programs the ANIK C and D programs had a hierarchy of objectives and activities, that is, depending on a person's point of view a program output would have been viewed as an end in itself or alternatively as simply a means of achieving some higher order objective.

To move from one level of objective to the next higher level requires answering the question "Why?". For example, "Why did the Government want to increase Canadian content in satellites? One answer might have been to "To increase employment"; thus increased employment could be considered to be an objective of the ANIK C and D programs.

Sucessive answering of the "Why?" question will lead to progressively higher level objectives. Taking another example, "Why did the Government want to encourage the development of a Canadian prime contractor? One answer might be "To encourage the development of a Canadian space products industry". Why develop a Canadian space products industry? Perhaps to preserve Canadian sovereignty in communications (that is not to have to rely on foreign suppliers for important components of national infrastructure). It can be seen that the further one moves up the hierarchy the greater the possibility that factors other than the program itself may influence the achievement of the objective. For example, where increased Canadian content in the ANIK C and D satellites may be directly attributed to the subsidies paid by the program, preservation of Canadian communication sovereignty is the product of many activities of which the ANIK C and D programs are only a part.

This presents a dilemma to the program evaluator. While evaluating the programs against relatively low level objectives is more likely to produce verifiable answers to the questions raised, these questions may be of little or no relevance to the policy makers for whom the evaluation is being carried out. Establishing relatively high level objectives which bring forth the relevant policy issues may make it difficult to discern the program's contribution to objective achievement from the effects of other programs or external influences.

2.0 PROGRAM PROFILE (Cont'd)

2.2 Objectives (Cont'd)

It may be that the policy maker is less concerned with a specific program's contribution to an objective and more interested in the overall impact of an array of initiatives or the feasibility of the objective itself. If this is so the evaluation component is too narrowly defined and should be broadened to include other programs.

This dilemma applies to the ANIK C and D programs. Clearly they did contribute to a higher level of Canadian content in the satellites and did enable SPAR to demonstrate a prime contractor capability. But while it may be possible to gauge the programs' impact on some higher level objects (i.e. employment), it would be difficult to judge the effects of the programs on the development of the Canadian space products industry in isolation of other initiatives having the same objectives. Nevertheless, for the purposes of this report the programs' objectives are assumed to be those stated at the outset of this section. The issue of the proper scope of an evaluation will be discussed again in the Evaluation Options section.

2.3 Description

The programs consisted of the following activities:

(1) The review of Telesat Canada requests for proposals and actual proposals received by Telesat for the construction of communication satellites to identify opportunities for increasing Canadian content in the satellites and fostering the development of a Canadian prime contractor;

(2) The negotiation with Telesat Canada to include additional Canadian content in proposals and to establish the Canadian content premiums to be paid by the federal government;

(3) The payment of Canadian content premiums;

(4) Verification of payment milestones and Canadian content actually achieved; and

(5) The pro rata refund of premium payments if the agreed upon level of Canadian content is not achieved.

Within Canada the major beneficiary of the programs was SPAR Aerospace Limited which was fostered as the prime contractor. Smaller Canadian space product companies also benefitted as suppliers to SPAR. Outside Canada, Hughes Aircraft, by virtue of its close relationship with SPAR, certainly was a beneficiary of the programs.

The ANIK C and D programs were not stand-alone operations; they were part of a broader federal space policy. To understand the role of the ANIK C and D programs in the overall policy it is important to examine the development of the federal government's role in Canadian space activities.

2.0 PROGRAM PROFILE (Cont'd)

2.3 Description (Cont'd)

In the early days the Canadian space effort was synonymous with the federal government space effort. Alouette 1, for example, Canada's first satellite, launched in 1962, was built in government laboratories.

Since then, however, although government has played a key role as evidenced by the number of departments involved, (the Department of Communications, Energy, Mines and Resources, Environment Canada, National Defense, The National Research Council, Science and Technology Canada and Transport Canada) and the substantial expenditures (see Table 1), there has been a conscious effort by the government to transfer its know-how to the private sector and create a Canadian space products industry.

This policy was reinforced by the Communications Technology Satellite program which included among other objectives, the establishment and maintenance of a joint Canadian government/industry capability for the design, manufacture and assembly of space application systems for domestic use.

