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MSAT TELCO  
OPPORTUNITY ASSESSMENT  
FINAL REPORT  
EXECUTIVE SUMMARY

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1985  
v.1

Alberta Government Telephones  
B.C. Tel  
Bell Canada  
CITA/ACTI

edmonton telephones  
Island Tel, PEI  
Manitoba Telephone System  
Maritime Tel & Tel

NBTel  
Newfoundland Telephone  
Northern Telephone Limited  
Ontario Northland Telecommunications

Québec-Téléphone  
Saskatchewan Telecommunications  
Télébec Limitée  
Telesat Canada

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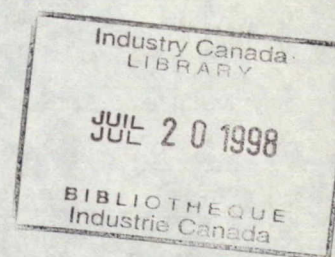
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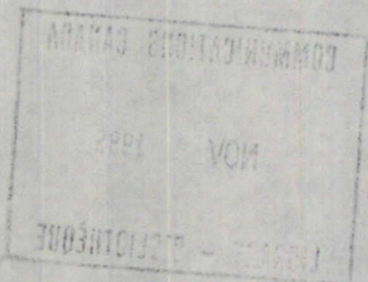
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DEPARTMENT OF COMMUNICATIONS - OTTAWA - CANADA  
TECHNOLOGY AND INDUSTRY SECTOR

TITLE: STUDY TO ASSESS THE IMPACTS AND OPPORTUNITIES PRESENTED  
BY MSAT TO THE TELECOM CANADA FORUM TELEPHONE COMPANIES

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Date: August 28, 1985

## MSAT TELCO OPPORTUNITY ASSESSMENT

### ABSTRACT

The MSAT Telco Opportunity Assessment analyzed the opportunities presented by the MSAT program to the Telecom Canada Forum telephone companies. The study concluded that MSAT services, based on the current assumptions, were generally economically viable from a telco service provider perspective. However, in some cases the contribution was marginal and the economic risks were high, as highlighted by a long discounted payback period.

Assuming that the commercial viability can be maintained or improved, the Forum telephone companies would intend to offer some or all MSAT services. A final decision to this effect would have to be based on a separate analysis of the various MSAT risks and opportunities at such time as service providers are required to make final commitments to MSAT.

It is important to note that this report only deals with the viability of MSAT services from the perspective of a Forum telephone company providing those services. The viability of the MSAT satellite system itself is a separate issue, and is outside the scope of this report. In no way should any of the statements in this document be interpreted as support for the viability of the MSAT satellite system.

## 1.0 EXECUTIVE SUMMARY

### Introduction

The MSAT Telco Opportunity Assessment analyzed the opportunities presented by MSAT services to the Telecom Canada Forum telephone companies. The study was performed under contract to the Department of Communications (DOC) by Telecom Canada on behalf of the Forum.

### Objectives

The primary objectives of the Opportunity Assessment were as follows:

- Determine the potential market for MSAT services from a Forum telephone company perspective;
- Assess the impact of MSAT on existing telephone company services;
- Assess the economic viability of MSAT services;
- Analyze the policy, institutional and marketing issues associated with the implementation of MSAT;
- Examine the technical issues associated with integrating MSAT into existing telephone company networks.

### Methodology

The methodology for the main economic analysis involved:

- a) Development of planning rates from DOC-provided MSAT costs.
- b) Development of MSAT services user forecasts by the Forum telcos based on: MSAT costs and rates; MSAT service description; existing and future plans for terrestrial mobile services; and the telcos' knowledge of their individual mobile markets.



- c) Calculation of capital, expense and revenue cashflows based on the market forecasts.
- d) Calculation of the economic indicators, pro-forma statements and sensitivity analyses.