Naming SPAR as the prime contractor was one thing; having it actually perform a prime contractor role was something else. Its competitors were large American companies such as Hughes, RCA, Ford Aerospace and Communications, and TRW Systems Group which had been in business for years and who had benefitted from large U.S. military contracts and European companies such as British Aerospace and Aerospatiale which were partially or totally owned by government. In addition, satellite construction is not a high volume business; less than 4,000 have been launched in total. Clearly the fledgling "prime contractor" required some nurturing.

The ANIK C and D program was one of the means chosen to provide this nurturing. By providing premium payments for ANIK C the government induced a higher proportion of the satellite's manufacture in Canada. This experience and additional premiums for ANIK D allowed SPAR to demonstrate for the first time its satellite prime contractor capability.

Still, it is important to emphasize that the ANIK C and D programs, although important programs in their own right, were only part of a larger government effort to establish a Canadian space industry which includes such other activities as research and development support, international marketing support, and the provision of spacecraft testing and integration facilities. Indeed the ANIK C and D programs were only part of the support directed toward the development of a prime contractor, the National Research Council's remote manipulator arm being another program in support of SPAR.

2.0 PROGRAM PROFILE (Cont'd)

2.4 Relation to the Estimates Program

The program was funded under the Space Applications component of the former Communication Program (see 1983-84 Estimates Part III).

The objective of the Space Applications component was:

> "To foster the development of space communications systems facilities and services through new technology, new applications of space technology and support of an industrial base to respond effectively to domestic and export requirements and opportunities".

The ANIK C and D programs relate most directly to industrial support aspects of the Space Applications objective.

2.5 Resources

Table 1 describes past and planned expenditures with respect to ANIK C and D.

Table 1: ANIK C and D Expenditures

	FISCAL YEAR (in $000's of current dollars)					
	1978-79	1979-80	1980-81	1981-82	1982-83 to 1993-94	Total
ANIK-C	2,221	963	1,583	-	-	4,767
ANIK-D	-	7,083	7,648	2,768	4,669	22,168
Total	2,221	8,046	9,231	2,768	4,669	26,935

The above expenditures comprise subsidy payments, made by the Government of Canada, to Telesat Canada. An additional $1.3 million was paid to SPAR Aerospace to support the integration and testing of one ANIK "C" spacecraft.

2.0 PROGRAM PROFILE (Cont'd)

2.5 Resources (Cont'd)

Table 2 describes the person-year requirements associated with the ANIK C and D programs direction.

Table 2: ANIK C and D Program Person-Year Requirements

	FISCAL YEAR						
	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	Total
ANIK C and D	1.0	1.5	1.0	0.5	.25	-	4.25

Table 3 presents expenditures, made by the Government of Canada, to upgrade the David Florida Laboratory. Only part of this expenditure can be charged to the ANIK C and D programs.

Table 3: Capital Expenditures - David Florida Laboratory
(in millions of current dollars)

	FISCAL YEAR					
	1977-78	1978-79	1979-80	1980-81	1981-82	Total
David Florida Laboratory	0.036	2.48	8.224	5.48	1.646	17.866

2.6 Program Activities

The program was concerned with obtaining maximum Canadian content in the design and construction of the ANIK C and D satellite systems. In the case of ANIK-D, an additional objective was the demonstration of SPAR's prime contracting capabilities. Four major activities were undertaken by the program staff. These were:

(1) Review of Telesat Requests for Proposals

This involved examining the specifications of the ANIK C and D satellites to be produced and identifying portions of the work that could be completed in Canada using Canadian skills and materials. This required a knowledge of spacecraft technology and the structure and capability of the Canadian space products industry. The outputs of this activity were a list of components or services that Canadian companies could supply and, an assessment of the feasibility of employing these Canadian resources in the design and construction of the satellites.

2.0 PROGRAM PROFILE (Cont'd)

2.6 Program Activities (Cont'd)

(2) Negotiate Levels for Canadian Content and Payment Premiums

This was the process by which the identified opportunities for including Canadian content in the spacecraft or developing a Canadian prime contractor were built into the request for proposals that Telesat eventually accepted.

The outputs of this activity were: agreements, between the federal government and Telesat Canada, on the size and nature of the Canadian content in the ANIK C and D satellites; arrangements for promoting the development of a Canadian prime contractor; and, the amount of the Canadian content premium to be paid by the federal government to Telesat.

(3) Payment of Canadian Content Premiums

Payment of the premiums was geared to milestones in the development of the satellite system (e.g. delivered satellite, launch of satellite, and achievement of in orbit performance milestones in the case of ANIK-D).

In the case of ANIK-C, a $1.3 million grant was paid directly to SPAR Aerospace to support the integration and testing of one ANIK-C satellite in Canada.

(4) Audit for Canadian Content

This activity was a check to verify that the level of Canadian content agreed upon by Telesat and the federal government was actually achieved. For ANIK-C this involved government participation in the Telesat audit of the accounts of the project sub-contractors to determine the value of Canadian goods and services employed in the development of the spacecraft. For ANIK-D the agreement between Telesat and the federal government allowed the federal government to audit any payments made by Telesat to SPAR under its contract and required Telesat to repay the government a pro rata refund for any shortfall between the guaranteed level of Canadian content and the level achieved.

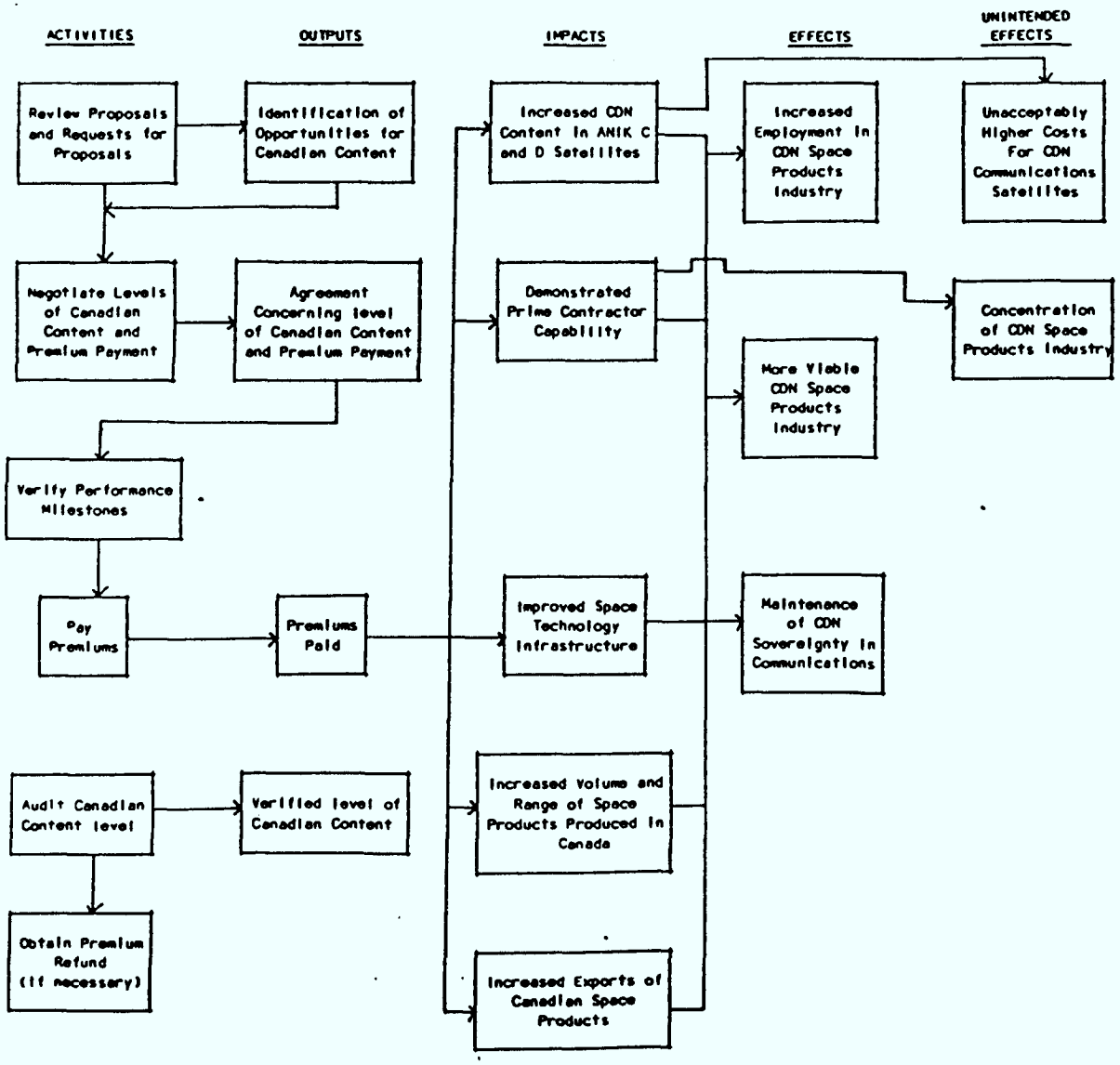
(5) Premium Payment Adjustment

The final activity was to arrange for (if necessary) the pro rata refund (as allowed for in the Telesat/Hughes contract for the provision of ANIK-C spacecraft) of premium payments for any shortfall between the guaranteed level of Canadian content and the level actually achieved.