### Results

- a) Forum telephone company analyses of the market for MSAT voice services (mobile radio and mobile telephone) have resulted in forecasts less than those projected by Telesat and Woods Gordon. These forecasts were developed based on the Forum member's experience in providing mobile communications to their users, coupled with a detailed examination of MSAT planning rates and other service characteristics. In particular:
  - The Forum MSAT mobile telephone forecast was 10% less than the Telesat figure. However, the Forum forecast is comprised largely on the Bell Canada forecast for Ontario and Quebec, which in turn is based on Telesat's forecast. Bell is conducting an independent study to verify the potential MSAT market in Ontario and Quebec.
  - The Forum MSAT mobile radio forecast was incomplete since neither B.C. Tel nor Bell Canada plan to offer MSAT mobile radio service at this time. The territory covered by the remaining Forum members comprises 37% of Telesat's MSAT mobile radio forecast. However, the Forum forecast for this territory was 83% less than the Telesat forecast for these areas.

The actual size of the market remains as one of the most important issues to be resolved, given the fundamental link between market size and commercial viability, both for Telesat and the service providers.



Given the period of time remaining until MSAT becomes available in 1990, changes in the MSAT system, the existing mobile market and the Canadian communications industry will require an ongoing review and updating of the MSAT market forecasts.

- b) The impact of MSAT on existing telephone company mobile services will be negligible due to the high costs of MSAT access, airtime and terminals. Similarly, the financial impact on message toll will be minimal, though the potential policy precedent resulting from an MSAT routing configuration which bypasses the toll network must be resolved.
- c) From the perspective of a telephone company providing services to end-users, MSAT services are economically viable. This is based on the current assumptions for MSAT equipment, access and airtime costs. Capital investment is relatively low, which reduces the overall risk for a service provider. On the other hand, the discounted payback period exceeds the preferred limit of approximately five years for a number of the member companies.

One solution to the long discounted payback period may be to increase the airtime rates from the current assumed \$1.50/minute to approximately \$1.75/minute. This results in a healthy increase in the NPV and a reduction in the discounted payback period. A complete understanding of the effect of such an increase will require more detailed information on the price/demand relationship of MSAT services.

- d) The policy analysis has confirmed the expected diversity in policy and institutional positions across Canada. Certain issues will have to be addressed by DOC, the provincial governments, regulators, and the telephone

companies in preparing for the implementation of MSAT services. However, it should be noted that the existing diversity has not hampered the development of a viable Canadian mobile market.

- e) An analysis of MSAT mobile telephone service numbering plan and interconnection requirements indicated that these technical issues can be resolved in a cost-effective manner.

#### Areas of Concern

The opportunity assessment identified several areas of concern to potential telco MSAT service providers. These include:

- The previously discussed uncertainty surrounding the MSAT market.
- The technical risks remaining in the MSAT system, in particular those associated with mobile terminals and antennas.
- The uncertainties surrounding ground segment equipment costs i.e. gateways, base stations, mobile terminals and mobile antennas.
- The question of Telesat's role as a potential competitor and Telesat's requirements for up-front commitment for MSAT capacity.

The Forum telcos recognize that these risk areas will not be resolved for some time to come. Hopefully when the time comes for the telcos to make their final commitments to MSAT, a detailed risk analysis can be performed which will satisfactorily answer these questions.

### Forum Position on MSAT

Based on the preceding results, the Forum telcos propose to offer some or all MSAT services, assuming that the current economic viability is maintained or can be improved. This also assumes that the institutional framework and regulatory environment are satisfactory from a Forum telco perspective.

In order to ensure that the MSAT system design meets telco requirements and to ensure that the telcos have access to the necessary information to assess the risks and opportunities of offering MSAT services, the Forum telcos will continue to participate in the DOC/Telesat MSAT program.

### Level of Confidence in Results

The Forum telephone companies have a medium degree of confidence in the results of this study. This estimate recognizes that, while the study itself has been carried out in a manner acceptable for this type of assessment, the results of any study are only as good as the inputs. In some cases, such as market forecasts, the input data is preliminary and will likely change between now and when the satellite is launched. Other input data, such as MSAT equipment costs, showed a disturbing tendency to fluctuate during the course of the study. These points must be considered when evaluating the results.