Telesat's audit of ANIK-D Canadian content has confirmed that the guaranteed Canadian content requirements of $34,655,000 as specified in the Telesat/SPAR contract has been met. Finalization of the ANIK-C audit is still in process.

2.0 PROGRAM PROFILE

2.7 Program Model - Anik C and D Programs



3.0 EVALUATION ISSUES

An evaluation of the ANIK C and D programs would focus on two main issues:

(1) The program's contribution to the development of a Canadian prime contractor for satellites.

(2) The effects of the program on the Canadian space products industry.

To facilitate the design of such an evaluation these two issues have been broken into 19 operational questions and organized according to the Office of the Comptroller General's four main evaluation issues:

Rationale: Does the program make sense?

Impacts and Effects: What has happened as a result of the program?

Objectives Achievement: Has the program achieved what was expected?

Alternatives: Are there better ways of achieving the objectives?

3.1 Rationale

For the program to make sense the objectives would have to be relevant and the means of achieving the objectives reasonable. The questions to be answered here are:

(1) Does Canada require space products?

(2) Is there a need for a Canadian space industry?

(3) Is there a need for a Canadian satellite prime contractor?

3.2 Impacts and Effects

The impacts and effects have been broken into two parts, intended and unintended. Questions related to unintended impacts will follow the section on objectives.

(4) Were the programs responsible for higher Canadian content in the ANIK C and D satellites?

(5) Did the programs result in a larger quantity or wider range of space products being produced in Canada?

(6) Did the program result in more exports of Canadian space products?

3.0 EVALUATION ISSUES (Cont'd)

3.2 Impacts and Effects (Cont'd)

(7) What effect did the programs have on the financial health of SPAR Aerospace?

(8) Did the programs cause an increase in the number or size of space products firms in Canada?

(9) Were the programs responsible for an improvement in Canadian space technology facilities?

3.3 Objectives

(10) Have the programs increased employment in the space products industry?

(11) Has the program improved SPAR's capacity to act as a communications satellite prime contractor?

(12) Could SPAR Aerospace act as a communications satellite prime contractor without its existing working relationship with the Hughes Aircraft Company or other major foreign satellite manufacturer?

3.4 Unintended Impacts and Effects

(13) Did the programs result in unacceptably more expensive communications satellites?

(14) Did the programs cause a more concentrated Canadian space products industry?

3.5 Alternatives

(15) Was the level of funding appropriate?

(16) Would the addition or deletion of program activities have improved the program?

(17) Was the program administered by the appropriate agency?

(18) Would an entirely different institutional arrangement have been more effective (e.g. federal space agency or crown corporation to produce satellites)?

(19) What other programs were aimed at the development of a Canadian space industry?

4.0 INDICATORS

Indicators which would be used to shed light on these questions include:

(1) Expert opinions concerning:

- Canada's need for space based communications technology,
- need for a domestic space industry,
- need for a satellite prime contractor,
- capacity of SPAR Aerospace to act as prime contractor;

(2) Canadian content of communication satellites;

(3) Volume of space products manufactured in Canada;

(4) Range of space products manufactured in Canada;

(5) Exports of space products;

(6) Number of space product firms;

(7) Sales of space products firms;

(8) Space technology facilities;

(9) Space product industry employment;

(10) Satellite costs and bids;

(11) Space industry structure; and

(12) Financial indicators of space product firms.