SUMMARY OF TELECOM CANADA FORUM  
TELEPHONE COMPANIES' FORECASTS FOR  
MSAT SERVICES (NOTE 1)

	<u>AGT</u>	B.C. <u>TEL</u>	BELL <u>CANADA</u>
MOBILE	- 182 -	- 2995 -	- 8070 -
TELEPHONE	Monopoly	Competitive:	Competitive:
SERVICE		70% Share	70% share
REMOTE	No	Monopoly:	Monopoly:
TELEPHONE	Requirement	Included	Included
SERVICE		in Mobile Telephone	in Mobile Telephone
MOBILE	- 90 -	Do not	Do not
RADIO	Competitive:	intend to	intend to
SERVICE	40% Share	provide at this time	provide at this time
DATA	- 107 -	Do not	No
ACQUISITION	Competitive:	intend to	Forecast
AND CONTROL	40% Share	provide at	Available
SERVICE		this time	
PAGING	No	No	No
SERVICE	Market	Market	Market
DATA	No	No	No
TRANSMISSION	Forecast	Forecast	Forecast
SERVICE	Available	Available	Available

Note 1: Numbers shown between dashes are the telco's estimate of its share of the market in the year 2001. The competitive/monopoly designation of the service is shown. In the case of a competitive service, the telco's market share is also indicated.

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	<u>edmonton</u> <u>tel</u>	<u>ISLAND</u> <u>TEL (PEI)</u>	<u>MANITOBA</u> <u>TEL</u>
MOBILE	Due to edmonton	Given	- 63 -
TELEPHONE	tel's urban	existing	Monopoly
SERVICE	operating ter-	province-	
	ritory, a	wide mobile	
REMOTE	decision to	coverage,	- 26 -
TELEPHONE	offer MSAT	Island Tel	Monopoly
SERVICE	services would	does not	
	be premature	foresee a	
MOBILE	at this time	market for	- 63 -
RADIO		MSAT services	Competitive:
SERVICE		at this time	50% Share
DATA			- 11 -
ACQUISITION			Competitive:
AND CONTROL			50% Share
SERVICE			
PAGING			No
SERVICE			Market
DATA			No
TRANSMISSION			Forecast
SERVICE			Available

SUMMARY OF TELECOM CANADA FORUM  
TELEPHONE COMPANIES' FORECASTS FOR  
MSAT SERVICES (NOTE 1)

	MARITIME <u>TEL &amp; TEL</u>	<u>NBTEL</u>	NEWFOUNDLAND <u>TEL</u>
MOBILE TELEPHONE SERVICE	- 113 - Monopoly	- 200 - Monopoly	- 56 - Monopoly
REMOTE TELEPHONE SERVICE	No Requirement	- 50 - Monopoly	- 6 - Monopoly
MOBILE RADIO SERVICE	- 376 - Competitive: 60% Share	- 300 - Competitive: 60% Share	- 351 - Competitive: 70% Share
DATA ACQUISITION AND CONTROL SERVICE	Negligible Market	- 100 - Competitive: 50% Share	- 84 - Competitive: 70% Share
PAGING SERVICE	No Market		- 144 - Competitive: 70% Share
DATA TRANSMISSION SERVICE	No Forecast Available	- 125 - Mobile Telephone - 375 - Mobile Radio	No Forecast Available



SUMMARY OF TELECOM CANADA FORUM  
TELEPHONE COMPANIES' FORECASTS FOR  
MSAT SERVICES (NOTE 1)

	NORTHERN <u>TEL</u>	ONTARIO NORTHLAND <u>TELECOM</u>	QUEBEC <u>TEL</u>	<u>SASKTEL</u>
MOBILE TELEPHONE SERVICE	Mobile telephone forecast included in Bell Canada.	Mobile telephone forecast included in Bell Canada's forecast.	- 332 - Monopoly	- 250 - Monopoly
REMOTE TELEPHONE	Any deci- sion to offer MSAT services	Any deci- sion to offer MSAT services	No requirement	- 200 - Monopoly
MOBILE RADIO SERVICE	would be premature at this time.	would be premature at this time.	- 464 - Competitive: 50% Share	Included in MSTs
DATA ACQUISITION AND CONTROL SERVICE			No Forecast Available	- 500 - Competitive: 100% Share
PAGING SERVICE			No Market	No Market
DATA TRANSMISSION SERVICE			No Forecast Available	No Forecast Available

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MSAT TELCO OPPORTUNITY ASSESSMENT :  
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