Table 4 - Issues, Indicators and Information Requirements and Sources

ISSUE	INDICATOR	INFORMATION REQUIREMENTS	SOURCE
RATIONALE			
1. Does Canada need space products?	- Opinions concerning Canada's need for space-based communications technology, the need to have it produced domestically and the importance of a prime contractor capability to a domestic space industry	- Expert opinions	- Policy papers - Interviews with government and industry communications experts
2. Is there a need for a Canadian space industry?			
3. Is there a need for a Canadian satellite prime contractor?			
IMPACTS AND EFFECTS			
4. Were the programs responsible for higher Canadian content in the ANIK C and D satellites?	- Canadian content of pre ANIK C and D satellites compared to Canadian content of ANIK C and D	- Canadian content of pre ANIK C and D satellites - Canadian content of ANIK C and D	- Program records

Table 4 - Issues, Indicators and Information Requirements and Sources

ISSUE	INDICATOR	INFORMATION REQUIREMENTS	SOURCE
IMPACTS AND EFFECTS			
5. Did the programs result in a larger quantity or wider range of space products being produced in Canada?	- Volume and range of space products before and after the ANIK C and D programs	- Volume of space products before and after ANIK C and D programs - Range of space products before and after ANIK C and D programs	- Industry survey - Program records
6. Did the programs result in more exports of Canadian space products?	- Before and after comparison of space product exports	- Space product export before and after ANIK C and D	- Industry survey
7. What effect did the programs have on the financial health of SPAR Aerospace?	- Before and after comparison of various financial indicators	- Financial indicators for SPAR	- SPAR annual reports - Industry survey
8. Did the programs cause an increase in the number or size of space products firms in Canada?	- Before and after comparison of space products firms	- Number of space firms and business volumes before and after ANIK C and D	- Industry survey
9. Were the programs responsible for an improvement in Canadian space technology facilities?	- Before and after comparison of Canadian space technology facilities	- Facilities before and after ANIK C and D	- Program records

Table 4 - Issues, Indicators and Information Requirements and Sources

ISSUE	INDICATOR	INFORMATION REQUIREMENTS	SOURCE
OBJECTIVES			
10. Have the programs increased employment in the space products industry?	- Before and after comparison of space product employment	- Space product employment before and after ANIK C and D	- Industry survey
11. Have the programs improved SPAR's capacity to act as a communications satellite prime contractor?	- Expert opinion	- Opinions	- Interviews with government and industry representatives
12. Could SPAR Aeorspace act as a communications satellite prime contractor without its present working relationship with the Hughes Aircraft Company or other foreign satellite manufacturer?	- Expert opinion	- Opinions	- Interviews with government and industry representatives

Table 4 - Issues, Indicators and Information Requirements and Sources

ISSUE	INDICATOR	INFORMATION REQUIREMENTS	SOURCE
UNINTENDED IMPACTS AND EFFECTS			
13. Did the programs result in unacceptably more expensive communications satellites?	- Comparison of bids from various cources	- Bids for ANIK C and D and similar satellites	- Program records - Telesat Canada records - FCC; industry records - Published documentation
14. Did the programs cause a more concentrated Canadian space products industry?	- Before and after comparison of industry structure	- Number of firms and functions before and after ANIK C and D program	- Departmental records - Industry survey
ALTERNATIVES			
15. Was the level of funding appropriate?	- No specific indicators can be listed at this point. Answers to questions will emerge from analysis of other questions (issues 15 - 19).	N/A	N/A
16. Would the addition or deletion of program activities have improved the program?			
17. Was the program administered by the appropriate agency?			

Table 4 - Issues, Indicators and Information Requirements and Sources

ISSUE	INDICATOR	INFORMATION REQUIREMENTS	SOURCE
18. Would an entirely different institutional arrangement have been more effective? (e.g. Federal space agency, or crown corporations to produce satellites.) 19. What other programs were aimed at the development of the Canadian space products industry?			

6.0 METHODOLODY

An evaluation of the ANIK C and D programs would employ several types of studies to obtain and analyze the information needed to address the identified issues. These would include:

(1) Review of Program Records $10,000

This study would be a source of information related to:

- development of the program rationale
- process by which activities were carried out
- Canadian content of communications satellites
- other DOC activities in support of the space industry
- space industry information (employment, products, etc.)

(2) Interviews with Government Officials and Industry Representatives $10,000

The purpose of this study would be to obtain expert opinions concerning validity of the program's underlying assumptions (i.e. need for a Canadian Space Industry, need for prime contractor) and the program's effectiveness in meeting its objectives.

(3) World Market for Space Products $20,000

The purpose of this study would be to determine the opportunities for the sale of Canadian space products. This is a key factor in assessing the probability of establishing a viable Canadian space products industry.

(4) Survey of Canadian Aerospace Firms $25,000

The purpose of this study would be to provide an additional source of information on issues such as the program rationale, Canadian content of satellites, sales opportunities and alternatives for developing the Canadian space industry.

(5) Case Study of SPAR Aerospace $20,000

As the programs aimed to make SPAR a prime contractor, it is important that the programs' effect on SPAR be determined and because SPAR is a multi-facetted company it would be necessary to undertake a detailed analysis to separate the effects of the program from the many other factors influencing the firm.

6.0 METHODOLODY (Cont'd)

(6) Summary of Other Federal Programs aimed at Development of the Space Products Industry $ 5,000

The purpose of this study would be to compile background information (e.g. objectives, resources, administering, agency, etc.) for other federal space product development programs. While no serious attempt would be made to assess the impact of these programs relative to the ANIK C and D programs, this information would help to describe the environment in which the program operated.

Total: $90,000

7.0 EVALUATION OPTIONS

Of the three options presented below only one (Option 2) is an evaluation of ANIK C and D. Of the remaining two, one (Option 1) suggests that an evaluation is unneccessary and the other (Option 3) suggests that a broader perspective than ANIK C and D is appropriate. Selecting an option is largely a matter of deciding which issues should be addressed and the appropriate scope of an evaluation to address those issues.

Option 1: No Evaluation

This option is consistent with a relatively narrow perspective on the objectives of the programs. If the objectives are seen to be simply increasing the Canadian content of the ANIK C and D satellites and demonstrating SPAR's capacity act as a prime contractor, there is really no need to conduct an evaluation. Information already available demonstrates a rise in Canadian content from roughly 13% for ANIK-A satellites to approximately 60% for BRAZILSAT and SPAR was the designated prime contractor for the ANIK-D and BRAZILSAT programs. There is little doubt that these are direct results of the premium payments. If, however, the relevant questions concern the contribution of the programs' to SPAR's ability to continue to be a prime contractor for satellites or the program's impact on the long-run viability of the Canadian space products industry another option should be selected.

Option 2: ANIK C and D Programs' Contribution to a Viable Canadian Space Industry

As the title suggests, this option would focus on the ANIK C and D programs' impact on the Canadian space products industry. The major advantage of this option is the broader perspective it takes, i.e. the development of the Canadian space products industry; it recognizes that increasing Canadian content and developing prime contractor capability are means of achieving higher order objectives. These higher order objectives are more appropriate for a program evaluation. The major disadvantages of this approach are the limitations imposed by focussing always on the contribution of the ANIK C and D programs.

7.0 EVALUATION OPTIONS (Cont'd)

Option 2: ANIK C and D Programs' Contribution to a Viable Canadian Space Industry (Cont'd)

First, it may be difficult to separate the effects of ANIK C and D from the effects of other programs without a systematic analysis of those other programs; thus, making conclusions about ANIK C and D less reliable. Second, such a narrowly focussed evaluation would be unlikely to show the effects of interactions among the various industry development programs and might even miss the effects of important initiatives.

If, however, an assessment of the ANIK C and D programs' specific effect on the space products industry is wanted, it could be undertaken by conducting studies 1 to 6 (listed in the previous section) at a cost of $90,000 and a substantial demand on program personnel. Such an evaluation would address all issues listed in Section 4.0.

Option 3: DOC Space Program's Contribution to the Development of a Viable Space Products Industry

Selection of this option is consistent with a view that it would be difficult to delineate the incremental effect of the ANIK C and D programs from the effects of other programs and that it would be more appropriate to take a broader look at efforts to create a Canadian space products industry.

An evaluation of the Industry Support component of the Technology Applications and Industry Support Sector is proposed for fiscal year 1985-86. One option for this evaluation would be to select an industry and evaluate the array of TAIS programs operating in support of that industry. If the space products industry were selected, the contributions of such TAIS programs as, Satellite Prime Contractor Development, Subsystem Development, David Florida Laboratory Expansion, Advanced Communications Research and Development, International Bid Support, New Applications of Satellite Communications Technologies and MSAT Bridging could be evaluated.

The assessment for this evaluation would also consider further broadening of the scope to include space related activities of the Research Sector and perhaps the activities of other federal departments.

--EVALUATION ASSESSMENT OF THE ANIK-C AND ANIK-D PROGRAMS.